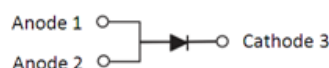


6A, 400V - 600V High Current Density Switch mode Superfast Surface Mount Rectifiers

FEATURES

- Very low profile, typical height of 1.1mm
- 175°C operating junction temperature
- Glass passivated chip junction
- Low conduction loss
- Low leakage current
- High forward surge capability
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21


TO-277A (SMPC)


TYPICAL APPLICATIONS

The devices were designed with a priority on V_f to minimize the conduction losses as secondary rectification of SMPS, while the diodes remain fast enough to fit applications where the switching frequency is counted in tens of kilohertz. The miniature high power density surface mount packages is perfect for space constraint design.

MECHANICAL DATA

Case: TO-277A (SMPC)

Molding compound: UL flammability classification rating 94V-0

Moisture sensitivity level (MSL): level 1, per J-STD-020

Part no. with suffix "H" means AEC-Q101 qualified

Packing code with suffix "G" means green compound (halogen-free)

Terminal: Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

Polarity: Indicated by cathode band

Weight: 95 mg (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	TPMR6G	TPMR6J	UNIT
Marking code		MR6G	MR6J	
Maximum repetitive peak reverse voltage	V_{RRM}	400	600	V
Maximum average forward rectified current	$I_{F(AV)}$	6		A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	100		A
Maximum instantaneous forward voltage ⁽¹⁾ @ 6 A	$T_J=25^\circ\text{C}$	1.20	1.80	V
	$T_J=125^\circ\text{C}$	1.00	-	
Maximum reverse current @ rated V_R	$T_J=25^\circ\text{C}$	10		μA
	$T_J=125^\circ\text{C}$	500		
Maximum reverse recovery time	$I_F=1\text{A}, di/dt=-50\text{A}/\mu\text{s}, V_R=30\text{V}$	60	-	ns
	$I_F=0.5\text{A}, I_R=1\text{A}, I_{RR}=0.25\text{A}$	35	40	
Typical thermal resistance	$R_{\theta JM}$ ⁽²⁾	9.5		$^\circ\text{C}/\text{W}$
	$R_{\theta JA}$ ⁽³⁾	86		
Typical junction capacitance ⁽⁴⁾	C_J	60		pF
Operating junction temperature range	T_J	- 55 to +175		$^\circ\text{C}$
Storage temperature range	T_{STG}	- 55 to +175		$^\circ\text{C}$

Note 1: Pulse test with $PW=300\mu\text{s}$, 1% duty cycle

Note 2: Mounted on FR4 PCB with 16mm x 16mm Cu pad area

Note 3: Free air, mounted on recommend pad

Note 4: Measured at 1 MHz and Applied $V_R=4.0$ Volts

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TPMR6x (Note 1, 2)	H	S1	G	SMPC	1,500/ 7" Plastic reel
		S2		SMPC	6,000/ 13" Plastic reel

Note 1: "X" defines voltage from 400V (TPMR6G) to 600V (TPMR6J)

Note 2: Whole series with green compound (halogen-free)

EXAMPLE

EXAMPLE PART NO.	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TPMR6GHS1G	TPMR6G	H	S1	G	AEC-Q101 qualified Green compound

RATINGS AND CHARACTERISTICS CURVES

($T_A=25^{\circ}\text{C}$ unless otherwise noted)

