DATE: July 29, 2026

PCN #: 2840

PCN Title: Change Mold Compound, Die Attach Epoxy Type and Bond Wire Type for Select Automotive Products

Dear Customer:

This is an announcement of change(s) to products that are currently being offered by Diodes Incorporated.

We request that you acknowledge receipt of this notification within 30 days of the date of notification by contacting your local Diodes sales representative. If you require samples for evaluation purposes, please submit a corresponding request within 30 days as well. Otherwise, samples may not be built prior to the implementation of the announced change(s).

The change(s) announced in this PCN will not be implemented prior to the target implementation date, i.e. 90 days from the stated notification date, unless Diodes receives written customer approval before that date.

Previously agreed upon customer specific product and/or process change requirements will be addressed separately.

For questions or clarification regarding this PCN, please contact your local Diodes sales representative.

Sincerely,

Diodes Incorporated PCN Team

PRODUCT CHANGE NOTICE PCN-2840-REV1

Notification Date:	Implementation Date:	Product Family:	Change Type:	PCN #:
July 29, 2026	October 28, 2026	Discrete Semiconductor	Assembly Bill of Materials	**2840**

TITLE

Change Mold Compound, Die Attach Epoxy Type and Bond Wire Type for Select Automotive Products

DESCRIPTION OF CHANGE

This PCN is being issued to notify customers that in order to assure continuity of supply, Diodes has qualified new mold compound, die attach epoxy type and bond wire type at Diodes internal assembly and test site (SAT) for select automotive products listed below.

Full electrical characterization and high reliability testing have been completed on representative part numbers to ensure there is no change to device functionality or electrical specifications in the datasheet.

There will be no change to Form, Fit or Function of products affected for the parts listed below.

IMPACT

Continuity of Supply. No change in datasheet electrical parameters and product performance.

PRODUCTS AFFECTED

Table 1 – Affected Part List to Change Mold Compound
Table 2 – Affected Part List to Change Die Attach Epoxy Type
Table 3 – Affected Part List to Change Bond Wire Type Only

WEB LINKS

Manufacturer's Notice:	https://www.diodes.com/quality/product-change-notices/diodes-product-change-notices/
For More Information Contact:	https://www.diodes.com/about/contact-us/contact-sales/
Data Sheet:	https://www.diodes.com/catalog/

DISCLAIMER

Unless a Diodes Incorporated Sales representative is contacted in writing within 30 days from the notification date of this PCN, all changes described in this announcement are considered approved.

Table 1 - Affected Part List to Change Mold Compound					
2N7002KQ-13	BCV46QTA**	DDTC143ZCAQ-13-F**	DMP1045UQ-7*	FMMT560QTC	MMBT2222AQ-7-F**
2N7002KQ-7	BSS123Q-13	DDTC143ZCAQ-7-F**	DMP2035UQ-7	FMMT591AQTA**	MMBT2907AQ-7-F**
2N7002Q-7-F	BSS123Q-7	DDTC144ECAQ-13-F**	DMP2100UQ-7*	FMMT591QTA**	MMBT3904Q-7-F**
BC807-40Q-13-F**	BSS138Q-7-F	DDTC144ECAQ-7-F**	DMP2305UQ-7	FMMT591QTC**	MMBT3906Q-13-F**
BC807-40Q-7-F**	BSS84Q-13-F	DMG2302UQ-7*	DMP3130LQ-7	FMMT593QTA**	MMBT3906Q-7-F**
BC817-40Q-13-F**	BSS84Q-7-F	DMG2305UXQ-13*	DMP3160LQ-7	FMMT618QTA**	MMBT4401Q-13-F**
BC817-40Q-7-F**	D20V0L1B2WSQ-7*	DMG3414UQ-13*	FMMT458QTA	FMMT619QTA**	MMBTA05Q-13-F**
BC846AQ-7-F**	DDTA114ECAQ-13-F**	DMG3414UQ-7*	FMMT459QTA	FMMT620QTA**	MMBTA06Q-7-F**
BC846BQ-13-F**	DDTA114ECAQ-7-F**	DMG3415UQ-7	FMMT491AQTA**	FMMT625QTA**	MMBTA55Q-13-F**
BC846BQ-7-F**	DDTA144ECAQ-13-F**	DMG3420UQ-7*	FMMT491QTA**	FMMT634QTA**	MMBTA56Q-13-F**
BC847AQ-7-F**	DDTC114ECAQ-13-F**	DMG6968UQ-7	FMMT491QTC**	FMMT717QTA**	MMBTA56Q-7-F**
BC847BQ-7-F**	DDTC114ECAQ-7-F**	DMN2230UQ-13*	FMMT493QTA**	FMMT718QTA**	MMBTA92Q-7-F**
BC847CQ-7-F**	DDTC114YCAQ-13-F**	DMN2230UQ-7*	FMMT495QTA**	FMMT720QTA**	ZXMN3A01FQTA
BC848CQ-7-F**	DDTC114YCAQ-7-F**	DMN3404LQ-7	FMMT555QTA**	FMMTA42QTA**	ZXMN6A07FQTA
BC856BQ-13-F**	DDTC123ECAQ-7-F**	DMN5L06KQ-7	FMMT558QTA	FMMTA92QTA**	ZXMP6A13FQTA
BC857BQ-7-F**	DDTC143TCAQ-7-F**	DMN65D8LQ-13*	FMMT560QTA		

Table 2 - Affected Part List to Change Die Attach Epoxy Type					
2DA1201YQTC*	BCX5616QTC	DMN6066SSDQ-13	DMP6110SSSQ-13	FZT591AQTA*	ZXMP6A16DN8QTA
2DA1797Q-13	BCX6825QTA*	DMN6066SSSQ-13	DMP6180SK3Q-13	FZT657QTA	ZXMP6A17DN8QTC
2DA1971Q-7*	BSR33QTA	DMN6069SFGQ-13	DSS4160TQ-7*	ZTD09N50DE6QTA	ZXMP6A17E6QTA
2DB1184Q-13	BSR43QTA	DMN6069SFGQ-7	DSS5160TQ-7*	ZVP4424ZQTA	ZXMP6A18DN8QTC
BCP5316QTA	DMC3028LSDXQ-13	DMP10H400SEQ-13	DSS5220TQ-13*	ZXGD3001E6QTA*	ZXT13N50DE6QTA
BCP53QTA	DMC4028SSDQ-13	DMP2006UFGQ-13	DSS5220TQ-7*	ZXGD3003E6QTA	ZXT13P40DE6QTA
BCP5616QTA**	DMC4029SSDQ-13	DMP2006UFGQ-7	DSS5240TQ-7*	ZXGD3004E6QTA*	ZXTC2045E6QTA
BCP5616QTC	DMC6040SSDQ-13	DMP3028LK3Q-13	DXT651Q-13	ZXGD3006E6QTA	ZXTD6717E6QTA
BCR401UW6Q-7	DMHC3025LSDQ-13	DMP4013LFGQ-13	DXT690BP5Q-13	ZXMC3A16DN8QTA	ZXTN2010ZQTA
BCR402UW6Q-7*	DMHC4035LSDQ-13	DMP4013LFGQ-7	DXTN07100BP5Q-13*	ZXMN10A08E6QTA	ZXTN25060BZQTA*
BCR405UW6Q-7*	DMN10H170SK3Q-13	DMP4025LSDQ-13	DZT5551Q-13	ZXMN10B08E6QTA	ZXTN4004ZQTA*
BCR421UW6Q-7*	DMN3009SFGQ-13	DMP4047SSDQ-13	FCX491AQTA*	ZXMN6A08E6QTA	ZXTP01500BGQTC
BCX5216QTA*	DMN3009SFGQ-7	DMP4050SSDQ-13	FCX491QTA*	ZXMP10A17E6QTA	ZXTP19100CZQTA
BCX5216QTC*	DMN4026SSDQ-13	DMP6023LFGQ-13	FCX558QTA*	ZXMP10A17GQTA	ZXTP2012ZQTA
BCX5316QTA	DMN4027SSDQ-13	DMP6023LFGQ-7	FCX591AQTA*	ZXMP10A17GQTC	ZXTP25140BFHQTA*
BCX5616QTA*	DMN6040SK3Q-13	DMP6110SSDQ-13	FCX619QTA*	ZXMP4A57E6QTA	

Note: “*” Change bond wire from Cu to PdCu

Note: “**” Change bond wire from Au to PdCu

Table 3 - Affected Part List to Change Bond Wire Type Only					
ACX114EUQ-13R*	ADC114YUQ-13*	ADTA143ZUAQ-13*	BAS70-04Q-7-F**	DESD24VS2SOQ-7**	FMMT723QTA*
ACX114EUQ-7R*	ADC114YUQ-7*	ADTC114ECAQ-13*	BAT54Q-7-F**	DMN2013UFDEWQ-7*	MMST5551Q-7-F*
ACX114YUQ-13R*	ADC124EUQ-13*	ADTC114YUAQ-13*	BAV170Q-13-F**	DMN5L06DMKQ-7*	MMSTA56Q-7-F*
ACX114YUQ-7R*	ADC124EUQ-7*	ADTC124ECAQ-13*	BAV199Q-7-F**	DMP2021UTSQ-13*	SBR1A40S3Q-7*
ACX124EUQ-13R*	ADC143TUQ-7*	ADTC124ECAQ-7*	BAV21WSQ-7-F**	DMP2160UFDBQ-7*	SBRT05U20LPSQ-7B*
ACX124EUQ-7R*	ADC143ZUQ-13*	ADTC143TCAQ-7*	BAW156Q-13-F**	DMW2013UFDEQ-13*	SD103AWSQ-7-F**
ACX143ZUQ-13R*	ADC143ZUQ-7*	ADTC143ZCAQ-13*	BC856BQ-7-F**	DXT5551P5Q-13*	UMC5NQ-7*
ACX143ZUQ-7R*	ADC144EUQ-13*	ADTC143ZCAQ-7*	BCR420UFDQ-7*	DXTN3C100PSQ-13*	ZXTP56020FDBQ-7*
ADA114EUQ-13*	ADC144EUQ-7*	ADTC143ZUAQ-7*	BCR421UFDQ-7*	DXTN3C60PSQ-13*	ZXTP56060FDBQ-7*
ADA114EUQ-7*	ADTA114ECAQ-13*	ADTC144WCAQ-7*	BZT52C15Q-7-F**	DXTP3C100PSQ-13*	ZXTR2105FQ-7*
ADA114YUQ-7*	ADTA114ECAQ-7*	BAS20DWQ-13**	BZT52C16SQ-7-F**	DXTP3C60PSQ-13*	ZXTR2108FQ-7*
ADC114EUQ-13*	ADTA143XUAQ-7*	BAS521Q-13**	D5V0L1B2TQ-7**	FMMT614QTA*	ZXTR2112FQ-7*
ADC114EUQ-7*					

