



Product Change Notification



Product Group: Diodes / June 03rd, 2013 / PCN-DD-005-2013 Rev 0

Bare copper lead frame and plating line

DESCRIPTION OF CHANGE:

Termination finish (process/material) for TO-220 Full Pak and TO-247 will change from hot solder dip (Sn 99.3%, Cu 0.7%) to matte tin plating (Sn 100%). TO-247's heatsink and leads thickness lead frame will change from 79 mils to 50 mils and from 24 mils to 20 mils respectively: package outline dimension will be reviewed accordingly. See annex.

CLASSIFICATION OF CHANGE:

Assembly Process/Structure and Lead Free Statement

REASON FOR CHANGE:

Improve manufacturing flexibility for TO-220 Full Pak and TO-247.

EXPECTED INFLUENCE ON QUALITY/RELIABILITY/PERFORMANCE:

There will be no effect on quality, reliability, or electrical performance. There will be no changes to data sheets specifications.

PRODUCT CATEGORY: Fred Pt, Hexfred and Schottky

PART NUMBERS/SERIES/FAMILIES AFFECTED:

PACKAGE	DIE TECNOLOGY	PRODUCT
TO-220 FULL PAK PACKAGE		
TO-220 FULL PAK	Fred	VS-15ETH06FP-N3
TO-220 FULL PAK	Fred	VS-15ETH06FPPBF
TO-220 FULL PAK	Fred	VS-15ETL06FP-N3
TO-220 FULL PAK	Fred	VS-15ETL06FPPBF
TO-220 FULL PAK	Fred	VS-15ETX06FP-N3
TO-220 FULL PAK	Fred	VS-15ETX06FPPBF
TO-220 FULL PAK	Fred	VS-20CTH03FP-N3
TO-220 FULL PAK	Fred	VS-20CTH03FPPBF
TO-220 FULL PAK	Fred	VS-30CTH02FP-N3
TO-220 FULL PAK	Fred	VS-30CTH02FPPBF
TO-220 FULL PAK	Fred	VS-30ETH06FP-F3
TO-220 FULL PAK	Fred	VS-30ETH06FP-N3
TO-220 FULL PAK	Fred	VS-8ETH06FP-N3
TO-220 FULL PAK	Fred	VS-8ETH06FPPBF
TO-220 FULL PAK	Fred	VS-8ETL06FP-N3
TO-220 FULL PAK	Fred	VS-8ETL06FPPBF
TO-220 FULL PAK	Fred	VS-8ETX06FP-N3
TO-220 FULL PAK	Fred	VS-8ETX06FPPBF

Vishay Intertechnology, Inc.

Corporate Headquarters 63 Lincoln Highway, Malvern, PA 19355-2143 U.S.A. Phone (610) 644-1300 Fax (610) 296-0657 www.vishay.com

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PACKAGE	DIE TECNOLOGY	PRODUCT
TO-220 FULL PAK	Fred	VS-99-2026PBF
TO-220 FULL PAK LONG LEAD	Fred	VS-S1573
TO-247 PACKAGE		
TO-247AC	Fred	VS-30CPH03-N3
TO-247AC	Fred	VS-30CPH03PBF
TO-247AC	Fred	VS-30CPU04-N3
TO-247AC	Fred	VS-30CPU04PbF
TO-247AC	Fred	VS-60APH03-N3
TO-247AC	Fred	VS-60APU02-N3
TO-247AC	Fred	VS-60APU02PBF
TO-247AC	Fred	VS-60APU04-N3
TO-247AC	Fred	VS-60APU04PbF
TO-247AC	Fred	VS-60APU06-N3
TO-247AC	Fred	VS-60APU06PbF
TO-247AC	Fred	VS-60CPH03-N3
TO-247AC	Fred	VS-60CPH03PBF
TO-247AC	Fred	VS-60CPU02-F
TO-247AC	Fred	VS-60CPU02-N3
TO-247AC	Fred	VS-60CPU04-F3
TO-247AC	Fred	VS-60CPU04-N3
TO-247AC	Fred	VS-60CPU06-F
TO-247AC	Fred	VS-60CPU06-N3
TO-247AC	Fred	VS-80CPH03-F3
TO-247AC	Fred	VS-80CPH03-N3
TO-247AC	Fred	VS-80CPU02-F3
TO-247AC	Fred	VS-80CPU02-N3
TO-247AC	Fred	VS-96-1050PbF
TO-247AC	Fred	VS-APH3006-F3
TO-247AC	Fred	VS-APH3006-N3
TO-247AC	Fred	VS-APU3006-F3
TO-247AC	Fred	VS-APU3006-N3
TO-247AC	Fred	VS-APU6006-N3
TO-247AC	Fred	VS-CPU6006-N3
TO-247AC	Fred	VS-MUR3020WT-N3
TO-247AC	Fred	VS-MUR3020WTPbF
TO-247AC	Fred	VS-S1558
TO-247AC	Hexfred	VS-HFA12PA120C-N3
TO-247AC	Hexfred	VS-HFA12PA120CPBF
TO-247AC	Hexfred	VS-HFA16PA120C-N3
TO-247AC	Hexfred	VS-HFA16PA120CPBF