FIG.1 MAXIMUM FORWARD CURRENT DERATING CURVE

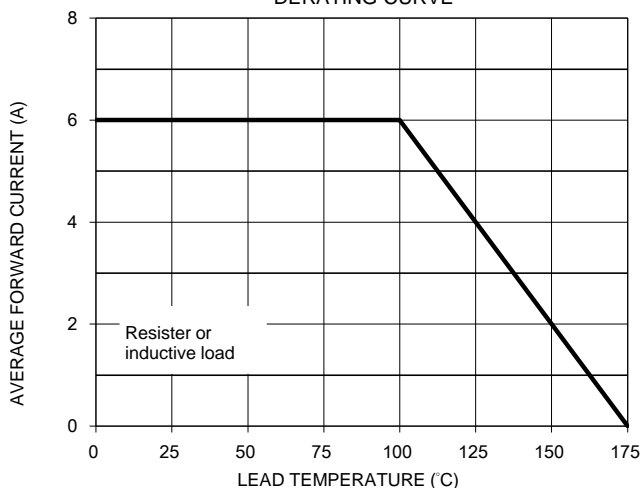


FIG. 2 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

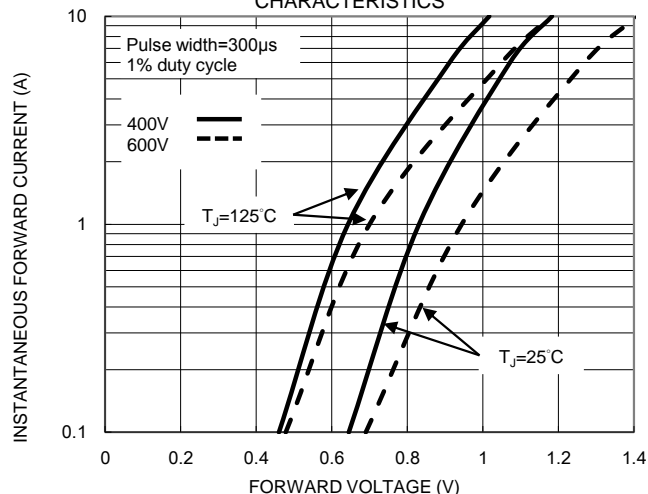


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD PEAK SURGE CURRENT

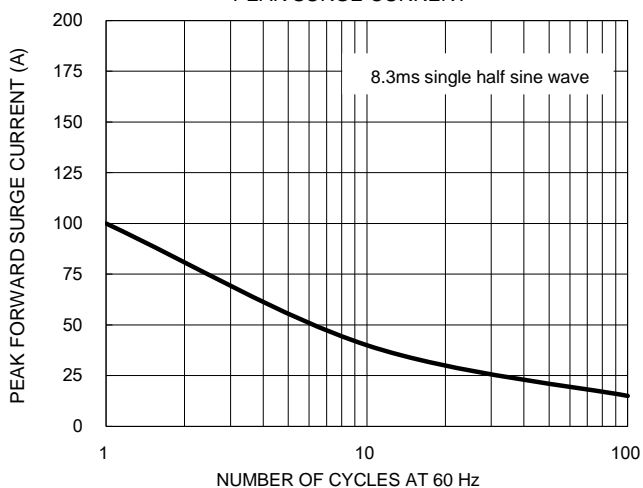


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

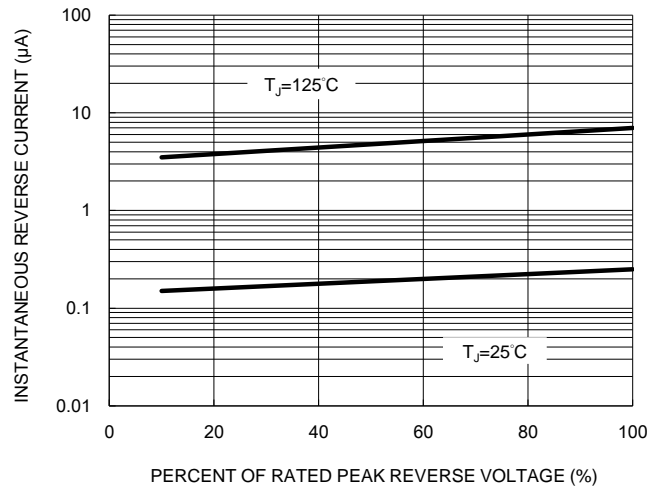
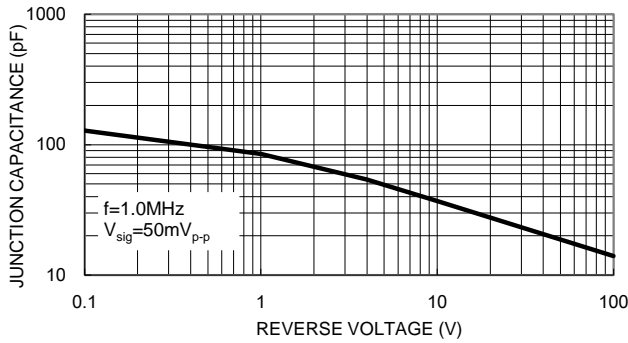
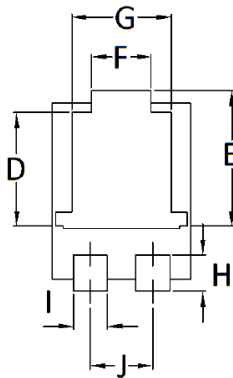
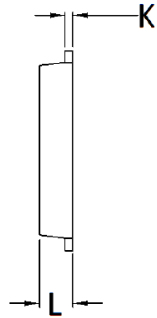
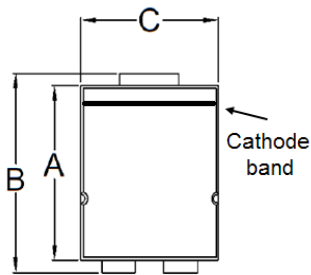


FIG. 5 TYPICAL JUNCTION CAPACITANCE

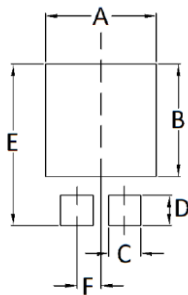


PACKAGE OUTLINE DIMENSIONS
TO-277A (SMPC)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	5.650	5.750	0.222	0.226
B	6.350	6.650	0.250	0.262
C	4.550	4.650	0.179	0.183
D	3.540	3.840	0.139	0.151
E	4.235	4.535	0.167	0.179
F	1.850	2.150	0.073	0.085
G	3.170	3.470	0.125	0.137
H	1.043	1.343	0.041	0.053
I	1.000	1.300	0.039	0.051
J	1.930	2.230	0.076	0.088
K	0.175	0.325	0.007	0.013
L	1.000	1.200	0.039	0.047

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	4.80	0.189
B	4.72	0.186
C	1.40	0.055
D	1.27	0.050
E	6.80	0.268
F	1.04	0.041

MARKING DIAGRAM



P/N = Marking Code
YW = Date Code
F = Factory Code

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