Note: “*” Change bond wire from Cu to PdCu

Note: “**” Change bond wire from Au to PdCu

Certificate of Design, Construction & Qualification

Description: SAT Au wire and Cu wire change to PdCu wire

	Category				Qual Device 1		Qual Device 2		Qual Device 3		Qual Device 4		Qual Device 8		Qual Device 9		Qual Device 10		Qual Device 11		Qual Device 12		Qual Device 13		Qual Device 14	
	Product	Part Number			DMN2005LP4K-7B-36		DMTH4014LPDQ-13-2485		DMN31D5UDA-7B		ZXTP25040DFHTA-73		SDM20U40-7-73		FMMT718TA		DXT13003DG-13		L25L5V0CB2		DDZ16B5F-7		BAV21WS-7-F-67		DMG2302UKQ-7	
	Assembly	Package Type			DFN1006H4-3		PowerDI5060-8L E		DFN0806H4-6		SSOT-23		SOD-523		SOT-23		SOT-223		SOD-323		SOD-323F		SOD-323		SSOT-23	
	Wafer	Die Name(s)			DN14492		MOSWFVP5106AT56-BN		DF37N30AE		X25P40DPWD		GY018AA0040AMB7-BIN		JMMT718F		DW008		LC1305V0-BNN		N4160B-QF107AZ142		S0D331DHJ		MOSWFSEDCM-BN	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.3*0.3*0.105		1.8*0.68*0.158mm		0.23*0.23*0.105		0.81*0.81*0.178mm		0.46*0.46*0.14mm		0.9144*0.8636		1.56*1.56*0.275mm		0.760 x 0.666 x 0.140		0.35*0.35		0.41*0.41		0.6*0.42*0.158	
	Wafer	Die Process / Technology			Trench MOS		MOSFET		Trench MOS		Transistor		SKY		PNP		Transistor		TVS		SBR		SBR		Trench MOS	
	Wafer	Wafer FAB Site/ Location			HHgrace / Shanghai		VIS		SFAB2 / Shanghai		OFAB		GFAB / UK		JKFAB		JMSC		KLFAB6		JKFAB		PHENITEC		PSMC / Taiwan	
	Wafer	Wafer Diameter			8 inch		8 inch		8 inch		6"		6"		6"		5"		150mm		6"		5"		8 inch	
	Wafer	No of masks Steps			7		6		7		3		3		6		5		15		not available		5		7	
	Wafer	Front Metal Type			AlCu		AlCu		AlCu		Al-Si, 6um		TiAlSiCu		Al-Si-Cu, 3um		Al, 4.5um		AlSiCu		AlSiCu		AlSiCu		AlCu	
	Wafer	Front Metal Layer Number/ Thickness			1/4um		4um		1/4um		Al-Si, 6um		2um		Al-Si-Cu, 3um		Al, 4.5um		2um		2um		2.5um		1/4um	
	Wafer	Front Solderable or Plated Metal Type / Thickness			NA		N/A		NA		N/A		NA		N/A		N/A		NA		not available		not available		NA	
	Wafer	Back Metal Type (All Layers)			Ti/Ni/Ag		Ti/Ni/Ti/Ag		Au		Ti/NiV/Ag		NiVAu		Au		Ti/Ni/Ag		None		None		AuAs/Au		Ti/Ni/Ag	
	Wafer	Back Metal Thickness (All Layers)			1KA/3KA/10KA		1KA/3KA/100A/10KA		6 kA		0.03 / 0.26 / 0.55mm		0.5um		0.6um		0.04 / 0.3 / 0.15um		NA		None		0.9um		1KA/3KA/10A	
	Wafer	Die Conformal Coating (Passivation) Material			Oxide		OXIDE / SIN		Oxide		Ox/Nitride		NA		Ox/Nitride		N/A		1. SiO2(ZKA) 2. SiN(6.2KA)		not available		PSG+NSG		Oxide	
	Wafer	Die Conformal Coating (Passivation) Thickness Range			PE-SION 10000A		4K/6K		TEOS 3K+SiN 7K		0.5mm / 0.5mm		NA		0.5um / 0.5um		N/A		1. SiO2(ZKA) spec: 1800 ~ 2200A 2. SiN(6.2KA) spec: 5580 ~ 6820A		not available		8000A		SiN 9000A	
	Assembly	Die quantity per package (e.g. single or dual dies)			single die		dual dies		dual dies		single die		single die		single die		single die		single die		single die		single die		single die	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EPOXY		EPOXY		EUTECTIC		EPOXY		EUTECTIC		EUTECTIC		EPOXY		WBC		EUTECTIC		EUTECTIC		EPOXY	
	Assembly	Die Attach Material/ Supplier			QMI519/ HENKEL		QMI529HT-LV/ HENKEL		N/A		8200TI/ HENKEL		N/A		N/A		8500C-HT/ BONOTEC		8006NS/ HENKEL		N/A		N/A		9005SP/ LEGEND	
	Assembly	Bond Wire/Clip Bond Material			PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu	
	Assembly	Bond Wire Diameter			0.8 mils		2.0 mils		0.7 mils		2.0 mils		0.8 mils		1.5 mils		1.5 mils		1.2 mils		0.8 mils		0.7 mils		1.0 mils	
	Assembly	Bond Type (at Die)			Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond	
	Assembly	Bond Type (at LF)			Wedge bond		Wedge bond		Ball bond		Wedge bond		Wedge bond		Wedge bond		Ball bond		2 wires		Wedge bond		Wedge bond		Wedge bond	
	Assembly	No. of bond over active area			2 wires		20 wires		4 wires		4 wires		1 wire		3 wires		2 wires		2 wires		1 wire		1 wire		5 wires	
	Assembly	Leadframe Type			SLP1006P3		POWERDI5060-8L T		SLP0806P6-8		SOT-23R		SOD-523A		SOT-23F		SOT-223B		SOD-323B		SOD-323F		SOD-323A		SOT-23K	
	Assembly	Leadframe Material			C7025		Cu194		Cu194		Cu194		Alloy42		Alloy42		Alloy42		Cu194		C19400		Cu194		Cu194	
	Assembly	Die Pad Plating Material			Pd PPF Plating		selective Ag Plating		selective Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating	
	Assembly	Mold Compound Type			EME-G770HCD		EME-G700		EME-G770HCD		GR640HV-L1		CEL-1700HF40SK-D3		GR640HV-L1		EME-G630AY		CEL-1702HF9 SK		CEL-1700HF40SK-D3		CEL-1700HF40SK-D3		CEL-1700HF40SK-D3	
	Assembly	Glass Transistion Temp (Tg)			135°C		130°C		135°C		158°C		150°C		158°C		140°C		150°C		150°C		150°C		150°C	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Terminal Finish (Plating) Material			PPF plating		Sn		PPF plating		Sn		Sn		Sn		Sn		Sn		Sn		Sn		Sn	
	Assembly	Lead-Free (Yes/No)			N/A		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			150°C		175°C		150°C		150°C		150°C		150°C		150°C		125°C		150°C		150°C		150°C	
	Product	Max Thermal resistance Junc (case)			NA		3.5 °C/W		NA		45°C/W		N/A		N/A		N/A		NA		NA		NA		N/A	
	Product	Max Thermal resistance Junc (ambient)			280 °C/W		62.6 °C/W		339°C/W		171°C/W		660°C/W		200°C/W		178°C/W		NA		250°C/W		625°C/W		115°C/W	
	Product	Datasheet			DMN2005LP4K_R9		DMTH4014LPDQ-13-01_R1		DMN31D5UDA_R4		ZXTP25040DFH		SDM20U40_R12		FMMT718_R5		DXT13003DG_R1		L25L5V0CB2_R4		DDZ16B5F		BAV19WS-BAV21WS_R23		DMG2302UKQ_R2	
	Product	Qual Plan Number			25080801		25080801		25080801		25080801		25080801		25080801		25080801		25080801		25080801		25080801		25080801	

Reliability and Characterization Testing

# in AEC Q101 (E)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
A1	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test # A2, A3, A4, AS & C8	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles (First cycle can be done at PCB mounting process before Pre-conditioning)			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A2 (PC)	HAST-1x	Ta=130C, 85%RH, 33.3 psia, 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V) ; PER JESD22-A110	96 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x HAST Ball + Stitch/Wedge pull (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots			X	Pass																			X	Pass
	Post-1x HAST Ball Shear (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots			X	Pass																			X	Pass
	Post-1x HAST Cross-section (Q006 only)	Post-1x HAST for initial qual of new die/package or family/technology	post 96 Hrs	0/1	3 wafer lots			X	Pass																			X	Pass
	HAST-2x (Q006 only)	Ta=130C, 85%RH 33.3 psia 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V); PER JESD22-A110 (required to qualify Cu/coated Cu wire for Automotive)	192 Hrs	0/70	3 wafer lots																							X	Pass
A2alt (PC)	H3TRB-1x	Ta=85?C, 85% RH, with 80% Maximum Reverse Bias or up to a maximum of 100V or limit of chamber. JESD22A-101	168 Hrs	0/77	3 wafer lots									X	Pass														
			500 Hrs	0/77										X	Pass														
			1000 Hrs	0/77										X	Pass														
A4 (PC)	TC[1 (NV)] -1x	Ta= -55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x TC CSAM (Q006 only)	CSAM post-1X stress (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Cycles	0/22 or marked 11	3 Assembly lots																							X	Pass
	Post-1x TC Ball + Stitch/Wedge pull (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots																							X	Pass
	Post-1x TC Ball Shear (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots																							X	Pass
	Post-1x TC Cross-section (Q006 only)	Post-1x TC for initial qual of new die/package or family/technology	post 1000 Cycles	0/1	3 Assembly lots																							X	Pass
	TC -1x	Ta= -55C to 175C Per Datasheet Max Tj , PER JESD22A-104	200 Cycles	0/77	3 Assembly lots			X	Pass																				
			400 Cycles	0/77				X	Pass																				
	Post-1x TC CSAM	CSAM post-1X stress (required to qualify Cu/coated Cu wire for Automotive)	post 400 Cycles	0/22 or marked 11	3 Assembly lots			X	Pass																				
	Post-1x TC SEM Inspection (Stitch) (Q006 only)	Post-1x TC (Max 30 wires/balls) covering the parts with ground bonds and the parts showing delam at the stitch area if any	post 400 Cycles	0/1	3 Assembly lots			X	Pass																				
	Post-1x TC Ball + Stitch/Wedge pull	Post-1x TC (Max 30 wires/balls)	post 400 Cycles	0/3	3 Assembly lots			X	Pass																				
	Post-1x TC Ball Shear	Post-1x TC (Max 30 wires/balls)	post 400 Cycles	0/3	3 Assembly lots			X	Pass																				
	Post-1x TC Cross-section	Post-1x TC for initial qual of new die/package or family/technology	post 400 Cycles	0/1	3 Assembly lots			X	Pass																				
A4a (PC)	TC Hot Test (for MOSFETs)	JESD22 A-104, Appendix 6 - Not required for Cu wire bonded parts that are qualified to Q006	125C TEST after TC using PV-determined limits at hot, followed by decap and wire pull on all wires from 5 devices with bond wire sizes < 5mil	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass																	X	Pass
A5 (PC)	IOL-1x	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass					X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass					X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass					X	Pass	X	Pass	X	Pass
B1	HTRB-1x	Ta=150°C or Max Tj, Max DC Reverse Voltage PER MIL-STD-750-1. Decap are wire pull 5 parts for Bipolar and Schottky devices usilizing dissimilar metal bonding systems.	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass					X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass					X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass					X	Pass	X	Pass
	Post-1x HTRB Ball Shear (Q006 only)	Post-1x HTRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots			X	Pass																				
	Post-1x HTRB Cross-section (Q006)	Post-1x HTRB for initial qual of new die/package or family/technology ((required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots			X	Pass																				
	HTRB-2x (Q006)	Ta=150°C or Max Tj, Max DC Reverse Voltage, PER MIL-STD-750-1 (required to qualify Cu/coated Cu wire for Automotive)	2000 Hrs	0/77	3 wafer lots																							X	Pass
	Post-2x HTRB Ball Shear (Q006 only)	Post-2x HTRB (Max 30 wires/balls)	post 2000 Hrs	0/3	3 wafer lots																							X	Pass
	Post-2x HTRB Cross-section (Q006)	Post-2x HTRB for initial qual of new die/package or family/technology	post 2000 Hrs	0/1	3 wafer lots																							X	Pass
B1a	AC blocking voltage	Thyristors only MIL-STD-750-1 M1040																											
B1b	Steady State Operational (Zeners Only)-1x	MIL-STD-750-1, M1038 Condition B (Zeners), at rated IZ max, TA to rated TJ, TEST before and after SSOP as a minimum.	168 Hrs	0/77	3 wafer lots																			X	Pass				
			500 Hrs	0/77																				X	Pass				
			1000 Hrs	0/77																				X	Pass				
B2	HTGB (Gated Devices only) -1x	Ta=150°C or Max Tj, Vg=100%, PER JESD22 A-108. Decap are wire pull 5 parts for MOSFET devices usilizing dissimilar metal bonding systems. Perform 3 lots of negative bias and 3 lots of positive bias for the initial qualification of a new technology, if appropriate.	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass																	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass																	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass																	X	Pass
	Post-1x HTGB Ball Shear (Q006 only)	Post-1x HTGB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots			X	Pass																			X	Pass
	Post-1x HTGB Cross-section (Q006 only)	Post-1x HTGB for initial qual of new die/package or family/technology (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots			X	Pass																			X	Pass
	HTGB-2x (Q006 only)	Ta=150°C or Max Tj, Vg=100%, PER JESD22 A-108 (required to qualify Cu/coated Cu wire for Automotive)	2000 Hrs	0/77	3 wafer lots																							X	Pass
C1	DPA	AEC Q101-004 SEC. 4	Post H3TRB or HAST and TC	0/2	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C3	Wire Bond Pull Strength (WBP)	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk≥1.67	0/ min of 5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C4	Wire Bond Shear Strength (WBS)	AEC-Q101-003	Cpk≥1.67	0/ min of 5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C8 (PC)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S), after Pre-conditioning	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E0	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E2	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet inlcuding AC & DC accross data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass

