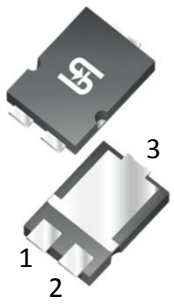
10A, 200V - 600V
High Current Density Switchmode Superfast Surface Mount Rectifiers

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 definition



TO-277A (SMPC)

Pb-Free

RoHS COMPLIANT

HALOGEN FREE

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: 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: 0.095 g (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

PARAMETER		SYMBOL	TPMR10D	TPMR10G	TPMR10J	UNIT
Marking code			MR10D	MR10G	MR10J	
Maximum repetitive peak reverse voltage		V_{RRM}	200	400	600	V
Maximum average forward rectified current		$I_{F(AV)}$	10			A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load		I_{FSM}	150			A
Maximum instantaneous forward voltage (1) @ 10 A	T_J=25°C	V_F	0.95	1.20	1.80	V
	T_J=125°C		0.86	1.00	-	
Maximum reverse current @ rated V_R	T_J=25°C	I_R	5	10		μA
	T_J=125°C		250	500		
Maximum reverse recovery time	I_F=1A, di/dt=-50A/μs, V_R=30V	t_{rr}	60		-	ns
	I_F=0.5A, I_R=1A, I_{RR}=0.25A		35		40	
Typical thermal resistance		$R_{\theta JL}$ (2)	8.4			°C/W
		$R_{\theta JA}$ (3)	78			
Typical junction capacitance (4)		C_J	140			pF
Operating junction temperature range		T_J	- 55 to +175			°C
Storage temperature range		T_{STG}	- 55 to +175			°C

Note 1: Pulse test with PW=300μs, 1% duty cycle
Note 2: Mounted on FR4 PCB with 16mm x 16mm Cu pad area
Note 3: Free air, mounted on recommned pad
Note 4: Measured at 1 MHz and Applied V_R=4.0 Volts

ORDERING INFORMATION				
PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TPMR10x (Note 1, 2)	S1	G	SMPC	1,500/ 7" Plastic reel
	S2		SMPC	6,000/ 13" Plastic reel

Note 1: "X" defines voltage from 200V (TPMR10D) to 600V (TPMR10J)

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

EXAMPLE				
PREFERRED PART NO.	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TPMR10D S1G	TPMR10D	S1	G	Green compound

RATINGS AND CHARACTERISTICS CURVES

(T_A=25°C unless otherwise noted)

