



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

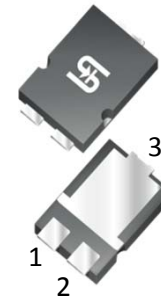
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



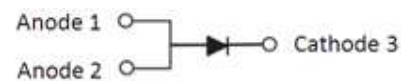
## 6A, 400V - 600V High Current Density Switch mode Superfast Surface Mount Rectifiers

### 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

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

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

Meet JESD 201 class 1A whisker test

**Polarity:** Indicated by cathode band

**Weight:** 95 mg (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)						
PARAMETER		SYMBOL	TPMR6G	TPMR6J	UNIT	
Marking code			MR6G	MR6J		
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	400	600	V	
Maximum average forward rectified current		I <sub>F(AV)</sub>	6		A	
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	100		A	
Maximum instantaneous forward voltage <sup>(1)</sup> @ 6 A	T <sub>J</sub> =25°C	V <sub>F</sub>	1.20	1.80	V	
	T <sub>J</sub> =125°C		1.00	-		
Maximum reverse current @ rated V <sub>R</sub>	T <sub>J</sub> =25°C	I <sub>R</sub>	10		μA	
	T <sub>J</sub> =125°C		500			
Maximum reverse recovery time	I <sub>F</sub> =1A, di/dt=-50A/μs, V <sub>R</sub> =30V		t <sub>rr</sub>	60	-	ns
	I <sub>F</sub> =0.5A, I <sub>R</sub> =1A, I <sub>RR</sub> =0.25A			35	40	
Typical thermal resistance		R <sub>θJM</sub> <sup>(2)</sup>	9.5		°C/W	
		R <sub>θJA</sub> <sup>(3)</sup>	86			
Typical junction capacitance <sup>(4)</sup>		C <sub>J</sub>	60		pF	
Operating junction temperature range		T <sub>J</sub>	- 55 to +175		°C	
Storage temperature range		T <sub>STG</sub>	- 55 to +175		°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  $V_R=4.0\text{ Volts}$



ORDERING INFORMATION				
PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TPMR6x (Note 1, 2)	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.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TPMR6G S1G	TPMR6G	S1	G	Green compound