Summary:
Submitted By/Date:
Approved By/Date: CW Lin, 4/9/2026

Certificate of Design, Construction & Qualification

Description: SAT Au wire and Cu wire change to PdCu wire

	Category				Qual Device 15		Qual Device 16		Qual Device 17		Qual Device 18		Qual Device 19		Qual Device 20		Qual Device 21		Qual Device 23		Qual Device 24		Qual Device 25		Qual Device 27	
	Product	Part Number			B130LAW-7-F-79		L09ESD3V3CA2		ZXMS6004N8-13		DMN6068LK3-13		DXTN3C100PSQ-13		DMN2019UTS-13		DMG1016VQ-13-52		S8RT05U20LPSQ-7B		DMTH4008LPSQ-13		BCX5616QTA		ZXT12N20DXTA	
	Assembly	Package Type			SOD-123		SOD-523		SOP-8L		TO252-3L		SWP-PowerDI5060-8L Q		TSSOP-8L		SOT-563		DFN1006H4-2		PowerDI5060-8L		SOT89-3L		MSOP-8L	
	Wafer	Die Name(s)			SY034AA0030AAD4-C		BIESD12-3V3T		ZXMS6004TXD		ALB90CXX		SX12N100CD		ON14101 ON14102		ON14263 ON14273		NT016AA0020BAAB		MOSWFVP5105AT34-BN		BCX5616TYQD		X12N200TPWD	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.88*0.88*0.23mm		0.3048 x 0.3048 x 0.150		1.070*1.070		1.160*0.98*0.158mm		1.7272*0.8382*0.203mm		1.07*0.67*1.78		0.4*0.4*1.58		0.41*0.41*0.10mm		1.6*1.05		0.685B*0.685B		1.7272*0.8382	
	Wafer	Die Process / Technology			SKY		TVS		SVMOS3		MOSFET		Transistor		Trench MOS		Trench MOS		Trench SBR		MOS		NPN		NPN	
	Wafer	Wafer FAB Site/ Location			SIMAT / China		YEASHIN		OFAB		VIS		OFAB		HHgrace / Shanghai		HHgrace / Shanghai		VIS / TW		VIS / TW		OFAB		OFAB	
	Wafer	Wafer Diameter			6"		100mm		6"		8 inch		6"		8 inch		8 inch		8"		8"				6"	
	Wafer	No of masks Steps			3		3		9		6		5		7		7		3		6				5	
	Wafer	Front Metal Type			TiAlSiCu		Al		TiTiN+2um AlSi1Cu0.5		AlCu		Al-Si, 6um		AlCu		AlCu		AlSiCu		AlCu		AlSi1Cu0.5		AlSiCu0.5	
	Wafer	Front Metal Layer Number/ Thickness			4um		5um		2um		4um		Al-Si, 6um		1/4um		1/4um		4um		4um				3um	
	Wafer	Front Solderable or Plated Metal Type / Thickness			NA		NA		not available		N/A		N/A		NA		NA		NA		NA				Not available	
	Wafer	Back Metal Type (All Layers)			Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Au		Ti/Ni/Ag		Ti/Ni/Ti/Ag		Ti/Ni/V/Ag		Ti/Ni/V/Ag	
	Wafer	Back Metal Thickness (All Layers)					7.5 um ± 10%		not available		1.3KA/4KA/15KA		0.03 / 0.26 / 0.55um		1KA/3KA/10KA		0.1KA/10KA		0.1/0.3/1 um							
	Wafer	Die Conformal Coating (Passivation) Material			NA		Nitride		Ox/Nitride		TEIO SOXIDE / SIN		Ox/Nitride		Oxide		Oxide		N/A							
	Wafer	Die Conformal Coating (Passivation) Thickness Range			NA		1-2um		5000/ 5000		1.6K/3.8K		0.5um / 0.5um		PE-SION 10000A		PE-SION 10000A		N/A							
	Assembly	Die quantity per package (e.g. single or dual dies)			single die		single die		single die		single die		single die		dual dies		dual dies		single die				1		5	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EPOXY		EPOXY		SILVERSINTER		SOFT SOLDER		SOFT SOLDER		EPOXY		EUTECTIC		EPOXY		SOFT SOLDER		EPOXY		EPOXY	
	Assembly	Die Attach Material/ Supplier			9005SP/ LEGEND		8309C-HT/ BONOTEC		ASP295-09P9/ HERAEUS		Pb92.5Sn5Ag2.5/ HERAEUS		Pb92.5Sn5Ag2.5/ HERAEUS		8352L/ HENKEL		N/A		OM1519/ HENKEL		Pb92.5Sn5Ag2.5		8200TI/ Henkel		8500C-HT/ Bonotec	
	Assembly	Bond Wire/Clip Bond Material			PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu	
	Assembly	Bond Wire Diameter			2.0 mils		1.0 mils		1.3 mils		1.7 mils		1.3 mils		1.7 mils		0.8 mils		1.0 mils		0.8 mils		0.8 mils		0.8 mils	
	Assembly	Bond Type (at Die)			Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball				Ball	
	Assembly	Bond Type (at LF)			Wedge bond		Wedge bond		Wedge bond		Wedge bond		Wedge bond		Wedge bond		Wedge bond		Wedge bond		Wedge				Wedge	
	Assembly	No. of bond over active area			1 wire		1 wire		5 wires		7 wires		4 wires		12 wires		4 wires		2 wires		2		2		8	
	Assembly	Leadframe Type			SOD-123A		SOD-523A		SOIC-8 A		DPAK-3L B		POWERDI5060-8L AC		TSSOP-8L A		SOT-563E		SLP1006P2-U		POWERDI5060-8L A		SOT89-3L		MSOP8 C	
	Assembly	Leadframe Material			Alloy42		Alloy42		Cu194		Cu151		Cu194		C7025		Cu194		C7025		CDA194FH				C7025	
	Assembly	Die Pad Plating Material			Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Bare Copper		Spot Ag Plating		Pd PPF Plating		Spot Ag				PPF plating	
	Assembly	Mold Compound Type			CEL-1700HF40SK-D3		CEL-1702HF9 SK		EME-G700		EME-G700		EME-G700		EME-G700		EME-G700		CEL-1702HF9 SKF		EME-G770HCD		EME-G700		CEL-9220HF13SK	
	Assembly	Glass Transistion Temp (Tg)			150°C		120°C		130°C		130°C		130°C		130°C		120°C		135°C		130°C		130°C		125°C	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Terminal Finish (Plating) Material			Sn		Sn		Sn		Sn		Sn		Sn		Sn		PPF plating		Sn		Sn		Sn	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		N/A		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			175°C		125°C		150°C		150°C		175°C		150°C		150°C		150°C		175°C		150°C		150°C	
	Product	Max Thermal resistance Junc (case)			65.71°C/W		N/A		12 °C/W		-		N/A		26°C/W		NA		NA		2.7°C/W		NA		NA	
	Product	Max Thermal resistance Junc (ambient)			222°C/W		500°C/W		76 °C/W		30.3 °C/W		140°C/W		161°C/W		235°C/W		236°C/W		50.4°C/W		125°C/W		143°C/W	
	Product	Datasheet			B130LAW_R12		DS44534(DXTL1827_R1)		ZXMS6004N8_R2		DMN6068LK3_R4		DXTN3C100PSQ_R2		DMN2019UTS_R2		DMG1016VQ_R4		S8RT05U20LPSQ_R2		DMTH4008LPSQ		BCX5616Q		ZXT12N20DX	
	Product	Qual Plan Number			250808001		250808001		250808001		250808001		250808001		250808001		250808001		250808001		250808001		250808001		250808001	

Reliability and Characterization Testing

# in AEC-Q101 (E)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
A1	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test # A2, A3, A4, A5 & C8	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles (First cycle can be done at PCB mounting process before Pre-conditioning)			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A2 (PC)	HAST-1x	Ta=130C, 85%RH, 33.3 psia, 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V).; PER JESD22-A110	96 Hrs	0/77	3 wafer lots			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass							X	Pass			X	Pass
	Post-1x HAST Ball + Stitch/Wedge pull (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots									X	Pass	X						X	Pass						
	Post-1x HAST Ball Shear (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots									X	Pass	X						X	Pass						
	Post-1x HAST Cross-section (Q006 only)	Post-1x HAST for initial qual of new die/package or family/technology	post 96 Hrs	0/1	3 wafer lots									X	Pass	X						X	Pass						
A2alt (PC)	H3TRB-1x	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias or up to a maximum of 100V or limit of chamber. JESD22A-101	168 Hrs	0/77	3 wafer lots											X	Pass	X	Pass					X	Pass				
			500 Hrs	0/77												X	Pass	X	Pass					X	Pass				
			1000 Hrs	0/77												X	Pass	X	Pass					X	Pass				
	Post-1x H3TRB Ball + Stitch/Wedge pull (Q006 only)	Post-1x H3TRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots											X	Pass	X	Pass					X	Pass				
	Post-1x H3TRB Ball Shear (Q006 only)	Post-1x H3TRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots											X	Pass	X	Pass					X	Pass				
	Post-1x H3TRB Cross-section (Q006 only)	Post-1x H3TRB for initial qual of new die/package or family/technology	post 1000 Hrs	0/1	3 wafer lots											X	Pass	X	Pass					X	Pass				
A3(NY) (PC)	HHT	Ta=85ºC, 85% RH,	168 Hrs	0/77	3 wafer lots	X	Pass																						
			500 Hrs	0/77		X	Pass																						
			1000 Hrs	0/77		X	Pass																						
A4 (PC)	$TC^{1 (NY)}$ -1x	Ta=-55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass			X	Pass	X	Pass	X	Pass			X	Pass	X	Pass		
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass			X	Pass	X	Pass	X	Pass			X	Pass	X	Pass		
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass			X	Pass	X	Pass	X	Pass			X	Pass	X	Pass		
	Post-1x TC CSAM (Q006 only)	CSAM post-1X stress (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Cycles	0/22 or marked 11	3 Assembly lots													X	Pass	X	Pass			X	Pass				
	Post-1x TC SEM Inspection (Stitch) (Q006 only)	Post-1x TC (Max 30 wires/balls) covering the parts with ground bonds and the parts showing delam at the stitch area if any	post 1000 Cycles	0/1	3 Assembly lots													X	Pass	X	Pass			X	Pass				
	Post-1x TC Ball + Stitch/Wedge pull (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots													X	Pass	X	Pass			X	Pass				
	Post-1x TC Ball Shear (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots													X	Pass	X	Pass			X	Pass				
	Post-1x TC Cross-section (Q006 only)	Post-1x TC for initial qual of new die/package or family/technology	post 1000 Cycles	0/1	3 Assembly lots													X	Pass	X	Pass			X	Pass				
	TC -1x	Ta=-55C to 175C Per Datasheet Max Tj , PER JESD22A-104	200 Cycles	0/77	3 Assembly lots									X	Pass							X	Pass						
			400 Cycles	0/77										X	Pass							X	Pass						
	Post-1x TC CSAM	CSAM post-1X stress (required to qualify Cu/coated Cu wire for Automotive)	post 400 Cycles	0/22 or marked 11	3 Assembly lots									X	Pass							X	Pass						
	Post-1x TC SEM Inspection (Stitch) (Q006 only)	Post-1x TC (Max 30 wires/balls) covering the parts with ground bonds and the parts showing delam at the stitch area if any	post 400 Cycles	0/1	3 Assembly lots									X	Pass							X	Pass						
	Post-1x TC Ball + Stitch/Wedge pull	Post-1x TC (Max 30 wires/balls)	post 400 Cycles	0/3	3 Assembly lots									X	Pass							X	Pass						
	Post-1x TC Ball Shear	Post-1x TC (Max 30 wires/balls)	post 400 Cycles	0/3	3 Assembly lots									X	Pass							X	Pass						
	Post-1x TC Cross-section	Post-1x TC for initial qual of new die/package or family/technology	post 400 Cycles	0/1	3 Assembly lots									X	Pass							X	Pass						
A4a (PC)	TC Hot Test (for MOSFETs)	JESD22 A-104, Appendix 6 - Not required for Cu wire bonded parts that are qualified to Q006	125C TEST after TC using PV-determined limits at hot, followed by decap and wire pull on all wires from 5 devices with bond wire sizes < 5mil	0/77	3 Assembly lots							X	Pass			X	Pass	X	Pass			X	Pass						
A5 (PC)	IOL-1x	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
B1	HTRB-1x	Ta=150°C or Max Tj, Max DC Reverse Voltage PER MIL-STD-750-1. Decap are wire pull 5 parts for Bipolar and Schottky devices usilizing dissimilar metal bonding systems.	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x HTRB Ball Shear (Q006 only)	Post-1x HTRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots									X	Pass			X	Pass	X	Pass	X	Pass	X	Pass				
	Post-1x HTRB Cross-section (Q006)	Post-1x HTRB for initial qual of new die/package or family/technology ((required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots									X	Pass			X	Pass	X	Pass	X	Pass	X	Pass				
B2	HTGB (Gated Devices only) -1x	Ta=150°C or Max Tj, Vg=100%, PER JESD22 A-108. Decap are wire pull 5 parts for MOSFET devices usilizing dissimilar metal bonding systems. Perform 3 lots of negative bias and 3 lots of positive bias for the initial qualification of a new technology, if appropriate.	168 Hrs	0/77	3 wafer lots							X	Pass			X	Pass	X	Pass			X	Pass						
			500 Hrs	0/77								X	Pass			X	Pass	X	Pass			X	Pass						
			1000 Hrs	0/77								X	Pass			X	Pass	X	Pass			X	Pass						
	Post-1x HTGB Ball Shear (Q006 only)	Post-1x HTGB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots													X	Pass			X	Pass						
	Post-1x HTGB Cross-section (Q006 only)	Post-1x HTGB for initial qual of new die/package or family/technology (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots											X	Pass	X	Pass			X	Pass						
C1	DPA	AEC Q101-004 SEC. 4	Post H3TRB or HAST and TC	0/2	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C3	Wire Bond Pull Strength (WBP)	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk≥1.67	0/ min of 5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C4	Wire Bond Shear Strength (WBS)	AEC-Q101-003	Cpk≥1.67	0/ min of 5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C8 (PC)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S), after Pre-conditioning	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E0	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E2	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet inlcuding AC & DC accross data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Summary:																											
	Submitted By/Date:	CW Lin, 4/9/2026																										
	Approved By/Date:																											