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PACKAGE	DIE TECNOLOGY	PRODUCT
TO-247AC	Hexfred	VS-HFA16PA60C-N3
TO-247AC	Hexfred	VS-HFA16PA60CPBF
TO-247AC	Hexfred	VS-HFA30PA60C-N3
TO-247AC	Hexfred	VS-HFA30PA60CPBF
TO-247AC	Hexfred	VS-HFA32PA120C-N3
TO-247AC	Hexfred	VS-HFA32PA120CPBF
TO-247AC	Hexfred	VS-HFA50PA60C-N3
TO-247AC	Hexfred	VS-HFA50PA60CPBF
TO-247AC	Hexfred	VS-S1517
TO-247AC	Schottky	VS-30CPQ140-N3
TO-247AC	Schottky	VS-30CPQ140PbF
TO-247AC	Schottky	VS-30CPQ150-N3
TO-247AC	Schottky	VS-30CPQ150PBF
TO-247AC	Schottky	VS-40L15CW-N3
TO-247AC	Schottky	VS-40L15CWPbF
TO-247AC	Schottky	VS-60CPQ150-N3
TO-247AC	Schottky	VS-60CPQ150PbF
TO-247AC	Schottky	VS-65PQ015-N3
TO-247AC	Schottky	VS-65PQ015PbF
TO-247AC	Schottky	VS-80CPQ150-N3
TO-247AC	Schottky	VS-80CPQ150PbF
TO-247AC	Schottky	VS-95-5103PBF
TO-247AC	Schottky	VS-95-5157PBF
TO-247AC	Schottky	VS-95-9838PbF
TO-247AC	Schottky	VS-MBR40L15CW-N3
TO-247AC	Schottky	VS-MBR40L15CWPbF
TO-247AC	Schottky	VS-STPS40L15CW-N3
TO-247AC	Schottky	VS-STPS40L15CWPbF
TO-247AC Modified	Fred	VS-30EPH03-N3
TO-247AC Modified	Fred	VS-30EPH03PBF
TO-247AC Modified	Fred	VS-30EPH06-N3
TO-247AC Modified	Fred	VS-30EPH06PbF
TO-247AC Modified	Fred	VS-60EPU02-N3
TO-247AC Modified	Fred	VS-60EPU02PbF
TO-247AC Modified	Fred	VS-60EPU04-N3
TO-247AC Modified	Fred	VS-60EPU04PbF
TO-247AC Modified	Fred	VS-60EPU06-N3
TO-247AC Modified	Fred	VS-60EPU06PbF
TO-247AC Modified	Fred	VS-94-2140PBF
TO-247AC Modified	Fred	VS-EPH3006-F3

