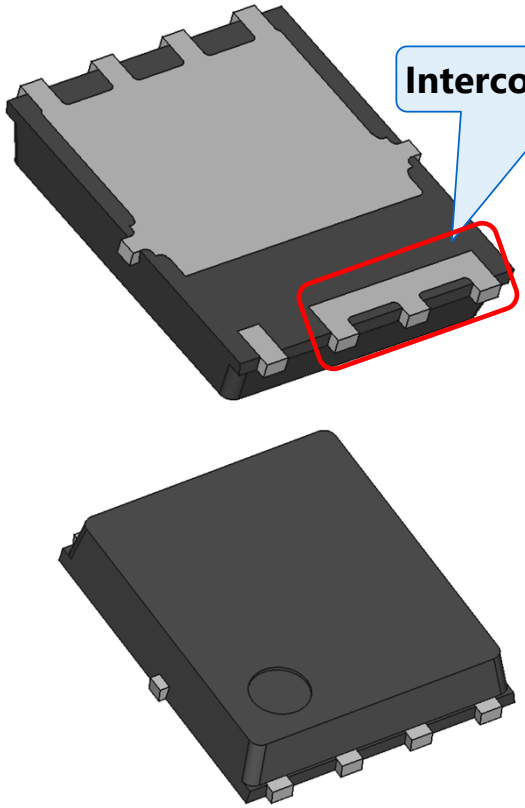
Farnell introduction

Features of SOP Advance(E)

SOP Advance(E) enables higher power density in your applications

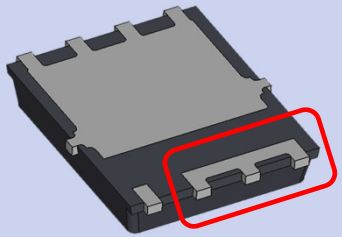
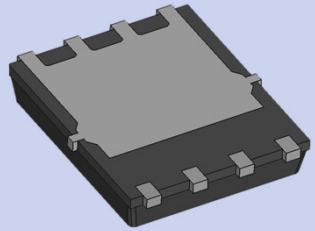
SOP Advance(E)



- ✓ **Compatible package size with standard 5x6 package, SOP Advance(N)**
- ✓ **Higher current rating (up to 180A) *1**
- ✓ **Lower package resistance (▲33%)**
- ✓ **Enlarged mountable chip size (+23%)**
- ✓ **Thermal resistance reduction (▲15%)**

*1: Restrictions due to terminal shape

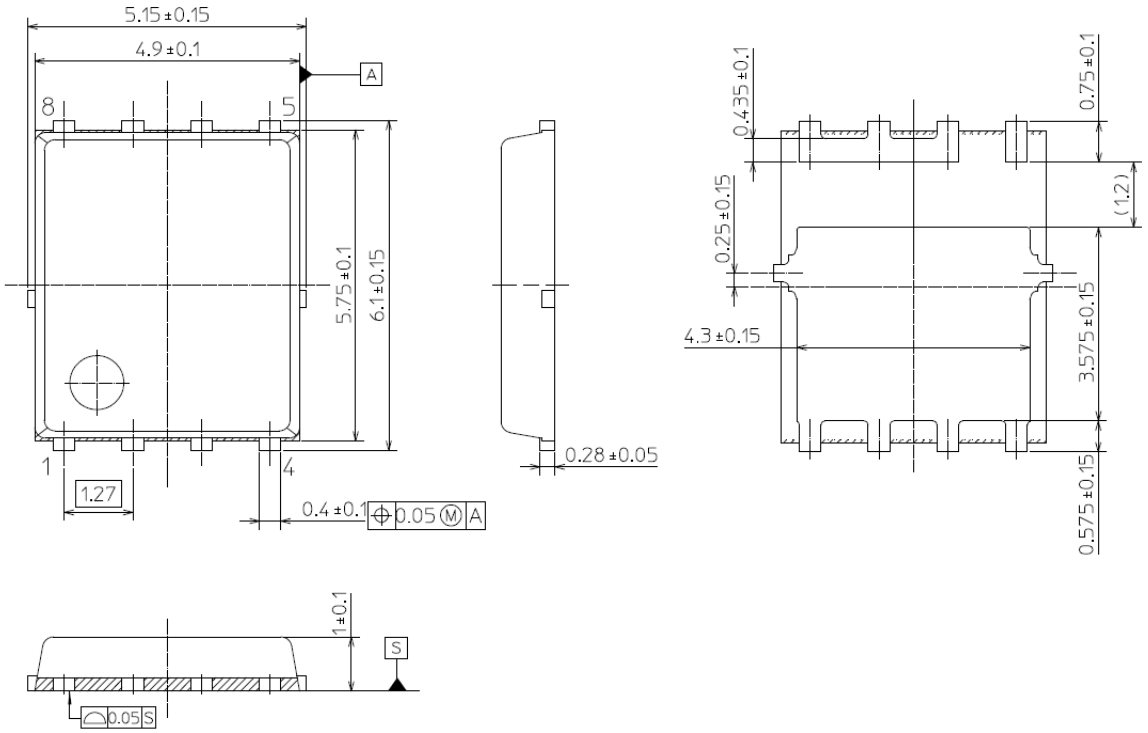
Comparison Table of SOP Advance(E) and SOP Advance(N)