Certificate of Design, Construction & Qualification

Description: SAT Au wire and Cu wire change to PdCu wire

				Qual Device 6 (Phase I)		Qual Device 7 (Phase I)		Qual Device 26 (Phase I)	
General	Part Number			DPO2036DBB-7		DGD0597FU-7		DGD0211CWT-7	
	Package			QFN2020B-12		QFN3030A-8		TSOT23-5	
	Wire Bond, Cu Piller, CSP			Wire Bond		Wire Bond		Wire Bond	
	Package Size			2.0*2.0*0.60mm		3.0*3.0*0.80mm		2.8*2.9*0.92mm	
	Die Quantity (eg. Die per package)			2		1		1	
	Die Name(1)			DD002A1-535PI		TF0597B		SF0215	
	Die Size (W/L/Thickness			1.2*1.157*0.140mm		1.08*1.08*0.14mm		1.00*1.29*0.100mm	
	Die Process / Technology			DPNS		Bipolar & CMOS		TF 700V BCD	
	Wire Bond Material (Au, Cu, Al)			PdCu		PdCu		PdCu	
	Wire Diameter			0.8mil		1.0mil		1.0mil	
	Die Name(2)			TVP23A54F		N/A		N/A	
	Die Size (W/L/Thickness			0.400*0.570*0.85		N/A		N/A	
	Wire Bond Material (Au, Cu, Al)			PdCu		N/A		N/A	
	Wire Diameter			0.8mil		N/A		N/A	
	# of wire for Die to Die Bonds			2		N/A		N/A	
	Wire Bond Material (Au, Cu, Al)			PdCu		N/A		N/A	
	Wire Diameter			0.8mil		N/A		N/A	
Fab	Wafer FAB			DBH + OFAB				SFAB	
	Wafer Diameter			8" + 6"		8"		6"	
	Wafer Thickness			759 +10 / -10um + 630 +30 / -30um					
	Top Metal Type/Bond Pad Composition			Cu/Ni/Au + AlSi1Cu0.5		AlCu		AlCu0.5	
	Top Metal Thickness			3um + 3um		2.7um		1.1um	
	Back Metal Type (All Layers)			N/A		N/A		Raw silicon	
	Die Conforming Coating			N/A		Ox/Nitride		Ox/Nitride	
	Die passivation thickness range			N/A		14000A/10000A		3000/7000A	
	No. of bond over active area			21		13		5	
	Glass Transistion Temp			135 °C		135 °C		150°C	
	Header plating (Die Land Area)			PPF plating		PPF plating		Bare copper	
	Max Junction Temp			125°C		150°C		150°C	
	Max Thermal resistance Junc (case)			26°C/W		N/A		N/A	
	Max Thermal resistance Junc (amibent)			96°C/W		120°C/W		188°C/W	
	Wafer Lot#			KWD06114-BNC: 1A4S73 TVP23A54F-DAN: 9E22GLOBE.3		AK4208860		B45099.1	
Package	Bond Type (at Die)			Ball		Ball		Ball	
	Bond Type (at LF)			Wedge		Wedge		Wedge	
	DB Epoxy/Solder Type			DAF+CWBC		EPOXY		CWBC	
	Die Attach Material			LOCTITE ABLESTIK ATB F125E- 8inch/ HENKEL + 8008MD/ HENKEL		QMI519/ HENKEL		8008MD/ HENKEL	
	Leadframe Type (Stamped or Etched)			SLP2020P12-B (Etched)		SLP3030P8-X (Etched)		TSOT23-5D (Stamped)	
	Leadframe Material			C7025		C7025		CDA194	
	Ag plated or Bare Cu			PPF plating		PPF plating		Selective Ag plating	
	Molding Compound Type			EME-G770HCD		EME-G600		CEL-1700HF40SK-D3	
	Molding Compound Manufacturer			SUMITOMO		SUMITOMO		RESONAC	
	Green Compound (Yes/No)			Yes		Yes		Yes	
	Lead-Free (Yes/No)			NA		NA		Yes	
AT/Rel	Assembly Site/ Location			SAT		SAT		SAT	
	Test Site/ Location			SAT		SAT		SAT	
	Realibility Test Site			SAT		SAT		SAT	
	DataSheet Complete (Y/N)			DPO2036_R2		DGD0597FU_R2		DGD0211C	
	Qual Plan #			25080801		25080801		25080801	

Realibility Testing

Test	Test Conditions	Duration / Limits	Fail/SS	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
Test Group A - Accelerated Environment Stress Tests									
MSL1 Pre-cond	**(JESD22-A113)** Bake 125C	24 Hrs	0/154	X	Pass	X	Pass	X	Pass
	Soak 85C, 85% RH	168Hrs	0/154	X	Pass	X	Pass	X	Pass
	IR reflow 260C	3 cycles	0/154	X	Pass	X	Pass	X	Pass
MSL3 Pre-cond									
Temp Cycle (TC)	**(JESD22-A104)** -65C-150C Mounted on PCB Board (Daughter Card)	500 cycles	0/77	X	Pass	X	Pass	X	Pass
		1000 cycles	0/77	X	Pass	X	Pass	X	Pass
HAST	**JESD22-A101/A110** 130C, 85%RH 33.3 psia Vcc = Op Max	96 Hrs	0/77	X	Pass	X	Pass	X	Pass
UHAST				X	Pass	X	Pass	X	Pass
HTSL High Temperature Storage	**(JESD22-A103)** Ta>150C	168 Hrs	0/77	X	Pass	X	Pass	X	Pass
		500 Hrs	0/77	X	Pass	X	Pass	X	Pass
		1000 Hrs	0/77	X	Pass	X	Pass	X	Pass
WBS	JESD22-B116B	Cpk>1.66	0/5	X	Pass	X	Pass	X	Pass
WBP	MIL-STD883-2011	Cpk>1.66	0/5	X	Pass	X	Pass	X	Pass

Remark:

Summary: _____

Submitted By: _____

Approved By: CW Lin, 4/9/2026

Certificate of Design, Construction & Qualification

Description: Change KTMC1050G mold compound and Change wire type

	Category				Qual Device 1		Qual Device 2		Qual Device 3		Qual Device 4		Qual Device 5		Qual Device 6		Qual Device 7		Qual Device 8		Qual Device 9		Qual Device 10	
	Product	Part Number			DMN3404LQ-7		DMP1045UQ-7		BSS123Q-7		BSS84Q-7-F		D20V0L1B2WSQ-7		D5V0L2B3SO-7		D1213A-01WS-7		D1213A-02SOL-7		DMG2305UXQ-13		MMBT2222A-7-G-72	
	Assembly	Package Type			SSOT-23		SSOT-23		SOT-23		SOT-23		SOD-323		SOT-23		SOD-323		SOT-23		SSOT-23		SOT-23	
	Wafer	Die Name(s)			ON14151		ON149H1		ON14741		ON14051		TVZ22A0AC		TVB0707AB1C		TVU5V5A06C		TVU5V5B2LC		AD0806AL796AXX-8N		JX60N40BF	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.96*0.66*178mm		1.05*0.8*158mm		0.4*0.4*0.178mm		0.4*0.4*0.178mm		0.40*0.27*0.20 mm		0.235*0.235*0.20 mm		0.41*0.41*0.20 mm		0.55*0.53*0.20 mm		1.05*0.8*158mm		0.348*0.348*0.205um	
	Wafer	Die Process / Technology			MOSFET		MOSFET		MOSFET		MOSFET		TVS		TVS		TVS		TVS		MOSFET		Transistor	
	Wafer	Wafer FAB Site/ Location			HHGRACE		HHGRACE		HHGRACE		HHGRACE		OFAB		OFAB		OFAB		OFAB		VIS		IKFAB	
	Wafer	Wafer Diameter			8"		8"		8"		8"		6"		6"		6"		6"		8"		6"	
	Wafer	No of masks Steps			6		7		6		6		4		4		10		10		6		5	
	Wafer	Front Metal Type			AlCu		AlCu		AlCu		AlCu		AlSiCu		AlSiCu		AlSi1		AlSi1		AlCu		Al-Si-Cu, 3um	
	Wafer	Front Metal Layer Number/ Thickness			4 um		4 um		4 um		3.5 um		3um		3um		3um		3um		4 um		Al-Si-Cu, 3um	
	Wafer	Front Solderable or Plated Metal Type / Thickness			N/A		N/A		N/A		N/A		NA		NA		NA		NA		N/A		N/A	
	Wafer	Back Metal Type (All Layers)			Ti/Ni/Ag		Ti/Ni/Ag		Ti/Au		Ti/Au		Au		Au		Au		Ti/Ni/Ag		Ti/Ni/Ag		Au	
	Wafer	Back Metal Thickness (All Layers)			Ti1000A/Ni2000A/Ag10000A		Ti1000A/Ni2000A/Ag10000A		100A/5000A		100A/10000A		10000 Å		10000 Å		10000 Å		10000 Å		1/3/10		0.5um	
	Wafer	Die Conformal Coating (Passivation) Material			PV TEOS/SiN		PE-SION		PV TEOS/SiN		PE-SION		Ox/Nitride		Oxide/Nitride		Oxide/Nitride		Oxide/Nitride		TEOS Oxide 1.6K Nitride 3.8K		Ox/Nitride	
	Wafer	Die Conformal Coating (Passivation) Thickness Range			5K/7K		10000A		5K/7K		10000A		5000/5000 Å		5000/5000 Å		5000/5000 Å		5000/5000 Å		TEOS Oxide 1.6K Nitride 3.8K		0.5um / 0.5um	
	Assembly	Die quantity per package (e.g. single or dual dies)			1		1		1		1		2		1		1		1		1		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EPOXY		EPOXY		EUTECTIC		EUTECTIC		EUTECTIC		EUTECTIC		EUTECTIC		EUTECTIC		EPOXY		EUTECTIC	
	Assembly	Die Attach Material/ Supplier			9005SP		84-1LMISR4		NA		NA		NA		NA		NA		NA		9005SP		N/A	
	Assembly	Bond Wire/Clip Bond Material			Au wire		PdCu wire		Au wire		Au wire		PdCu wire		PdCu wire		Au wire		Au wire		PdCu wire		PdCu wire	
	Assembly	Bond Wire Diameter			2.0mil		1.7mil		0.8mil		0.8mil		0.8mil		1.0mil		0.8mil		0.8mil		1.7mil		0.7mil	
	Assembly	Bond Type (at Die)			Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic	
	Assembly	Bond Type (at LF)			Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic	
	Assembly	No. of bond over active area			5		4		2		2		1		1		1		2		6		2	
	Assembly	Leadframe Type			SOT-23R		SOT-23R		SOT-23A		SOT-23A		SOD-323B		SOT-23A		SOD-323A		SOT-23A		SOT-23R		SOT-23A	
	Assembly	Leadframe Material			C0A194		C0A194		Alloy42		Alloy42		Alloy42		Alloy42		Alloy42		Alloy42		C0A194		Alloy42	
	Assembly	Die Pad Plating Material			Spot Ag		Spot Ag		Spot Ag		Spot Ag		Spot Ag		Spot Ag		Spot Ag		Spot Ag		Spot Ag		Spot Ag	
	Assembly	Mold Compound Type			CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK	
	Assembly	Glass Transistion Temp (Tg)			150°C		150°C		150°C		150°C		150°C		150°C		150°C		150°C		150°C		150°C	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Terminal Finish (Plating) Material			Pb-free		Pb-free		Pb-free		Pb-free		Pb-free		Pb-free		Pb-free		Pb-free		Pb-free		Pb-free	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			150°C		150°C		150°C		150°C		150°C		150°C		150°C		150°C		150°C		150°C	
	Product	Max Thermal resistance Junc (case)			-		14.8 °C/W		-		-		-		-		-		-		33°C/W		-	
	Product	Max Thermal resistance Junc (ambient)			90 °C/W		99 °C/W		417 °C/W		417 °C/W		625 °C/W		417°C/W		500 °C/W		417°C/W		90°C/W Steady Stat 64°C/W t<10s		403°C/W	
	Product	DataSheet			DMN3404L_R9		DMP1045UQ_R3		BSS123Q_R1		BSS84Q_R1		D20V0L1B2WSQ_R1		D5V0L2B3SO_R5		D1213A-01WS		D1213A-02SOL		DMG2305UXQ_R3		MMBT2222A_R18	
	Product	Qual Plan Number			25103003		25103003		25103003		25103003		25103003		25103003		25103003		25103003		25103003		25103003	