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PACKAGE	DIE TECNOLOGY	PRODUCT
TO-247AC Modified	Fred	VS-EPH3006-N3
TO-247AC Modified	Fred	VS-EPU3006-F3
TO-247AC Modified	Fred	VS-EPU3006-N3
TO-247AC Modified	Fred	VS-EPU6006-N3
TO-247AC Modified	Hexfred	VS-HFA06PB120-N3
TO-247AC Modified	Hexfred	VS-HFA06PB120PBF
TO-247AC Modified	Hexfred	VS-HFA08PB120-N3
TO-247AC Modified	Hexfred	VS-HFA08PB120PBF
TO-247AC Modified	Hexfred	VS-HFA08PB60-N3
TO-247AC Modified	Hexfred	VS-HFA08PB60PBF
TO-247AC Modified	Hexfred	VS-HFA15PB60-N3
TO-247AC Modified	Hexfred	VS-HFA15PB60PBF
TO-247AC Modified	Hexfred	VS-HFA16PB120-N3
TO-247AC Modified	Hexfred	VS-HFA16PB120PBF
TO-247AC Modified	Hexfred	VS-HFA25PB60-N3
TO-247AC Modified	Hexfred	VS-HFA25PB60PBF
TO-247AC Modified	Hexfred	VS-HFA30PB120-N3
TO-247AC Modified	Hexfred	VS-HFA30PB120PBF
TO-247AC Modified	Hexfred	VS-S1518
TO-247AC Modified	Hexfred	VS-S1681

Additional part numbers released in TO-220 Full Pak, TO-247 packages after the effective date of this PCN will be covered by this announcement.

VISHAY BRAND(s): Vishay Semiconductors

TIME SCHEDULE: September 2nd, 2013

SAMPLE AVAILABILITY: On customer request

PRODUCT IDENTIFICATION: Lot number

QUALIFICATION DATA: Qualification data is presented on page 8 of this PCN

This PCN is considered approved, without further notification, unless we receive specific customer concerns before July 29st, 2013 or as specified by contract.

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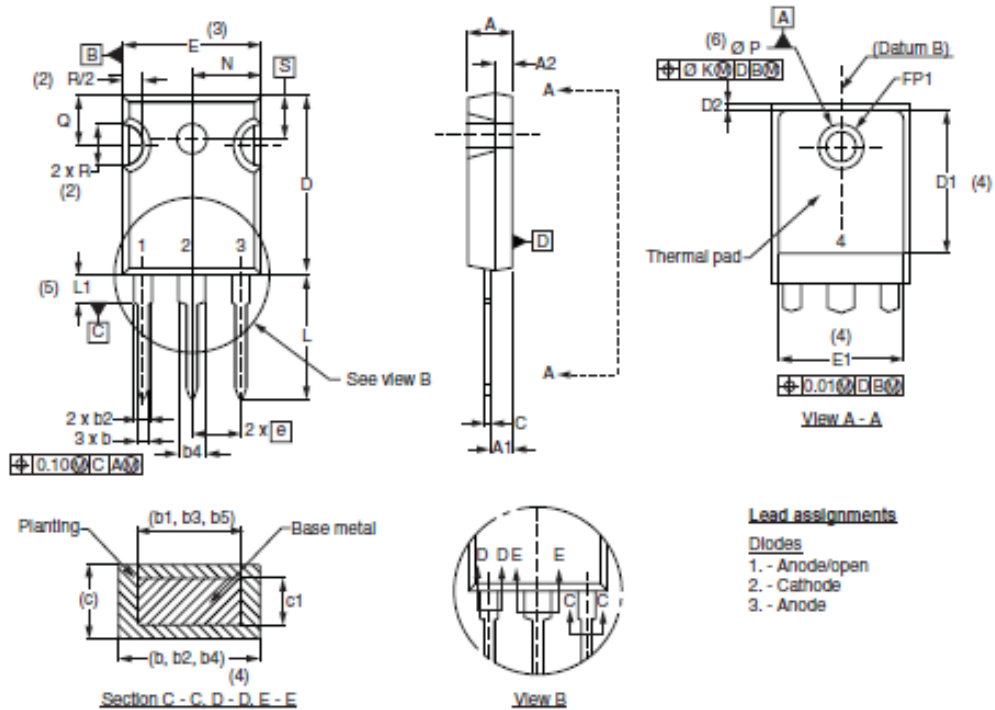
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TO-247 Package Outline Dimension

	From [mm (inches)]		To [mm(inches)]	
	min	Max	min	Max
A2	1.50 (0.059)	2.49 (0.098)	1.17 (0.046)	1.37 (0.054)
b3	1.65 (0.065)	2.37 (0.094)	1.65 (0.065)	2.34 (0.092)
c	0.38 (0.015)	0.86 (0.034)	0.38 (0.015)	0.89 (0.035)
c1	0.38 (0.015)	0.76 (0.030)	0.38 (0.015)	0.84 (0.033)
D2	0.51 (0.020)	1.3 (0.051)	0.51 (0.020)	1.35 (0.053)
E1	13.72 (0.540)	-	13.46 (0.53)	
ΦK	2.54 (0.010)		0.254 (0.010)	
ΦP1	-	6.98 (0.275)	-	7.39 (0.291)