	SOP Advance(E)	SOP Advance(N)
Package outline (Bottom side)		
Package size	**5.15 x 6.10mm**	**5.15 x 6.10mm**
Current rating	**(180A)*1**	**150A**
Package resistance	**0.096mΩ*2**	**0.144mΩ（Thailand product）*2**
Mountable chip size (standardized)	**1.23**	**1**
Thermal resistance	**（0.60℃/W）*1**	**0.71℃/W**

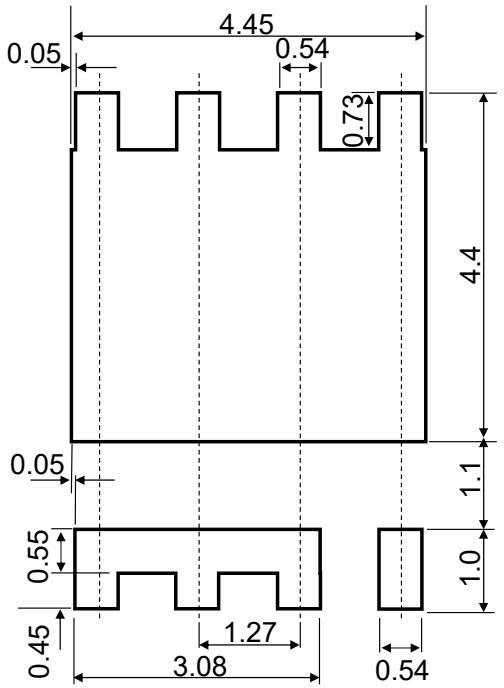
*1: Preliminary value
*2: Calculated by simulation

SOP Advance(E)'s Package dimensions and Land pattern dimensions

Package dimensions (Unit: mm)



Land pattern dimensions (Unit: mm) for reference only

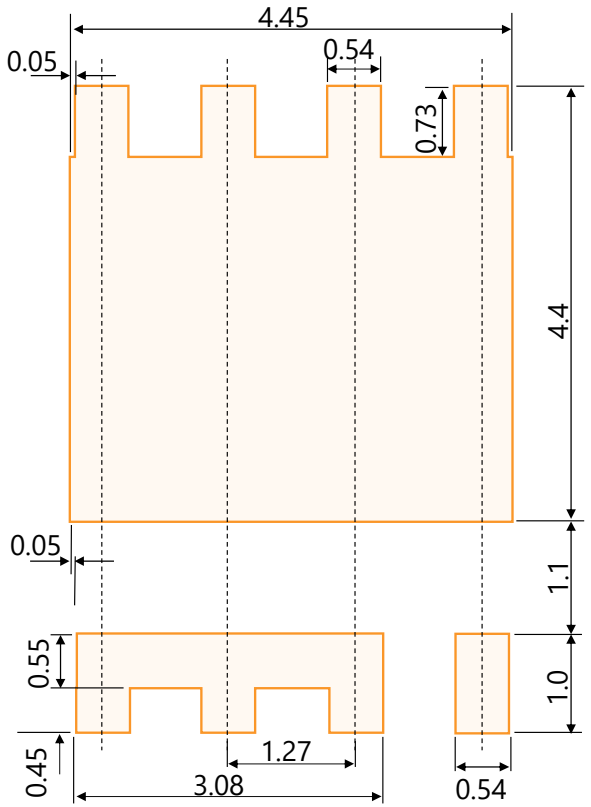


Land pattern dimensions for reference only

Note : SOP Advance(E) and SOP Advance/SOP Advance(N) are mutually compatible for mounting.