## RATINGS AND CHARACTERISTICS CURVES

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

FIG.1 MAXIMUM FORWARD CURRENT DERATING CURVE

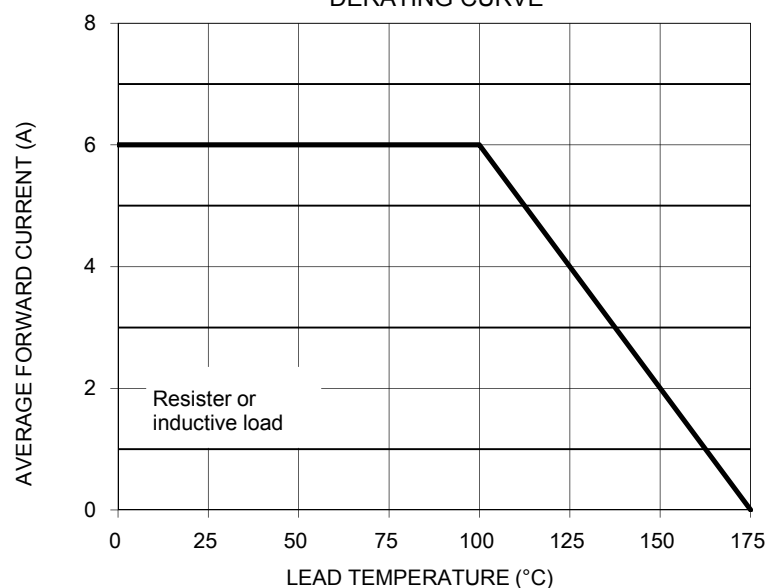


FIG. 2 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

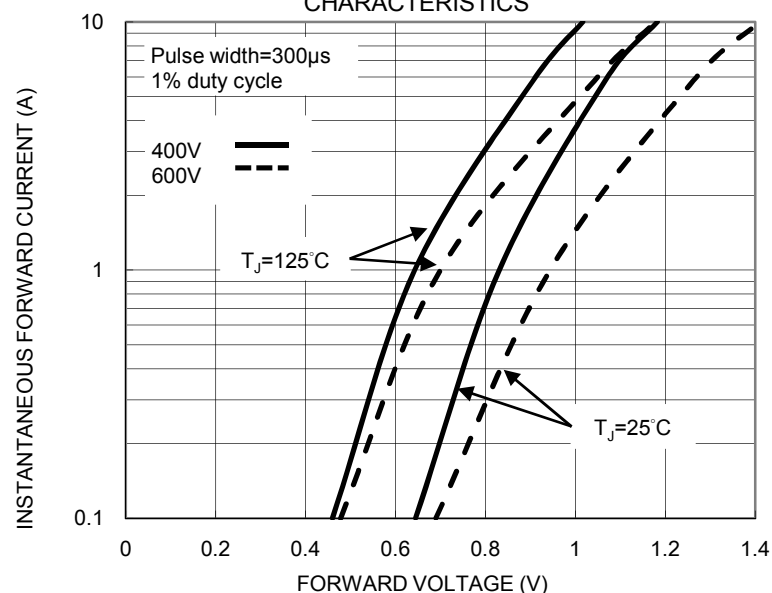


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD PEAK SURGE CURRENT

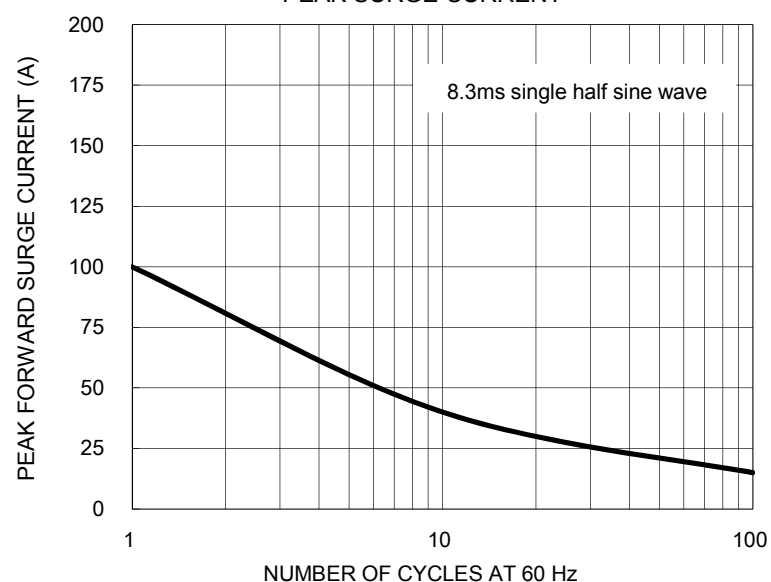