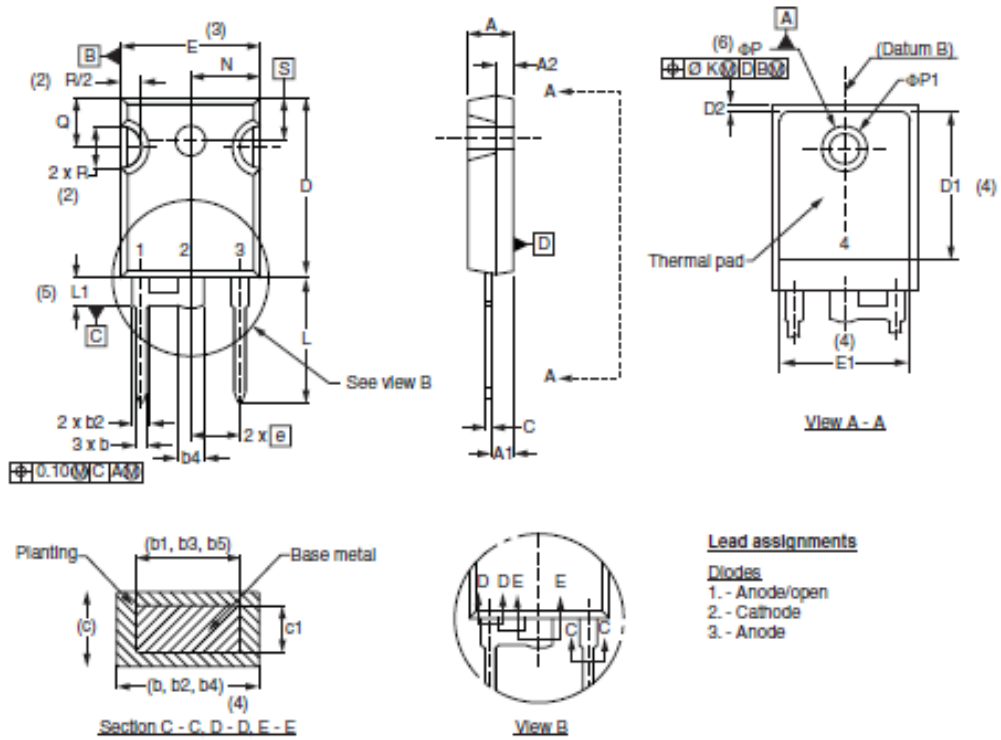
TO-247 AC

DIMENSIONS in millimeters and inches



TO-247 Modified

DIMENSIONS in millimeters and inches



Plating process change manufacturing lines

STRESS	CONDITIONS	TEST POINTS	SAMPLES	RESULTS
TC	-55°C/150°C 1000 cycles	0 250 500 1000	231	0/231
H3TRB	85°C 85%HR @80% rated voltage 1000hrs	0 168 500 1000	154	0/154
Solderability	As per JESD22 B-102	NA	30	0/30

TO-220 Full Pak and TO-247 Bare copper lead frame qualification

TO-220 Full Pak

STRESS	CONDITIONS	TEST POINTS	SAMPLES	RESULTS
TC	-55°C/150°C 1000 cycles	0 250 500 1000	77	0/693
H3TRB	85°C 85%HR @100V 1000hrs	0 168 500 1000	77	0/462
IOL	DT=100°C 8572 cycles	0 4300 8572	77	0/693
Solderability	As per J-STD-002	NA	20	0/90

TO-247

STRESS	CONDITIONS	TEST POINTS	SAMPLES	RESULTS
TC	-55°C/150°C 1000 cycles	0 250 500 1000	77	0/693
H3TRB	85°C 85%HR @100V 1000hrs	0 168 500 1000	77	0/462
IOL	DT=100°C 6000 cycles	0 3000 6000	77	0/693
Solderability	As per J-STD-002	NA	20	0/90