SOP Advance(E) is mounting compatible with PG-TSON-8-3 package

SOP Advance(E) Land pattern dimensions (Unit: mm)



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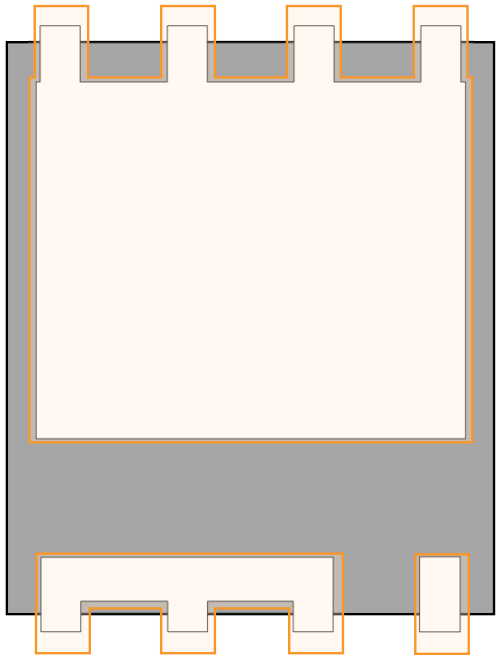
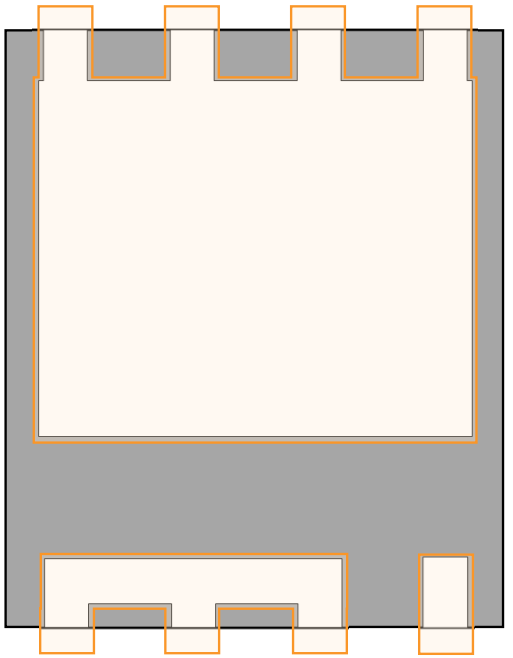
Results of overlapping each package with the SOP Advance(E) Land Pattern

Toshiba SOP Advance(E)