Reliability and Characterization Testing

# in AEC-Q101 (E)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail
A1	MSL1 Pre-conditioning	Bake 125C	24 Hrs	5MD only, for Test # A2, A3, A4, A5 & C8	3 Assembly lots*	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles (First cycle can be done at PCB mounting process before Pre-conditioning)			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A2 (PC)	HAST-1x	Ta=130C, 85%RH, 33.3 psia, 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V).; PER JESD22-A110	96 Hrs	0/77	3 wafer lots			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass					X	Pass	X	Pass
	Post-1x HAST Ball + Stitch/Wedge pull (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots			X	Pass													X	Pass		
	Post-1x HAST Ball Shear (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots			X	Pass													X	pass		
	Post-1x HAST Cross-section (Q006 only)	Post-1x HAST for initial qual of new die/package or family/technology	post 96 Hrs	0/1	3 wafer lots			X	Pass													X	Pass		
	HAST-2x (Q006 only)	Ta=130C, 85%RH 33.3 psia 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V); PER JESD22-A110 (required to qualify Cu/coated Cu wire for Automotive)	192 Hrs	0/70	3 wafer lots									X	Pass										
A2alt (PC)	H3TRB-1x	Ta=85°C, 85% RH, with 80% Maximum Reverse Bias or up to a maximum of 100V or limit of chamber. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	Pass											X	Pass	X	Pass				
			500 Hrs	0/77		X	Pass											X	Pass	X	Pass				
			1000 Hrs	0/77		X	Pass											X	Pass	X	Pass				
A3alt (PC)	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A4 (PC)	$TC^{1 (W)}$ -1x	Ta=-55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x TC CSAM (Q006 only)	CSAM post-1X stress (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Cycles	0/22 or marked 11	3 Assembly lots			X	Pass													X	Pass		
	Post-1x TC SEM Inspection (Stitch) (Q006 only)	Post-1x TC (Max 30 wires/balls) covering the parts with ground bonds and the parts showing delam at the stitch area if any	post 1000 Cycles	0/1	3 Assembly lots			X	Pass													X	Pass		
	Post-1x TC Ball + Stitch/Wedge pull (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots			X	Pass													X	Pass		
	Post-1x TC Ball Shear (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots			X	Pass													X	Pass		
	Post-1x TC Cross-section (Q006 only)	Post-1x TC for initial qual of new die/package or family/technology	post 1000 Cycles	0/1	3 Assembly lots			X	Pass													X	Pass		
	TC-2x (Q006 only)	Ta=-55C to 150C or Max Tj, PER JESD22A-104 (required to qualify Cu/coated Cu wire for Automotive, and performed only if BLR is not being performed)	2000 Cycles	0/70	3 Assembly lots									X	Pass										
A4a (PC)	TC Hot Test (for MOSFETs)	JESD22 A-104, Appendix 6 - Not required for Cu wire bonded parts that are qualified to Q006	125C TEST after TC using PV-determined limits at hot, followed by decap and wire pull on all wires from 5 devices with bond wire sizes < 5mil	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass									X	Pass		
A5 (PC)	IOL-1x	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass									X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass									X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass									X	Pass	X	Pass
A5 alt (PC)	Power Temperature Cycling	JESD22-A-104	Perform PTC if ΔTJ ≥100°C cannot be achieved with IOL. Tested per duration indicated for Timing Requirements in Table 2A. Parts powered and chamber cycled to insure ΔTJ ≥ 100°C (not to exceed absolute maximum ratings).	0/77	3 wafer lots																				
B1	HTRB-1x	Ta=150°C or Max Tj, Max DC Reverse Voltage PER MIL-STD-750-1. Decap are wire pull 5 parts for Bipolar and Schottky devices usilizng dissimilar metal bonding systems.	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x HTRB Ball Shear (Q006 only)	Post-1x HTRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots			X	Pass													X	Pass		
	Post-1x HTRB Cross-section (Q006)	Post-1x HTRB for initial qual of new die/package or family/technology ((required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots			X	Pass													X	Pass		
	HTRB-2x (Q006)	Ta=150°C or Max Tj, Max DC Reverse Voltage, PER MIL-STD-750-1 (required to qualify Cu/coated Cu wire for Automotive)	2000 Hrs	0/77	3 wafer lots									X	Pass										
B2	HTGB (Gated Devices only) -1x	Ta=150°C or Max Tj, Vgs=100%, PER JESD22 A-108. Decap are wire pull 5 parts for MOSFET devices usilizing dissimilar metal bonding systems. Perform 3 lots of negative bias and 3 lots of positive bias for the initial qualification of a new technology, if appropriate.	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass									X	Pass		
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass									X	Pass		
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass									X	Pass		
	Post-1x HTGB Ball Shear (Q006 only)	Post-1x HTGB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots			X	Pass													X	Pass		
	Post-1x HTGB Cross-section (Q006 only)	Post-1x HTGB for initial qual of new die/package or family/technology (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots			X	Pass													X	Pass		
C1	DPA	AEC Q101-004 SEC. 4	Post H3TRB or HAST and TC	0/2	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C2	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	Pass	QBS to Qual device 1		X	Pass	QBS to Qual device 3		X	Pass	QBS to Qual device 3		QBS to Qual device 5		QBS to Qual device 3		QBS to Qual device 1		QBS to Qual device 3	
C3	Wire Bond Pull Strength (WBP)	MIL-STD-750 METHOD 2037 (JESD22-B1168)	Cpk≥1.67	0/ min of 5	1 Assembly lot			X	Pass					X	Pass	X	Pass					X	Pass	X	Pass
C4	Wire Bond Shear Strength (WBS)	AEC-Q101-003	Cpk≥1.67	0/ min of 5	1 Assembly lot			X	Pass					X	Pass	X	Pass					X	Pass	X	Pass
C8 (PC)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S), after Pre-conditioning	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C9	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C10	Solderability (SD)	J-STD-002; JESD22B102 (245C +0/-5S)	5 Seconds	0/10	1 Assembly lot	X	Pass	QBS to Qual device 1		QBS to Qual device 1		QBS to Qual device 3		X	Pass	QBS to Qual device 3		QBS to Qual device 5		QBS to Qual device 3		QBS to Qual device 1		QBS to Qual device 3	
E0	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E2	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet inlcuding AC & DC accross data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass

Summary:		
Submitted By/Date:	CW Lin, 5/14/2026	
Approved By/Date:		

Certificate of Design, Construction & Qualification

Description: Change KTMC1050G mold compound and Change wire type

	Category				Qual Device 12		Qual Device 13		Qual Device 14		Qual Device 15		Qual Device 16		Qual Device 17		Qual Device 18		Qual Device 19	
	Product	Part Number			2N7002-13-01-F		MMBT3904Q-7-F		BC846BQ-7-F		ZXTN25100DFHTA		BC817-40Q-7-F		MMBT3906Q-7-F		FMMT560QTA		ZXTP25020DFHTA-73	
	Assembly	Package Type			SOT-23		SOT-23		SOT-23		SSOT-23		SOT-23		SOT-23		SOT-23		SSOT-23	
	Wafer	Die Name(s)			DF4SN60A		6C082AC23C		C5334S BIN2		X25N100DPD		BCW66HTWQC		6A089U23C		FMMT560C		X25P20DPWD	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.4*0.4*0.158mm		0.32*0.44*0.23mm		0.33*0.33*0.23mm		0.81*0.81*0.178mm		0.6858*0.6858*0.178mm		0.30*0.52*0.23mm		0.9144*0.8382*0.178mm		0.81*0.81*0.178mm	
	Wafer	Die Process / Technology			MOSFET		Transistor		Transistor		Transistor		Transistor		Transistor		Transistor		Transistor	
	Wafer	Wafer FAB Site/ Location			SFAB2-8		Phenitec		Phenitec		OFAB		OFAB		Phenitec		OFAB		OFAB	
	Wafer	Wafer Diameter			8"		6"		5"		6"		6"		6"		6"		6"	
	Wafer	No of masks Steps			7		N/A		N/A		5		5		N/A		6		6	
	Wafer	Front Metal Type			AlCu		Al-Si-Cu, 2um		Al-Si		Al-Si, 6um		Al-Si-Cu, 3um		Al-Si-Cu, 2um		Al-Si, 1.15um		Al-Si, 6um	
	Wafer	Front Metal Layer Number/ Thickness			4 um		Al-Si-Cu, 2um		N/A		Al-Si, 6um		Al-Si-Cu, 3um		Al-Si-Cu, 2um		Al-Si, 1.15um		Al-Si, 6um	
	Wafer	Front Solderable or Plated Metal Type / Thickness			N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
	Wafer	Back Metal Type (All Layers)			Ti/Au		Au-AsAu		Au-AsAu		Ti/NiV/Ag		Au		Au		Au		Ti/NiV/Ag	
	Wafer	Back Metal Thickness (All Layers)			0.5KA/5KA		0.9um		0.9um		0.03 / 0.26 / 0.55um		1.0um		0.9um		1.0um		0.03 / 0.26 / 0.55um	
	Wafer	Die Conformal Coating (Passivation) Material			TEOS/SiN		N/A		N/A		Ox/Nitride		Ox/Nitride		N/A		Ox/Nitride		Ox/Nitride	
	Wafer	Die Conformal Coating (Passivation) Thickness Range			3K/7K		N/A		N/A		0.5um / 0.5um		0.5um / 0.5um		N/A		0.5um / 0.5um		0.5um / 0.5um	
	Assembly	Die quantity per package (e.g. single or dual dies)			1		1		1		1		1		1		1		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EUTECTIC		EUTECTIC		EUTECTIC		Epoxy		Eutectic		Eutectic		Eutectic		Epoxy	
	Assembly	Die Attach Material/ Supplier			NA		N/A		N/A		8500C-HT / Bonotec		N/A		N/A		N/A		8200TI / HENKEL	
	Assembly	Bond Wire/Clip Bond Material			Au wire		PdCu wire		PdCu wire		PdCu wire		PdCu wire		PdCu wire		Au wire		PdCu wire	
	Assembly	Bond Wire Diameter			0.8mil		0.8mil		0.7mil		1.7mil		0.8mil		0.8mil		1.0mil		1.7mil	
	Assembly	Bond Type (at Die)			Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic	
	Assembly	Bond Type (at LF)			Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic	
	Assembly	No. of bond over active area			2		2		2		4		2		2		2		4	
	Assembly	Leadframe Type			SOT-23A		SOT-23A		SOT-23A		SOT-23R		SOT-23A		SOT-23A		SOT-23F		SOT-23R	
	Assembly	Leadframe Material			Alloy42		Alloy42		Alloy42		CDA194		Alloy42		Alloy42		Alloy 42		CDA194	
	Assembly	Die Pad Plating Material			Spot Ag		Ag		Spot Ag		Ag		Spot Ag		Spot Ag		Ag		Ag	
	Assembly	Mold Compound Type			CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK		CEL-1700HF40SK	
	Assembly	Glass Transistion Temp (Tg)			150℃		150℃		150℃		150℃		150℃		150℃		150℃		150℃	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Terminal Finish (Plating) Material			Pb-free		Pb-free		Pb-free		Pb-free		Pb-free		Pb-free		Pb-free		Pb-free	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			150℃		150℃		150℃		150℃		150℃		150℃		150℃		150℃	
	Product	Max Thermal resistance Junc (case)			91 °C/W		-		-		13°C/W		-		-		-		-	
	Product	Max Thermal resistance Junc (ambient)			241 °C/W		403°C/W		403°C/W		171°C/W		403°C/W		403°C/W		250°C/W		171°C/W	
	Product	DataSheet			2N7002_R40		MMBT3904Q_R1		BC846AQ-BC848CQ		ZXTN25100DFH_R4		BC817-40Q		MMBT3906Q_R1		FMMT560Q_R2		ZXTP25020DFH	
	Product	Qual Plan Number			25103003		25103003		25103003		25103003		25103003		25103003		25103003		25103003	

Reliability and Characterization Testing

# in AEC-Q101 (E)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail	X = QBS Test Completed	Results Pass/Fail
A1	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test # A2, A3, A4, A5 & C8	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles (First cycle can be done at PCB mounting process before Pre-conditioning)			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A2 (PC)	HAST-1x	Ta=130C, 85%RH, 33.3 psia, 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V).; PER JESD22-A110	96 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass			X	Pass
	Post-1x HAST Ball + Stitch/Wedge pull (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots			X	Pass	X	Pass			X	Pass	X	Pass				
	Post-1x HAST Ball Shear (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots			X	Pass	X	Pass			X	Pass	X	Pass				
	Post-1x HAST Cross-section (Q006 only)	Post-1x HAST for initial qual of new die/package or family/technology	post 96 Hrs	0/1	3 wafer lots			X	Pass	X	Pass			X	Pass	X	Pass				
A2alt (PC)	H3TRB-1x	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias or up to a maximum of 100V or limit of chamber. JESD22A-101	168 Hrs	0/77	3 wafer lots													X	Pass		
			500 Hrs	0/77														X	Pass		
			1000 Hrs	0/77														X	Pass		
A3alt (PC)	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A4 (PC)	TC[1 (NY)] -1x	Ta=-55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x TC CSAM (Q006 only)	CSAM post-1X stress (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Cycles	0/22 or marked 11	3 Assembly lots			X	Pass	X	Pass			X	Pass	X	Pass				
	Post-1x TC SEM Inspection (Stitch) (Q006 only)	Post-1x TC (Max 30 wires/balls) covering the parts with ground bonds and the parts showing delam at the stitch area if any	post 1000 Cycles	0/1	3 Assembly lots			X	Pass	X	Pass			X	Pass	X	Pass				
	Post-1x TC Ball + Stitch/Wedge pull (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots			X	Pass	X	Pass			X	Pass	X	Pass				
	Post-1x TC Ball Shear (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots			X	Pass	X	Pass			X	Pass	X	Pass				
	Post-1x TC Cross-section (Q006 only)	Post-1x TC for initial qual of new die/package or family/technology	post 1000 Cycles	0/1	3 Assembly lots			X	Pass	X	Pass			X	Pass	X	Pass				
A4a (PC)	TC Hot Test (for MOSFETs)	JESD22 A-104, Appendix 6 - Not required for Cu wire bonded parts that are qualified to Q006	125C TEST after TC using PV-determined limits at hot, followed by decap and wire pull on all wires from 5 devices with bond wire sizes < 5mil	0/77	3 Assembly lots	X	Pass														
A5 (PC)	IOL-1x	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
B1	HTRB-1x	Ta=150°C or Max Tj, Max DC Reverse Voltage PER MIL-STD-750-1. Decap are wire pull 5 parts for Bipolar and Schottky devices usilizing dissimilar metal bonding systems.	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x HTRB Ball Shear (Q006 only)	Post-1x HTRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots			X	Pass	X	Pass			X	Pass	X	Pass				
	Post-1x HTRB Cross-section (Q006)	Post-1x HTRB for initial qual of new die/package or family/technology ((required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots			X	Pass	X	Pass			X	Pass	X	Pass				
B2	HTGB (Gated Devices only) -1x	Ta=150°C or Max Tj, Vg=100%, PER JESD22 A-108. Decap are wire pull 5 parts for MOSFET devices usilizing dissimilar metal bonding systems. Perform 3 lots of negative bias and 3 lots of positive bias for the initial qualification of a new technology, if appropriate.	168 Hrs	0/77	3 wafer lots	X	Pass														
			500 Hrs	0/77		X	Pass														
			1000 Hrs	0/77		X	Pass														
C1	DPA	AEC Q101-004 SEC. 4	Post H3TRB or HAST and TC	0/2	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C2	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	QBS to Qual device 3		QBS to Qual device 3		QBS to Qual device 3		QBS to Qual device 1		QBS to Qual device 3		QBS to Qual device 3		QBS to Qual device 3		QBS to Qual device 1	
C3	Wire Bond Pull Strength (WBP)	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk≥1.67	0/ min of 5	1 Assembly lot			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass			X	Pass
C4	Wire Bond Shear Strength (WBS)	AEC-Q101-003	Cpk≥1.67	0/ min of 5	1 Assembly lot			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass			X	Pass
C8 (PC)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S), after Pre-conditioning	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C9	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C10	Solderability (SD)	J-STD-002; JESD22B102 (245C +0/-5S)	5 Seconds	0/10	1 Assembly lot	QBS to Qual device 3		QBS to Qual device 3		QBS to Qual device 3		QBS to Qual device 1		QBS to Qual device 3		QBS to Qual device 3		QBS to Qual device 3		QBS to Qual device 1	
E0	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E2	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet inlcuding AC & DC accross data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass