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

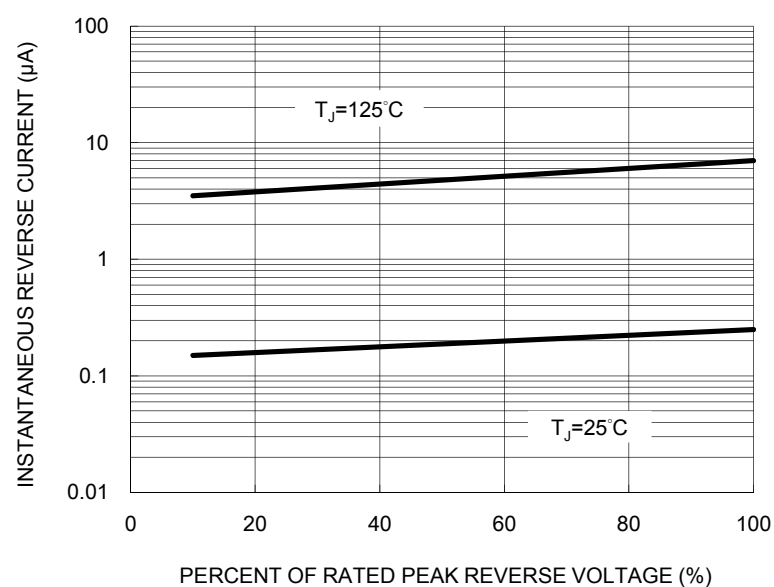
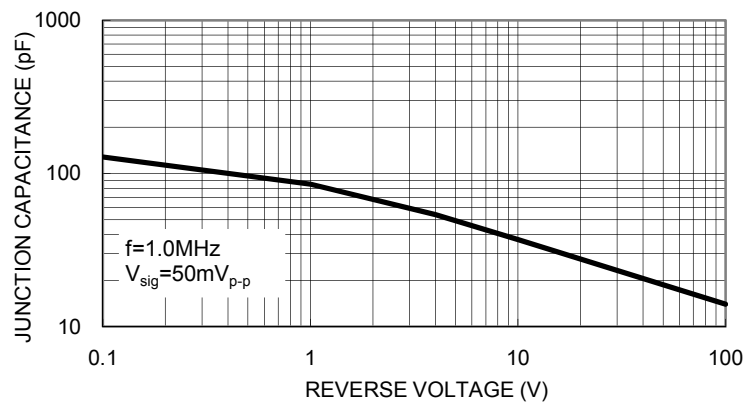
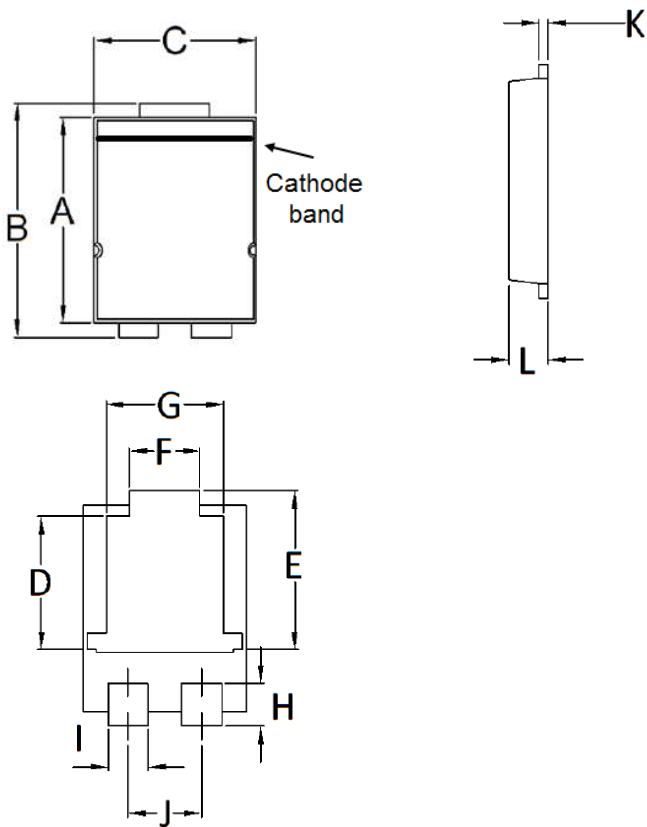


FIG. 5 TYPICAL JUNCTION CAPACITANCE

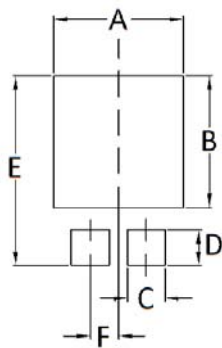


**PACKAGE OUTLINE DIMENSIONS**  
**TO-277A (SMPC)**



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

### **Notice**

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.