Company-I PG-TSON-8-3

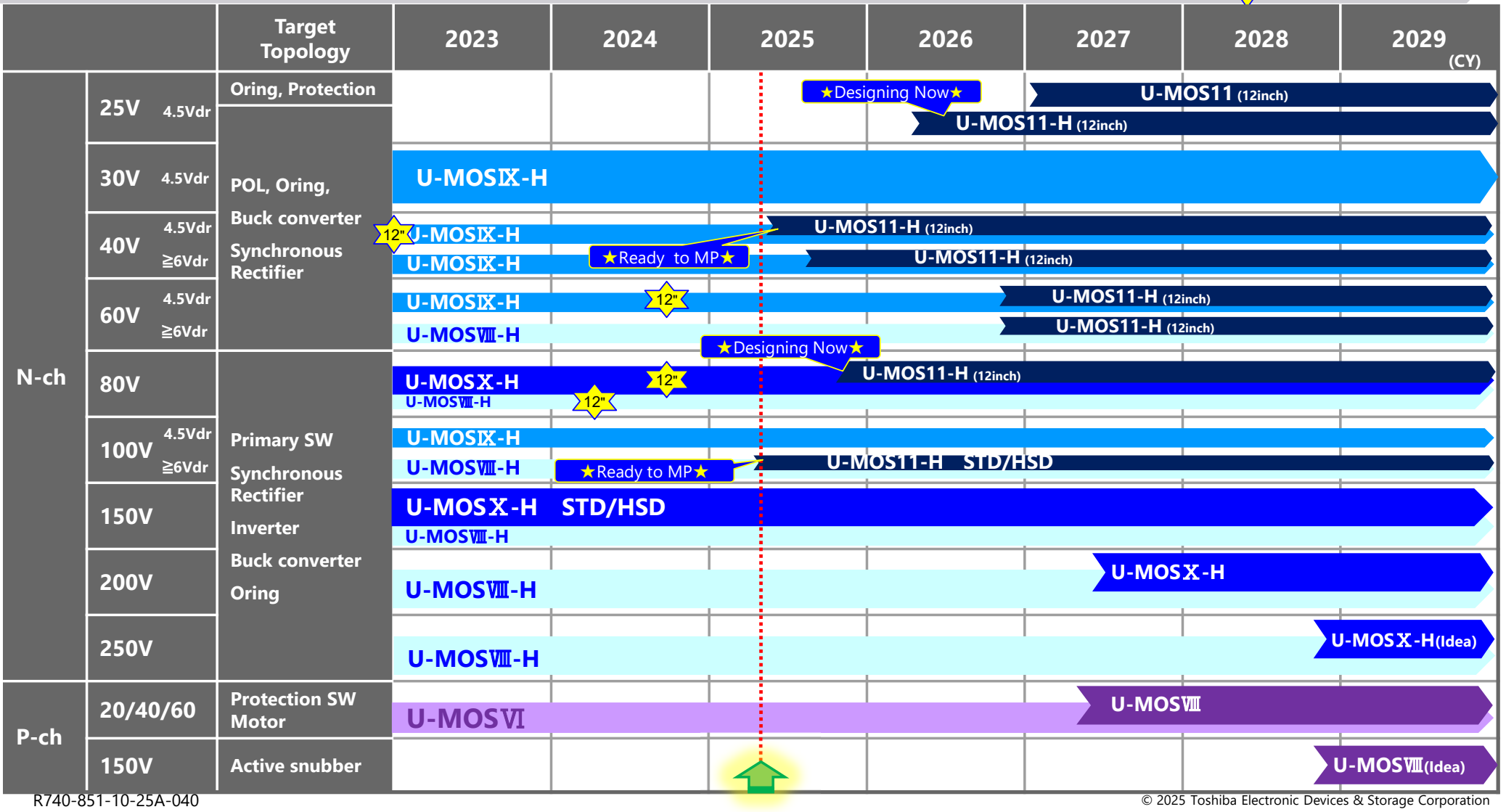


Updated on May 2025

LVMOS Development Road Map (Silicon)