Summary:
Submitted By/Date:
Approved By/Date: CW Lin, 5/14/2026

Certificate of Design, Construction & Qualification

Description: Extend Epoxy 8500C-HT to all parts

	Category				Qual Device 1		Qual Device 2		Qual Device 3		Qual Device 4_lot 1		Qual Device 4_lot 2		Qual Device 4_lot 3		QBS source device 1	
	Product	Part Number			DMP6023LFGQ-7		DZT5551Q-13		DMP4025LSDQ-13		DMT3009LDT-7-55		DMT3009LDT-7-55		DMT3009LDT-7-55		DMP3004SSS-13	
	Assembly	Package Type			PowerDI3333-8L		SOT-223		SOP-8L		DFN3030K-8		DFN3030K-8		DFN3030K-8		SOP-8L	
	Wafer	Die Name(s)			AL869CXX		C5983D23H		ON14951		VP5106A		VP5106A		VP5106A		MOSWFVP5390A-BN	
	Wafer	Die Size (W/L/Thickness) - After Saw			2.7*1.6*0.105mm		0.44*0.44*0.23mm		1.78*1.78*0.178mm		1.8*0.68*0.105mm		1.8*0.68*0.105mm		1.8*0.68*0.105mm		4.00*2.50*0.100mm	
	Wafer	Die Process / Technology			MOS		Transistor		MOSFET		MOS		MOS		MOS		MOSFET	
	Wafer	Wafer FAB Site/ Location			VIS		PHENITEC		HHGRACE		VIS		VIS		VIS		VIS	
	Wafer	Wafer Diameter			8"		5"		8"		8"		8"		8"		8 inch	
	Wafer	No of masks Steps			6		5		7		6		6		6		6	
	Wafer	Front Metal Type			AlCu		Al-Si, 2.7um		AlCu		AlCu		AlCu		AlCu		AlCu	
	Wafer	Front Metal Layer Number/ Thickness			4.0um		Al-Si, 2.7um		4.0um		1/4um		1/4um		1/4um		4um	
	Wafer	Front Solderable or Plated Metal Type / Thickness			Not available		N/A		N/A		NA		NA		NA		N/A	
	Wafer	Back Metal Type (All Layers)			Ti/Ni/Ti/Ag		AuAs-Au		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag	
	Wafer	Back Metal Thickness (All Layers)			1KA/3KA/100A/10KA		0.9um		Ti1000A/Ni2000A/Ag10000A		1KA/3KA/10KA		1KA/3KA/10KA		1KA/3KA/10KA		1KA/3KA/10KA	
	Wafer	Die Conformal Coating (Passivation) Material			TEOS Oxide 1.6K/SIN3.8K		N/A		PE-SION		TEOS oxide 4K/SIN 6K		TEOS oxide 4K/SIN 6K		TEOS oxide 4K/SIN 6K		TEOS OXIDE/Nitride	
	Wafer	Die Conformal Coating (Passivation) Thickness Range			TEOS Oxide 1.6K/SIN3.8K		N/A		10000A		TEOS oxide 4K/SIN 6K		TEOS oxide 4K/SIN 6K		TEOS oxide 4K/SIN 6K		1.6K/3.8K	
	Assembly	Die quantity per package (e.g. single or dual dies)			1		1		2		2		2		2		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EPOXY		EPOXY		EPOXY		EPOXY		EPOXY		EPOXY		EPOXY	
	Assembly	Die Attach Material/ Supplier			8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec	
	Assembly	Bond Wire/Clip Bond Material			Cu wire		Cu wire		Cu wire		Cu wire		Cu wire		Cu wire		Cu wire	
	Assembly	Bond Wire Diameter			1.7mil		1.0mil		1.7mil		2.0,mil		2.0,mil		2.0,mil		2.0mil	
	Assembly	Bond Type (at Die)			Ball		Ball		Ball		Ball		Ball		Ball		Thermal sonic	
	Assembly	Bond Type (at LF)			Wedge		Wedge		Wedge		Wedge		Wedge		Wedge		Thermal sonic	
	Assembly	No. of bond over active area			15		2		18		26		26		26		27	
	Assembly	Leadframe Type			POWERDI3333-8L E		SOT-223B		SOIC-8 D		SLP3030P8-M		SLP3030P8-M		SLP3030P8-M		SOIC-8 A	
	Assembly	Leadframe Material			CDA194FH		CDA194FH		CDA194FH		C7025HH		C7025HH		C7025HH		CDA194FH	
	Assembly	Die Pad Plating Material			PPF plating		Ag plating		Ag plating		PPF plating		PPF plating		PPF plating		Ag	
	Assembly	Mold Compound Type			EME-G770HCD		EME-G600		EME-G600FL		EME-G770HCD		EME-G770HCD		EME-G770HCD		EME-G700	
	Assembly	Glass Transistion Temp (Tg)			135℃		130℃		130℃		135℃		135℃		135℃		130℃	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Terminal Finish (Plating) Material			Sn		Sn		Sn		NA		NA		NA		Sn	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		NA		NA		NA		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			150℃		150℃		150℃		150℃		150℃		150℃		150℃	
	Product	Max Thermal resistance Junc (case)			6.3℃/W		NA		-		7.6℃/W		7.6℃/W		7.6℃/W		11℃/W	
	Product	Max Thermal resistance Junc (amibent)			60℃/W		62.5℃/W		58 ℃/W		NA		NA		NA		79℃/W	
	Product	DataSheet			DMP6023LFGQ_R3		DZT5551Q_R1_b		DMP4025LSDQ_R3		DMT3009LDT-X-55_R1		DMT3009LDT-X-55_R1		DMT3009LDT-X-55_R1		DMP3004SSS_R3	
	Product	Qual Plan Number			25103004		25103004		25103004		25103004		25103004		25103004		24111205	

Reliability and Characterization Testing

# in AEC-Q101 (E)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
A1	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test # A2, A3, A4, A5 & C8	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles (First cycle can be done at PCB mounting process before Pre-conditioning)			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A2 (PC)	HAST-1x	Ta=130C, 85%RH, 33.3 psia, 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V).; PER JESD22-A110	96 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A3alt (PC)	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass							X	Pass
A4 (PC)	TC[1 (NY)] -1x	Ta=-55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A5 (PC)	IOL-1x	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C5	Die Shear (DS)	MIL-STD-750 (2017) (Not required for soft solder die attach)	Cpk≥1.67	0/5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C8 (PC)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S), after Pre-conditioning	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass							X	Pass
C9	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E0	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E2	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet inlcuding AC & DC accross data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass							X	Pass

Summary:
Submitted By/Date:
Approved By/Date: CW Lin, 6/30/2026

Certificate of Design, Construction & Qualification

Description: Extend Epoxy 8500C-HT to all parts

	Category				QBS source device 2		QBS source device 4		QBS source device 5		QBS source device 6		QBS source device 7		QBS source device 8		QBS source device 9		QBS source device 10	
	Product	Part Number			ZXGD3103N8TC		DMG6402LDM-7		2DD1664R-13		DMP6180SK3-13		DMP45H150DHE-13		DMT6018LDR-7		AL5802-7		ZXTR1135PD8-13	
	Assembly	Package Type			SOP-8L		SOT-26		SOT89-3L		TO252-3L		SOT-223		DFN3030H-8		SOT-26		PowerDI5060-8L B	
	Wafer	Die Name(s)			X28N180AD+X26P15CT3D+X26N15ET3D		ON14151		JX72N032CTPF		AD0806SEB58-BN		DF13PD5AR		AL954AXX[MOSWFAL954AXX-BN]		ZXTN3904D + DB-ICT036N140S15		X50SN100B14V5D + ZMR500YTF	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.48*0.48*0.254 / 0.77*0.74*0.254 / 0.77*0.74*0.254		9.60*6.60*0.178mm		0.57*0.57*0.25		1.21*0.68*0.158mm		1.04*1.04*0.2 mm		2.42*0.68*0.158mm		ZXTN3904D: 0.25*0.25 DB-ICT036N140S15: 0.36*0.36		0.71*0.86*0.254 / 0.8382*0.8382*0.254	
	Wafer	Die Process / Technology			Transistor		MOSFET		Transistor		Trench MOSFET		MOSFET		MOSFET		Bipolar + Planer		Transistor / Planar	
	Wafer	Wafer FAB Site/ Location			OFAB		HHGRACE		JKFAB		PSMC/ TW		SFAB		VIS		OFAB+Japan		OFAB	
	Wafer	Wafer Diameter			6"		8 inch		6"		8 inch		6 inch		8 inch		150mm+125mm		6"	
	Wafer	No of masks Steps			5 / 6 / 5		6		5		6		6		6		ZXTN3904D: 5; DB-ICT036N140S15: 6;		9	
	Wafer	Front Metal Type			Al-Si / Al-Si-Cu / Al-Si-Cu		AlCu		Al-Si-Cu		AlCu		AlCu		AlCu		ZXTN3904D: Al-Si; DB-ICT036N140S15: Al;		Al-Si-Cu	
	Wafer	Front Metal Layer Number/ Thickness			2um / 3um / 3um		4um		3um		4um		4 um		4 um		ZXTN3904D: 2um; DB-ICT036N140S15: 1.7um;		3um / 2.4um	
	Wafer	Front Solderable or Plated Metal Type / Thickness			N/A		N/A		N/A		NA		NA		N/A		NA		N/A	
	Wafer	Back Metal Type (All Layers)			Ti/NiV/Ag		Ti/Ni/Ag		Au		1KA/3KA/10KA		Ti/Ni/Ag		Ti/Ni/Ti/Ag		ZXTN3904D: Au; DB-ICT036N140S15: AuAs-Au;		Ti/Ni/Ag / None	
	Wafer	Back Metal Thickness (All Layers)			300Å /2600Å /20000Å		1000A/2000A/10000A		0.6um		Not available		1.3KA/4KA/15KA		1KA/3KA/100A/10KA		ZXTN3904D: 5000A; DB-ICT036N140S15: 0.9um;		300Å/2600Å/20000Å / None	
	Wafer	Die Conformal Coating (Passivation) Material			Ox/Nitride		TEOS / SIN		Ox/Nitride		SIN		SiO2/SIN		Teos Oxide/SIN		ZXTN3904D:Ox/Nitride; DB-ICT036N140S15: SiN;		Ox/Nitride	
	Wafer	Die Conformal Coating (Passivation) Thickness Range			5000Å/5000Å		5K/7K		5000Å/5000Å		10000A		3KA/7KA		1.6K/3.8K		ZXTN3904D:5000A; DB-ICT036N140S15: 0.9um;		5000Å/5000Å	
	Assembly	Die quantity per package (e.g. single or dual dies)			4		1		1		1		1		2		2		2	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EPOXY		EPOXY		EPOXY		EPOXY		EPOXY		EPOXY		EPOXY		EPOXY	
	Assembly	Die Attach Material/ Supplier			8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec		8500C-HT/ Bonotec	
	Assembly	Bond Wire/Clip Bond Material			Au wire		Cu wire		Au wire		Cu wire		Cu wire		Cu wire		Au wire		Cu wire + Au wire	
	Assembly	Bond Wire Diameter			1.0mil		1,7mil		1.3mil		1.7mil		1.7mil		1.7mil		1.0mil		Cu 1.0mil + Au 1.0mil	
	Assembly	Bond Type (at Die)			Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic	
	Assembly	Bond Type (at LF)			Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic		Thermal sonic	
	Assembly	No. of bond over active area			7		7		2		11		4		32		5		7	
	Assembly	Leadframe Type			SOIC-8E		SOT-26C		SOT89-3L		DPAK-3L		SOT-223B		SLP3030P8-K		SOT-26Z		POWERDI5060-8L B	
	Assembly	Leadframe Material			CDA194FH		EFTEC-64T or CDA194		CDA194HH		12SnOFC-H		CDA194FH		CDA194FH		EFTEC-64T or CDA194		CDA194FH	
	Assembly	Die Pad Plating Material			Ag		Ag		Ag		Ag		Ag		PPF		Bare copper (ring plating)		Ag	
	Assembly	Mold Compound Type			EME-G700		CEL-1702HF9 SK		EME-G600		EME-G700		EME-G630AY		EME-G770HCD		CEL-1700HF40SK-D3		EME-G700	
	Assembly	Glass Transistion Temp (Tg)			130℃		120℃		130℃		130℃		140℃		135℃		150℃		130℃	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Terminal Finish (Plating) Material			Sn		Sn		Sn		Sn		Sn		PPF		Sn		Sn	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes		Yes		N/A		Yes		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			150℃		150℃		150℃		150℃		150℃		150℃		150℃		150℃	
	Product	Max Thermal resistance Junc (case)			N/A		N/A		18 ℃/W		3.1℃/W		8.9℃/W		11.4℃/W		NA		15 ℃/W	
	Product	Max Thermal resistance Junc (amibent)			255 ℃/W		111℃/W		125 ℃/W		76℃/W		59.4℃/W		108℃/W		335℃/W (Device mounted on FR-4 PCB, 2oz with minimum recommended pad layout) 143℃/W (Device mounted on 25mm x 25mm 2oz copper board)		106.4 ℃/W	
	Product	DataSheet			ZXGD3103N8		DS31839_R4		2DD1664R		DMP6180SK3_R4		DMP45H150DHE_R4		DMT6018LDR_R2		AL5802_R10		ZXTR1135PD8_R2	
	Product	Qual Plan Number			24111205		24111205		24111205		24111205		24111205		24111205		24111205		24111205	