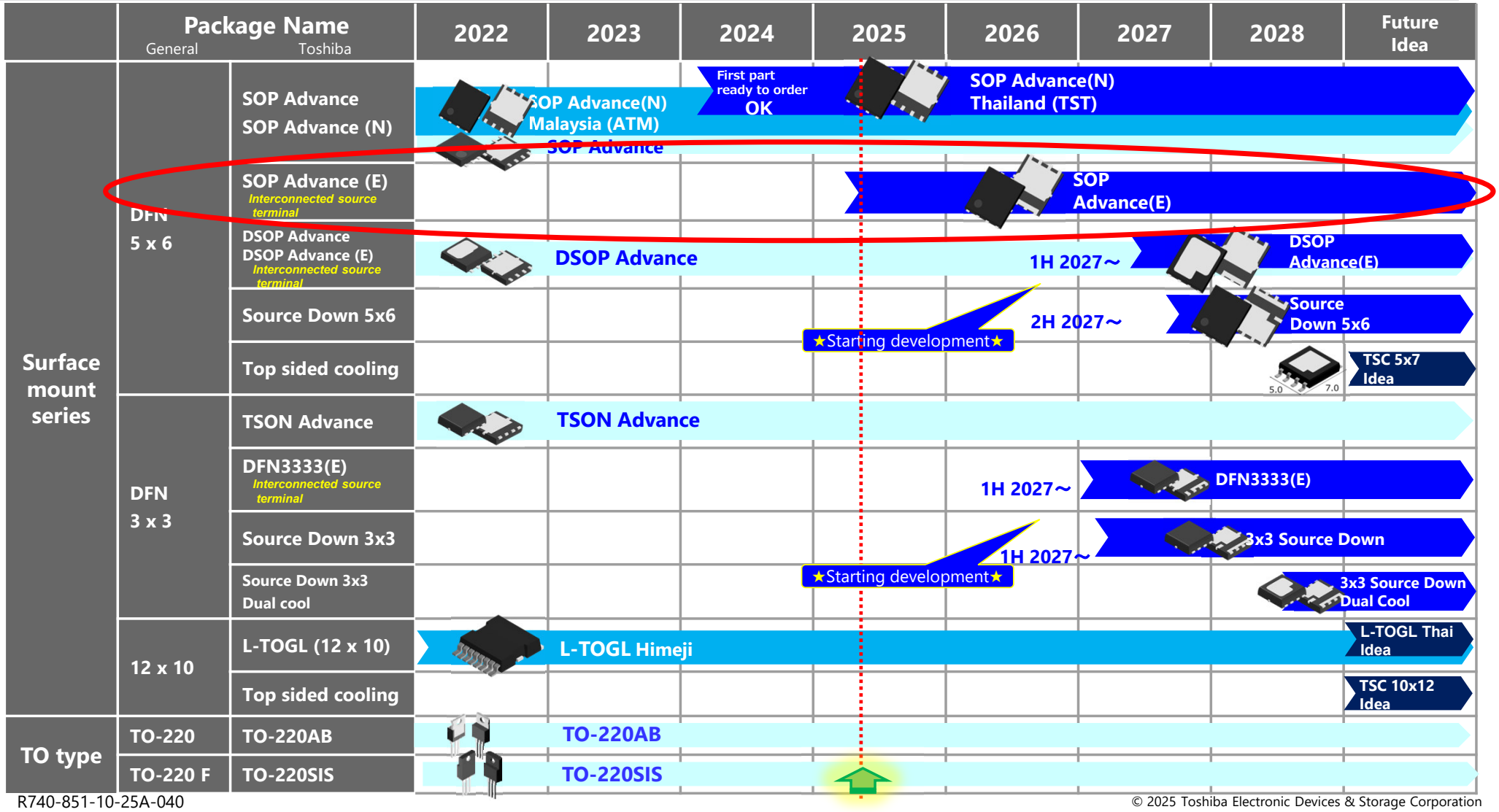
The start timing of Mass production is showed by the left point of each figure on the road map.

12" : Starting 12inchmm production

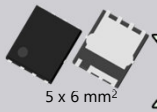


LVMOS Development Road Map (Package)

The start timing of Mass production is showed by the left point of each figure on the road map without existing package technology.



SOP Advance(E) Line-up plan



Under Investigation | Under Development | ES Available | CS Available | Order Available | Under MP | Successor Available

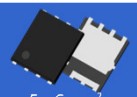
(CY)

$R_{DS(ON)}$max V_{GS}=10V (mΩ)	V_{DSS} (V)									
	25	30	40	45	60	80	100	150	200	250
8								TPM7R10CQ5 (HSD) (MP Jun. 2025) 7.1		
5										
4						TPM3R708QM (Order Jun. 2025) 3.7	S1WN7(11-H HSD) (ES Jan. 2026) 4.3 S1WN8(11-H) (ES Jan. 2026) 4.3			
3						TPM2R808QM (Order Jun. 2025) 2.8	S1WN6(11-H HSD) (ES Jan. 2026) 3.2			
2.5						TPM2R408QM (Order Jun. 2025) 2.4 Idea(11-H_12_TST) 2.4	S1WN5(11-H HSD) (ES Jan. 2026) 2.7			
2					★12inch CS available★	Idea(11-H_12_TST) 2.1 TPM1R908QM (MP Jun. 2025) 1.9 Idea(11-H_12_TST) 1.7	S1TR1(11-H HSD) (ES Dec. 2025) 2.2 S1WN8(11-H) (ES Dec. 2025) 2.2			
1.5					★CS available★	S1XP2(11-H) (ES Nov. 2025) 1.4				
1.2										
1			S1WF1(11-H) (ES Nov. 2025) 1		TPM1R006PL (LS)(L) (Order Jun. 2025) 1					
0.8			S1WF6(11-H)(L) (ES Nov. 2025) 0.9 S1WF0(11-H) (ES Nov. 2025) 0.8 S1WF5(11-H)(L) (ES Nov. 2025) 0.7							
0.6			S1WE9(11-H) (ES Nov. 2025) 0.7 S1WF4(11-H)(L) (ES Nov. 2025) 0.6 S1WE8(11-H) (ES Jun. 2025) 0.6							
0.5	S1XA4(11-H) (ES Sep. 2025) 0.3		S1TM6(11-H)(L) (ES Jun. 2025) 0.5							