Reliability and Characterization Testing

# in AEC-Q101 (E)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
A1	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test # A2, A3, A4, A5 & C8	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles (First cycle can be done at PCB mounting process before Pre-conditioning)			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A2 (PC)	HAST-1x	Ta=130C, 85%RH, 33.3 psia, 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V).; PER JESD22-A110	96 Hrs	0/77	3 wafer lots			X	Pass			X	Pass	X	Pass	X	Pass			X	Pass
A3alt (PC)	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots			X	Pass			X	Pass	X	Pass	X	Pass	X	Pass		
A4 (PC)	$TC^{1\ (NV)}$ -1x	Ta=-55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A5 (PC)	IOL-1x	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C5	Die Shear (DS)	MIL-STD-750 (2017) (Not required for soft solder die attach)	Cpk≥1.67	0/5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C8 (PC)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S), after Pre-conditioning	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C9	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E0	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E2	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet inlcuding AC & DC accross data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass

Summary:
Submitted By/Date:
Approved By/Date: CW Lin, 6/30/2026

Certificate of Design, Construction & Qualification

Description: Qualification of Part Number(s) xxx

	Category				Qual Device 1		QBS Source Device 1		QBS Source Device 2		QBS Source Device 3		QBS Source Device 4		QBS Source Device 6		QBS Source Device 7		QBS Source Device 8	
	Product	Part Number			DMN2005LP4K-7B		DMN2005LP4K-7B-36		DMTH4014LPDQ-13-2485		DMN31D5UDA-7B		ZXTP25040DFHTA-73		SDM20U40-7-73		FMMT718TA		DXT13003DG-13	
	Assembly	Package Type			DFN1006H4-3		DFN1006H4-3		PowerDI5060-8L E		DFN0806H4-6		SSOT-23		SOD-523		SOT-23		SOT-223	
	Wafer	Die Name(s)			ON14492		ON14492		MOSWFVP5106AT56-BN		DF37N30AE		X25P40DPWD		GY018AA0040AMB7-BIN		JMMT718F		DW008	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.3*0.3*0.105		0.3*0.3*0.105		1.8*0.68*0.158mm		0.23*0.23*0.105		0.81*0.81*0.178mm		0.46*0.46*0.14mm		0.9144*0.8636		1.56*1.56*0.275mm	
	Wafer	Die Process / Technology			Trench MOS		Trench MOS		MOSFET		Trench MOS		Transistor		SKY		PNP		Transistor	
	Wafer	Wafer FAB Site/ Location			HHgrace / Shanghai		HHgrace / Shanghai		VIS		SFAB2 / Shanghai		OFAB		GFAB / UK		JKFAB		JMSC	
	Wafer	Wafer Diameter			8 inch		8 inch		8 inch		8 inch		6"		6"		6"		5"	
	Wafer	No of masks Steps			7		7		6		7		6		3		6		5	
	Wafer	Front Metal Type			AlCu		AlCu		AlCu		AlCu		Al-Si, 6um		TiAlSiCu		Al-Si-Cu, 3um		Al, 4.5um	
	Wafer	Front Metal Layer Number/ Thickness			1/4um		1/4um		4um		1/4um		Al-Si, 6um		2um		Al-Si-Cu, 3um		Al, 4.5um	
	Wafer	Front Solderable or Plated Metal Type / Thickness			NA		NA		N/A		NA		N/A		NA		N/A		N/A	
	Wafer	Back Metal Type (All Layers)			Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ti/Ag		Au		Ti/NiV/Ag		NiVAu		Au		Ti/Ni/Ag	
	Wafer	Back Metal Thickness (All Layers)			1KA/3KA/10KA		1KA/3KA/10KA		1KA/3KA/100A/10KA		6 kA		0.03 / 0.26 / 0.55mm		0.5um		0.6um		0.04 / 0.3 / 0.15um	
	Wafer	Die Conformal Coating (Passivation) Material			Oxide		Oxide		OXIDE / SIN		Oxide		Ox/Nitride		NA		Ox/Nitride		N/A	
	Wafer	Die Conformal Coating (Passivation) Thickness Range			PE-SION 10000A		PE-SION 10000A		4K/6K		TEOS 3K+SIN 7K		0.5mm / 0.5mm		NA		0.5um / 0.5um		N/A	
	Assembly	Die quantity per package (e.g. single or dual dies)			single die		single die		dual dies		dual dies		single die		single die		single die		single die	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EPOXY		EPOXY		EPOXY		EUTECTIC		EPOXY		EUTECTIC		EUTECTIC		EPOXY	
	Assembly	Die Attach Material/ Supplier			QMI519/ HENKEL		QMI519/ HENKEL		QMI529HT-LV/ HENKEL		N/A		8200TI/ HENKEL		N/A		N/A		8500C-HT/ BONOTEC	
	Assembly	Bond Wire/Clip Bond Material			PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu	
	Assembly	Bond Wire Diameter			0.8 mils		0.8 mils		2.0 mils		0.7 mils		2.0 mils		0.8 mils		1.5 mils		1.5 mils	
	Assembly	Bond Type (at Die)			Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond	
	Assembly	Bond Type (at LF)			Wedge bond		Wedge bond		Wedge bond		Ball bond		Wedge bond		Wedge bond		Wedge bond		Ball bond	
	Assembly	No. of bond over active area			2 wires		2 wires		20 wires		4 wires		4 wires		1 wire		3 wires		2 wires	
	Assembly	Leadframe Type			SLP1006P3		SLP1006P3		POWERDI5060-8L T		SLP0806P6-B		SOT-23R		SOD-523A		SOT-23F		SOT-223B	
	Assembly	Leadframe Material			C7025		C7025		Cu194		Cu194		Cu194		Alloy42		Alloy42		Cu194	
	Assembly	Die Pad Plating Material			PPF Plating		PPF Plating		selective Ag Plating		selective Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating	
	Assembly	Mold Compound Type			EME-G770HCD		EME-G770HCD		EME-G700		EME-G770HCD		GR640HV-L1		CEL-1700HF40SK-D3		GR640HV-L1		EME-G630AY	
	Assembly	Glass Transistion Temp (Tg)			135°C		135°C		130°C		135°C		158°C		150°C		158°C		140°C	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Terminal Finish (Plating) Material			PPF plating		PPF plating		Sn		PPF plating		Sn		Sn		Sn		Sn	
	Assembly	Lead-Free (Yes/No)			N/A		N/A		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			150°C		150°C		175°C		150°C		150°C		150°C		150°C		150°C	
	Product	Max Thermal resistance Junc (case)			NA		NA		3.5 °C/W		NA		45°C/W		NA		N/A		N/A	
	Product	Max Thermal resistance Junc (ambient)			280 °C/W		280 °C/W		62.6 °C/W		339°C/W		171°C/W		660°C/W		200°C/W		178°C/W	
	Product	DataSheet			DMN2005LP4K		DMN2005LP4K_R9		DMTH4014LPDQ-13-01_R1		DMN31D5UDA_R4		ZXTP25040DFH		SDM20U40_R12		FMMT718_R5		DXT13003DG_R1	
	Product	Qual Plan Number			26061501		25080801		25080801		25080801		25080801		25080801		25080801		25080801	

Reliability and Characterization Testing

# in AEC-Q101 (E)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
A1	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test # A2, A3, A4, A5 & C8	3 Assembly lots	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles (First cycle can be done at PCB mounting process before Pre-conditioning)			QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
		CSAM pre and post **MSL** per JECEC J-STD-020 Refer to Tab - Diodes Delam Spec (J-STD-020)	22 pcs			QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
A2 (PC)	HAST-1x	Ta=130C, 85%RH, 33.3 psia, 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V).; PER JESD22-A110	96 Hrs	0/77	3 wafer lots	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X				X	Pass	X	Pass	X	Pass
	Post-1x HAST Ball + Stitch/Wedge pull (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots					X	Pass												
	Post-1x HAST Ball Shear (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots					X	Pass												
	Post-1x HAST Cross-section (Q006 only)	Post-1x HAST for initial qual of new die/package or family/technology	post 96 Hrs	0/1	3 wafer lots					X	Pass												
A2alt (PC)	H3TRB-1x	Ta=85°C, 85% RH, with 80% Maximum Reverse Bias or up to a maximum of 100V or limit of chamber. JESD22A-101	168 Hrs	0/77	3 wafer lots											X	Pass						
			500 Hrs	0/77												X	Pass						
			1000 Hrs	0/77												X	Pass						
A4 (PC)	TC[1(NY)] -1x	Ta=-55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	QBS to QBS Source Device 1		X	Pass			X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		QBS to QBS Source Device 1		X	Pass			X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		QBS to QBS Source Device 1		X	Pass			X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
	TC -1x	Ta=-55C to 175C Per Datasheet Max Tj , PER JESD22A-104	200 Cycles	0/77	3 Assembly lots					X	Pass												
			400 Cycles	0/77						X	Pass												
	Post-1x TC CSAM	CSAM post-1X stress (required to qualify Cu/coated Cu wire for Automotive)	post 400 Cycles	0/22 or marked 11	3 Assembly lots					X	Pass												
	Post-1x TC SEM Inspection (Stitch) (Q006 only)	Post-1x TC (Max 30 wires/balls) covering the parts with ground bonds and the parts showing delam at the stitch area if any	post 400 Cycles	0/1	3 Assembly lots					X	Pass												
	Post-1x TC Ball + Stitch/Wedge pull	Post-1x TC (Max 30 wires/balls)	post 400 Cycles	0/3	3 Assembly lots					X	Pass												
	Post-1x TC Ball Shear	Post-1x TC (Max 30 wires/balls)	post 400 Cycles	0/3	3 Assembly lots					X	Pass												
	Post-1x TC Cross-section	Post-1x TC for initial qual of new die/package or family/technology	post 400 Cycles	0/1	3 Assembly lots					X	Pass												
A4a (PC)	TC Hot Test (for MOSFETs)	JESD22 A-104, Appendix 6 - Not required for Cu wire bonded parts that are qualified to Q006	125C TEST after TC using PV-determined limits at hot, followed by decap and wire pull on all wires from 5 devices with bond wire sizes < 5mil	0/77	3 Assembly lots	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass										
A5 (PC)	IOL-1x	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
B1	HTRB-1x	Ta=150°C or Max Tj, Max DC Reverse Voltage PER MIL-STD-750-1. Decap are wire pull 5 parts for Bipolar and Schottky devices usilizing dissimilar metal bonding systems.	168 Hrs	0/77	3 wafer lots	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x HTRB Ball Shear (Q006 only)	Post-1x HTRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots					X	Pass												
	Post-1x HTRB Cross-section (Q006)	Post-1x HTRB for initial qual of new die/package or family/technology ((required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots					X	Pass												
B2	HTGB (Gated Devices only) -1x	Ta=150°C or Max Tj, Vg=100%, PER JESD22 A-108. Decap are wire pull 5 parts for MOSFET devices usilizing dissimilar metal bonding systems. Perform 3 lots of negative bias and 3 lots of positive bias for the initial qualification of a new technology, if appropriate.	168 Hrs	0/77	3 wafer lots	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass										
			500 Hrs	0/77		QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass										
			1000 Hrs	0/77		QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass										
	Post-1x HTGB Ball Shear (Q006 only)	Post-1x HTGB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots					X	Pass												
	Post-1x HTGB Cross-section (Q006 only)	Post-1x HTGB for initial qual of new die/package or family/technology (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots					X	Pass												
C1	DPA	AEC Q101-004 SEC. 4	Post H3TRB or HAST and TC	0/2	1 Assembly lot	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
C3	Wire Bond Pull Strength (WBP)	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk≥1.67	0/ min of 5	1 Assembly lot	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
C4	Wire Bond Shear Strength (WBS)	AEC-Q101-003	Cpk≥1.67	0/ min of 5	1 Assembly lot	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
C8 (PC)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S), after Pre-conditioning	PER SPEC	0/30	1 Assembly lot	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
E0	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass
E2	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet inlcuding AC & DC accross data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	QBS to QBS Source Device 1		X	Pass	X	Pass	X	Pass	X		X	Pass	X	Pass	X	Pass	X	Pass