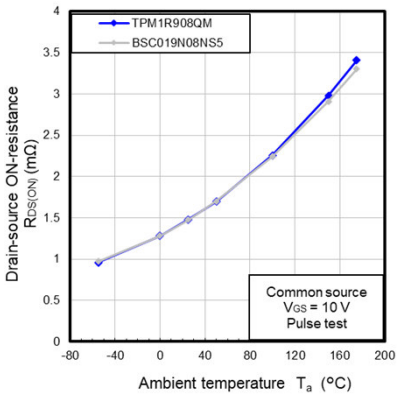
Note : Specifications and schedule of under development is just target and is subject to change without notice.

New Product Series U-MOSⅨ 80V

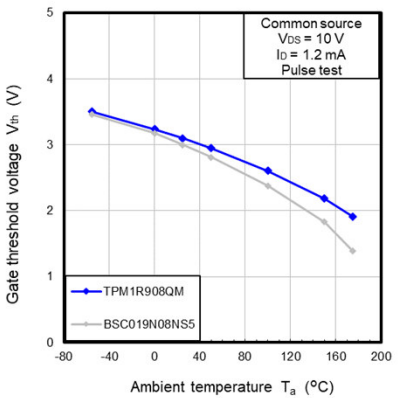
Added a new product outperforming competitors in terms of Q_{rr}

Item	U-MOSⅨ-H TPM1R908QM  5 x 6 mm²		OptiMOS5 BSC019N08NS5  5 x 6 mm²	
Operation Temp	175 deg. C	★★★	175 deg. C	★★★
V_{th}	2.5V～3.5V	★★★	2.2～3.8V	★★
$R_{DS(ON)}$ typ. V_{GS}=10V	1.49*1 mΩ	★★	1.48*1 mΩ	★★
$Q_{sw(}V_{DS=75V)}$	35*1 nC	★★	31.6*1 nC	★★★
$Q_{oss(}V_{DS=75V)}$	111*1 nC	★★	107*1 nC	★★
$Q_{rr(dl/dt=100A/us)}$	71*1 nC	★★★	89*1 nC	★★

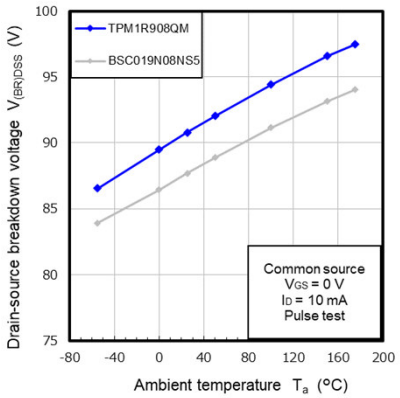
*1 Measured value on same condition (Toshiba devices are equal to datasheet).



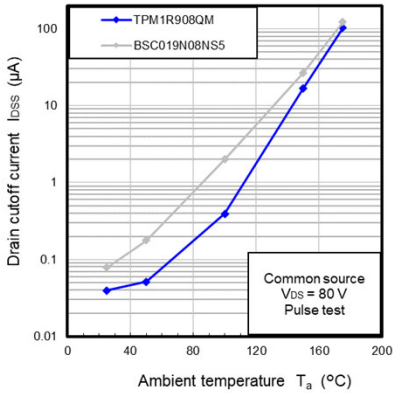
$R_{DS(ON)(Vgs①)}$ - Ta
(Reference)



V_{th} - Ta
(Reference)



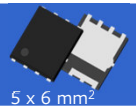
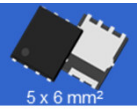
$V_{(BR)DSS}$ - Ta
(Reference)



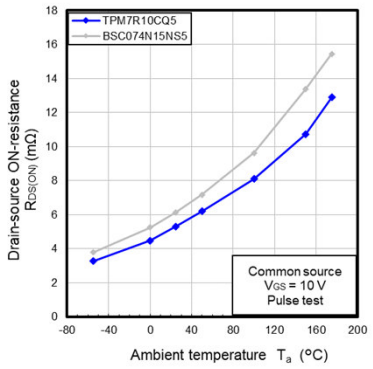
I_{DSS} - Ta
(Reference)

New Product Series U-MOSⅨ 150V

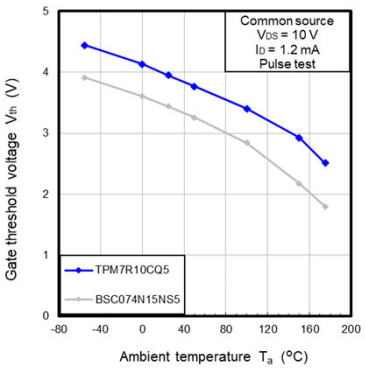
Added a new product outperforming competitors in terms of $R_{DS(ON)}$.

Item	U-MOSⅨ-H(HSD) TPM7R10CQ5  5 x 6 mm²		OptiMOS5 BSC074N15NS5  5 x 6 mm²	
Operation Temp	175 deg. C	★★★	175 deg. C	★★★
I_{DSS} typ.(@100degC)	1.52 μA*1	★★	3.18μA*1	★
V_{th}	3.1V～4.5V	★★	3.0～4.6V	★
$R_{DS(ON)}$ typ. V_{GS}=10V	5.4*1 mΩ	★★★	6.2*1 mΩ	★★
Q_{sw} (V_{DS}=75V)	18*1 nC	★★	15*1 nC	★★★
Q_{oss} (V_{DS}=75V)	107*1 nC	★★	108*1 nC	★★
$Q_{rr(dI/dt=100A/us)}$	43*1 nC	★★★	55*1 nC	★★

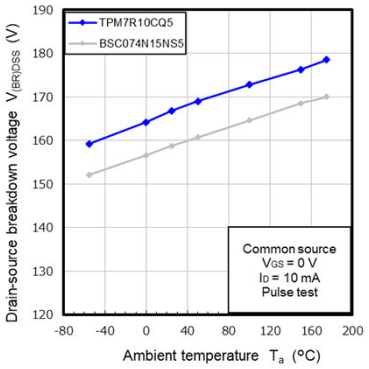
*1 Measured value on same condition (Toshiba devices are equal to datasheet).



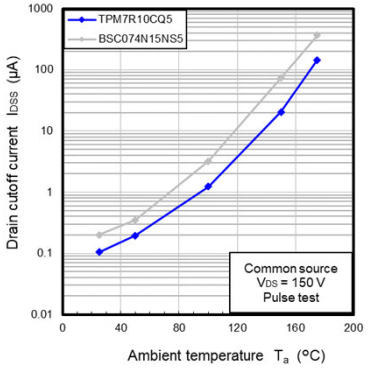
$R_{DS(ON)(Vgs①)}$ - Ta
(Reference)



V_{th} - Ta
(Reference)



$V_{(BR)DSS}$ - Ta
(Reference)



I_{DSS} - Ta
(Reference)

Toshiba Device Product Portfolio

Supports a wide range of discrete, analog, and digital products

Discrete

Power Device
- MOSFET HV & LV
- SiC（MOSFET/SBD)
- GaN-HEMT（Under Development）
- SiC Module
- IGBT/IEGT
- Diode（SBD/Zener, etc.）
- Bipolar Transistor

Isolator/Solid State Relay
- IC Coupler
- Transistor Coupler
- Photo relay
- Digital Isolator

Small Signal Device
- MOSFET
- Bipolar Transistor
- Diode

Analog

Motor Driver(Consumer/Industrial, Automotive)
- For Stepping Motor
- For Brushed Motor
- For Brushless Motor

Linear IC
- Operational Amplifier/Comparator
- Thermoflagger™ （Overheat Monitoring IC）
- Transistor Array

Power Management IC
- LDO Regulator/Load Switch IC/eFuse IC
- MOSFET Gate Driver IC

General Purpose Logic IC

Automotive System Power Supplies IC

Automotive audio power amplifier IC

Automotive Network Communication

Intelligent Power IC

Linear Image Sensors

Digital

Micro Controller
- TXZ+™ Family Advanced Class
- TXZ+™ Family Entry Class
- TX Family
- TLCS™ Family

Interface Bridge IC

Automotive Ethernet Bridge IC

Video Processor IC

Video Decoder IC

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