Summary:
Submitted By/Date:
Approved By/Date: CW Lin, 6/26/2026

Certificate of Design, Construction & Qualification

Description: Qualification of Part Number(s) xxx

	Category				QBS Source Device 9		QBS Source Device 10		QBS Source Device 11		QBS Source Device 12		QBS Source Device 13		QBS Source Device 14		QBS Source Device 15		QBS Source Device 16	
	Product	Part Number			L25LSV0CB2		BAV21WS-7-F-67		DMG2302UXQ-7		B130LAW-7-F-79		L09ESD1V3CA2		DMG1016VQ-13-52		SBRT05U20LPSQ-7B		BCX5616QTA	
	Assembly	Package Type			SOD-323		SOD-323		SOT-23		SOD-123		SOD-523		SOT-563		DFN1006H4-2		SOT89-3L	
	Wafer	Die Name(s)			LC1305V0-BNN		SDD31DHJ		MOSWFSEDCM-BN		SY034AA0030AADI-C		BIESD12-3V3T		ON14263 ON14273		NT016AA0020BAAB		BCX5616TYQD	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.760 x 0.666 x 0.140		0.41*0.41		0.6*0.42*0.158		0.88*0.88*0.23mm		0.3048 x 0.3048 x 0.150		0.4*0.4*1.58		0.41*0.41*0.10mm		0.6858*0.6858	
	Wafer	Die Process / Technology			TVS		SBR		Trench MOS		SKY		TVS		Trench MOS		Trench SBR			
	Wafer	Wafer FAB Site/ Location			KLFAB6		PHENITEC		PSMC / Taiwan		SIMAT / China		YEASHIN		HHgrace / Shanghai		VIS / TW		OFAB	
	Wafer	Wafer Diameter			150mm		5"		8 inch		6"		100mm		8 inch		8"			
	Wafer	No of masks Steps			15		5		7				3		7		3			
	Wafer	Front Metal Type			AlSiCu		AlSiCu		AlCu		TiAlSiCu		Al		AlCu		AlSiCu		AlSi1Cu0.5	
	Wafer	Front Metal Layer Number/ Thickness			2um		2.5um		1/4um		4um		5um		1/4um		4um			
	Wafer	Front Solderable or Plated Metal Type / Thickness			NA		not available		NA		NA		NA		NA		NA			
	Wafer	Back Metal Type (All Layers)			None		AuAs/Au		Ti/Ni/Ag		Ti/Ni/V/Au		Ti/Ni/Ag		Ti/Au		Ti/Ni/Ag		Ti/Ni/V/Ag	
	Wafer	Back Metal Thickness (All Layers)			NA		0.9um		1KA/3KA/10A				7.5 um ± 10%		0.1KA/10KA		0.1/0.3/1 um			
	Wafer	Die Conformal Coating (Passivation) Material			1. SiO2(2KA) 2. SiN(6.2KA)		PSG+NSG		Oxide		NA		Nitride		Oxide		N/A			
	Wafer	Die Conformal Coating (Passivation) Thickness Range			1. SiO2(2KA) spec: 1800 ~ 2200A 2. SiN(6.2KA) spec: 5580 ~ 6820A		8000A		SiN 9000A		NA		1-2um		PE-SION 10000A		N/A			
	Assembly	Die quantity per package (e.g. single or dual dies)			single die		single die		single die		single die		single die		dual dies		single die		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			WBC		EUTECTIC		EPOXY		EPOXY		EPOXY		EUTECTIC		EPOXY		EPOXY	
	Assembly	Die Attach Material/ Supplier			8006NS/ HENKEL		N/A		9005SP/ LEGEND		9005SP/ LEGEND		8309C-HT/ BONOTEC		N/A		QMI519/ HENKEL		8200TI/ Henkel	
	Assembly	Bond Wire/Clip Bond Material			PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu		PdCu	
	Assembly	Bond Wire Diameter			1.2 mils		0.7 mils		1.0 mils		2.0 mils		1.0 mils		0.8 mils		1.0 mils		0.8 mils	
	Assembly	Bond Type (at Die)			Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond		Ball bond			
	Assembly	Bond Type (at LF)			Wedge bond		Wedge bond		Wedge bond		Wedge bond		Wedge bond		Wedge bond		Wedge bond			
	Assembly	No. of bond over active area			2 wires		1 wire		5 wires		1 wire		1 wire		4 wires		2 wires		2	
	Assembly	Leadframe Type			SOD-323B		SOD-323A		SOT-23K		SOD-123A		SOD-523A		SOT-563E		SLP1006P2-U		SOT89-3L	
	Assembly	Leadframe Material			Alloy42		Alloy42		Cu194		Alloy42		Alloy42		Cu194		C7025			
	Assembly	Die Pad Plating Material			Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Spot Ag Plating		Pd PPF Plating			
	Assembly	Mold Compound Type			CEL-1702HF9 SK		CEL-1700HF405K-D3		CEL-1700HF405K-D3		CEL-1700HF405K-D3		CEL-1702HF9 SK		CEL-1702HF9 SKF		EME-G770HCD		EME-G600	
	Assembly	Glass Transistion Temp (Tg)			120°C		150°C		150°C		150°C		120°C		120°C		135°C		130°C	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Terminal Finish (Plating) Material			Sn		Sn		Sn		Sn		Sn		Sn		PPF plating		Sn	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		N/A		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			125°C		150°C		150°C		125°C		125°C		150°C		150°C		150°C	
	Product	Max Thermal resistance Junc (case)			NA		NA		N/A		65.71°C/W		N/A		NA		NA		125°C/W	
	Product	Max Thermal resistance Junc (ambient)			NA		625°C/W		115°C/W		222°C/W		500°C/W		235°C/W		236°C/W		125°C/W	
	Product	DataSheet			L25LSV0CB2_R4		BAV19WS-BAV21WS_R23		DMG2302UXQ_R2		B130LAW_R12		DS44534(DSYB182T_R1)		DMG1016VQ_R4		SBRT05U20LPSQ_R2		BCX5616Q	
	Product	Qual Plan Number			25080801		25080801		25080801		25080801		25080801		25080801		25080801		25080801	
	Reliability and Characterization Testing																			
# in AEC Q101 (E)	**Test**	**Test Conditions**	**Duration / Limits**	**Accept on # Failed/ Sample Size per Lot**	**# of Lots**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**
A1	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test # A2, A3, A4, A5 & C8	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles (First cycle can be done at PCB mounting process before Pre-conditioning)			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
A2 (PC)	HAST-1x	Ta=130C, 85%RH, 33.3 psia, 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V).; PER JESD22-A110	96 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass			X	Pass								
	Post-1x HAST Ball + Stitch/Wedge pull (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots					X	Pass					X				X			
	Post-1x HAST Ball Shear (Q006 only)	Post-1x HAST (Max 30 wires/balls)	post 96 Hrs	0/3	3 wafer lots					X	Pass					X				X			
	Post-1x HAST Cross-section (Q006 only)	Post-1x HAST for initial qual of new die/package or family/technology	post 96 Hrs	0/1	3 wafer lots					X	Pass					X				X			
	HAST-2x (Q006 only)	Ta=130C, 85%RH 33.3 psia 80% Bias or up to a voltage above which arcing in the chamber will likely occur (typically 42V); PER JESD22-A110 (required to qualify Cu/coated Cu wire for Automotive)	192 Hrs	0/70	3 wafer lots					X	Pass												
	H3TRB-1x	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias or up to a maximum of 100V or limit of chamber. JESD22A 101	168 Hrs	0/77	3 wafer lots											X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77												X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77												X	Pass	X	Pass	X	Pass	X	Pass
A2alt (PC)	Post-1x H3TRB Ball + Stitch/Wedge pull (Q006 only)	Post-1x H3TRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots											X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x H3TRB Ball Shear (Q006 only)	Post-1x H3TRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots											X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x H3TRB Cross-section (Q006 only)	Post-1x H3TRB for initial qual of new die/package or family/technology	post 1000 Hrs	0/1	3 wafer lots											X	Pass	X	Pass	X	Pass	X	Pass
A3(NY) (PC)	HHT	Ta=85ºC, 85% RH,	168 Hrs	0/77	3 wafer lots							X	Pass										
			500 Hrs	0/77								X	Pass										
			1000 Hrs	0/77								X	Pass										
A4 (PC)	$TC^{1 (NY)}$ -1x	Ta=-55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x TC CSAM (Q006 only)	CSAM post-1X stress (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Cycles	0/22 or marked 11	3 Assembly lots					X	Pass					X	Pass	X	Pass	X	Pass		
	Post-1x TC SEM Inspection (Stitch) (Q006 only)	Post-1x TC (Max 30 wires/balls) covering the parts with ground bonds and the parts showing delam at the stitch area if any	post 1000 Cycles	0/1	3 Assembly lots											X	Pass	X	Pass	X	Pass		
	Post-1x TC Ball + Stitch/Wedge pull (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots					X	Pass					X	Pass	X	Pass	X	Pass		
	Post-1x TC Ball Shear (Q006 only)	Post-1x TC (Max 30 wires/balls)	post 1000 Cycles	0/3	3 Assembly lots					X	Pass					X	Pass	X	Pass	X	Pass		
	Post-1x TC Cross-section (Q006 only)	Post-1x TC for initial qual of new die/package or family/technology	post 1000 Cycles	0/1	3 Assembly lots					X	Pass					X	Pass	X	Pass	X	Pass		
A4a (PC)	TC Hot Test (for MOSFETs)	JESD22 A-104, Appendix 6 - Not required for Cu wire bonded parts that are qualified to Q006	125C TEST after TC using PV-determined limits at hot, followed by decap and wire pull on all wires from 5 devices with bond wire sizes < 5mil	0/77	3 Assembly lots					X	Pass					X	Pass						
A5 (PC)	IOL-1x	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots			X	Pass	X	Pass	X	Pass			X	Pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77				X	Pass	X	Pass	X	Pass			X	Pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77				X	Pass	X	Pass	X	Pass			X	Pass	X	Pass	X	Pass	X	Pass
B1	HTRB-1x	Ta=150°C or Max Tj, Max DC Reverse Voltage PER MIL-STD-750-1. Decap are wire pull 5 parts for Bipolar and Schottky devices usilizing dissimilar metal bonding systems.	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Post-1x HTRB Ball Shear (Q006 only)	Post-1x HTRB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots											X	Pass	X	Pass	X	Pass		
	Post-1x HTRB Cross-section (Q006)	Post-1x HTRB for initial qual of new die/package or family/technology ((required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots											X	Pass	X	Pass	X	Pass		
	HTRB-2x (Q006)	Ta=150°C or Max Tj, Max DC Reverse Voltage, PER MIL-STD-750-1 (required to qualify Cu/coated Cu wire for Automotive)	2000 Hrs	0/77	3 wafer lots					X	Pass												
	Post-2x HTRB Ball Shear (Q006 only)	Post-2x HTRB (Max 30 wires/balls)	post 2000 Hrs	0/3	3 wafer lots					X	Pass												
	Post-2x HTRB Cross-section (Q006)	Post-2x HTRB for initial qual of new die/package or family/technology	post 2000 Hrs	0/1	3 wafer lots					X	Pass												
B2	HTGB (Gated Devices only) -1x	Ta=150°C or Max Tj, Vg=100%, PER JESD22 A-108. Decap are wire pull 5 parts for MOSFET devices usilizing dissimilar metal bonding systems. Perform 3 lots of negative bias and 3 lots of positive bias for the initial quallification of a new technology, if appropriate.	168 Hrs	0/77	3 wafer lots					X	Pass					X	Pass						
			500 Hrs	0/77						X	Pass					X	Pass						
			1000 Hrs	0/77						X	Pass					X	Pass						
	Post-1x HTGB Ball Shear (Q006 only)	Post-1x HTGB (Max 30 wires/balls)	post 1000 Hrs	0/3	3 wafer lots					X	Pass					X	Pass						
	Post-1x HTGB Cross-section (Q006 only)	Post-1x HTGB for initial qual of new die/package or family/technology (required to qualify Cu/coated Cu wire for Automotive)	post 1000 Hrs	0/1	3 wafer lots					X	Pass					X	Pass						
	HTGB-2x (Q006 only)	Ta=150°C or Max Tj, Vg=100%, PER JESD22 A-108 (required to qualify Cu/coated Cu wire for Automotive)	2000 Hrs	0/77	3 wafer lots					X	Pass												
C1	DPA	AEC Q101-004 SEC. 4	Post H3TRB or HAST and TC	0/2	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C3	Wire Bond Pull Strength (WBP)	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk≥1.67	0/ min of 5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C4	Wire Bond Shear Strength (WBS)	AEC-Q101-003	Cpk≥1.67	0/ min of 5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
C8 (PC)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S), after Pre conditioning	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E0	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
E2	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet inlcuding AC & DC accross data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	Summary:																						
	Submitted By/Date:																						
	Approved By/Date:	CW Lin, 6/26/2026																					