FIG.1 MAXIMUM FORWARD CURRENT DERATING CURVE

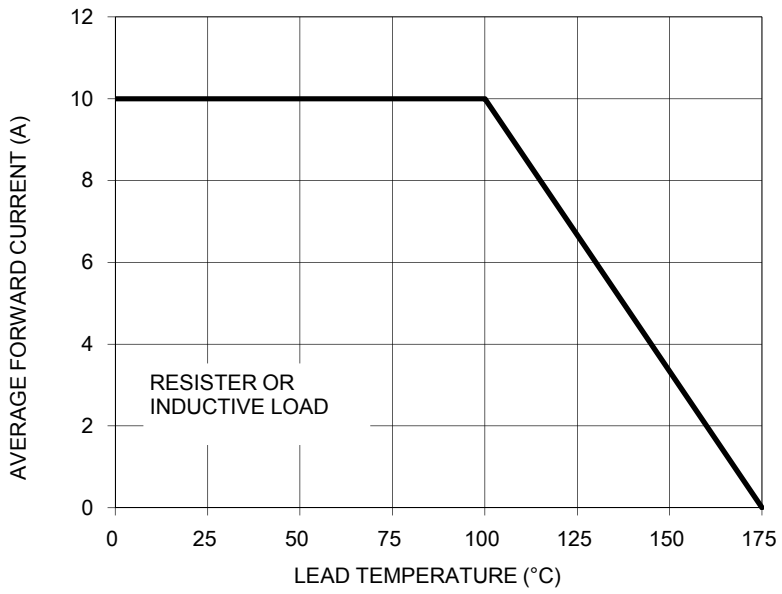


FIG. 2 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

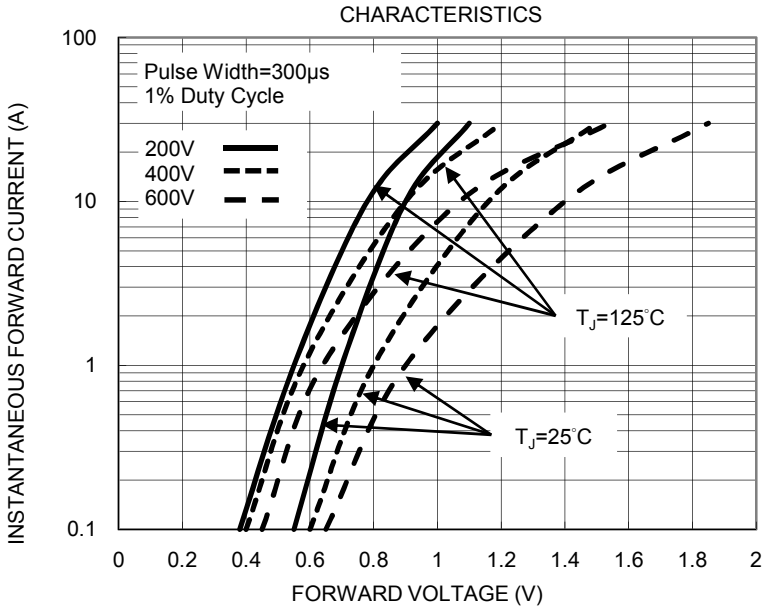


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD PEAK SURGE CURRENT

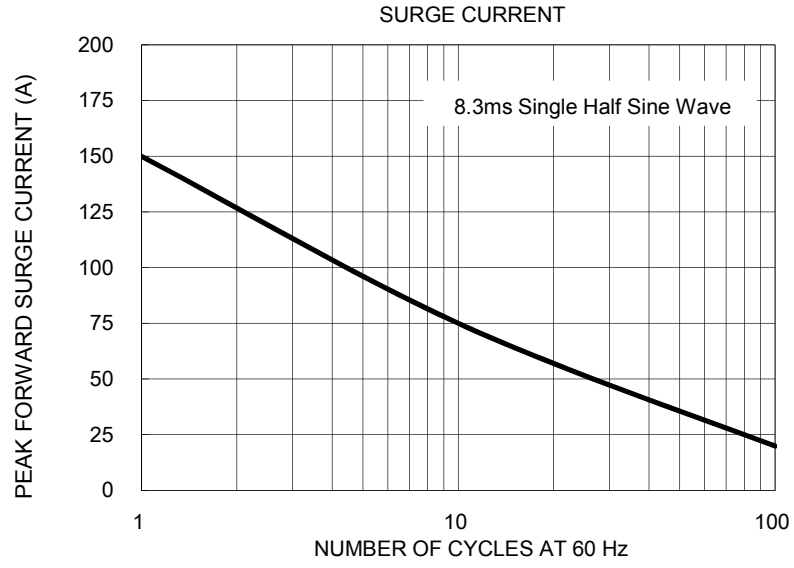


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

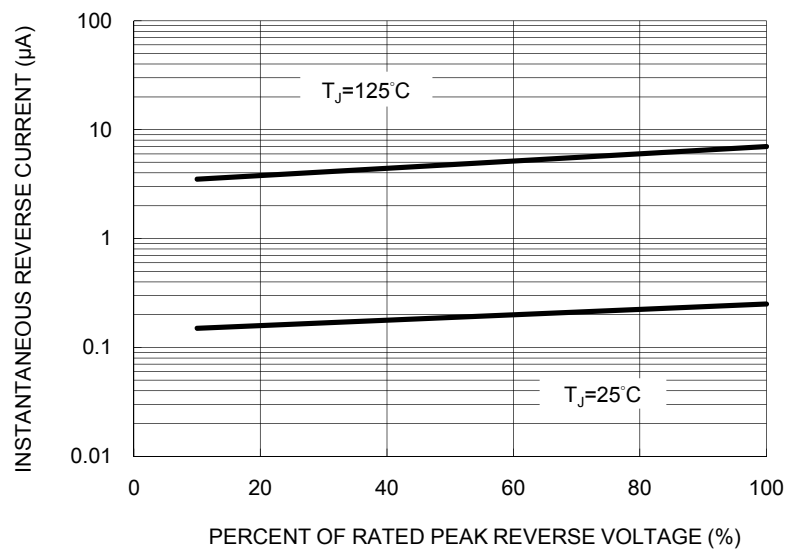


FIG. 5 TYPICAL JUNCTION CAPACITANCE

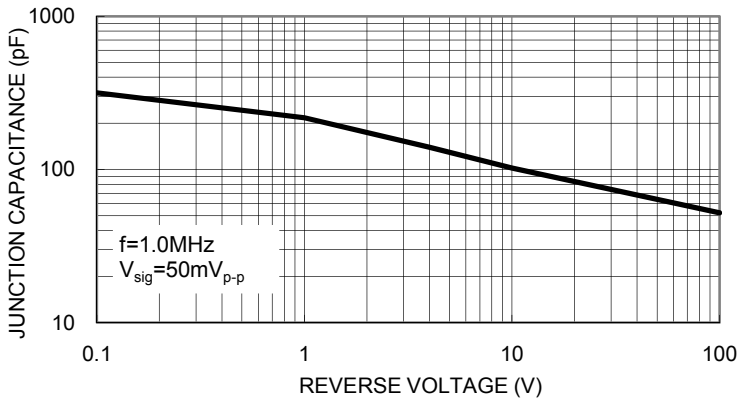
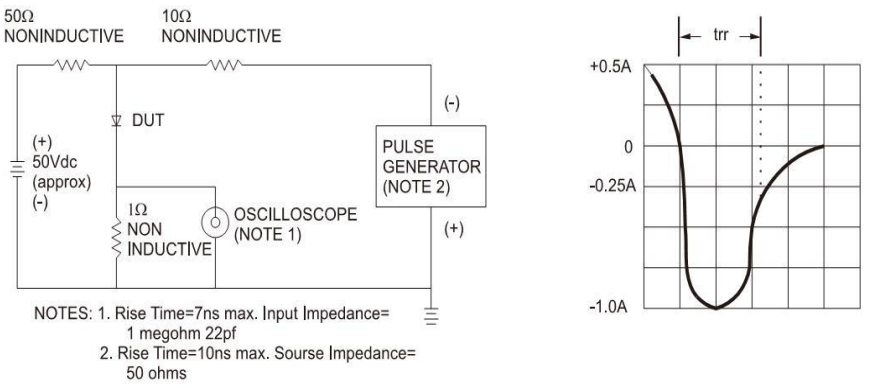
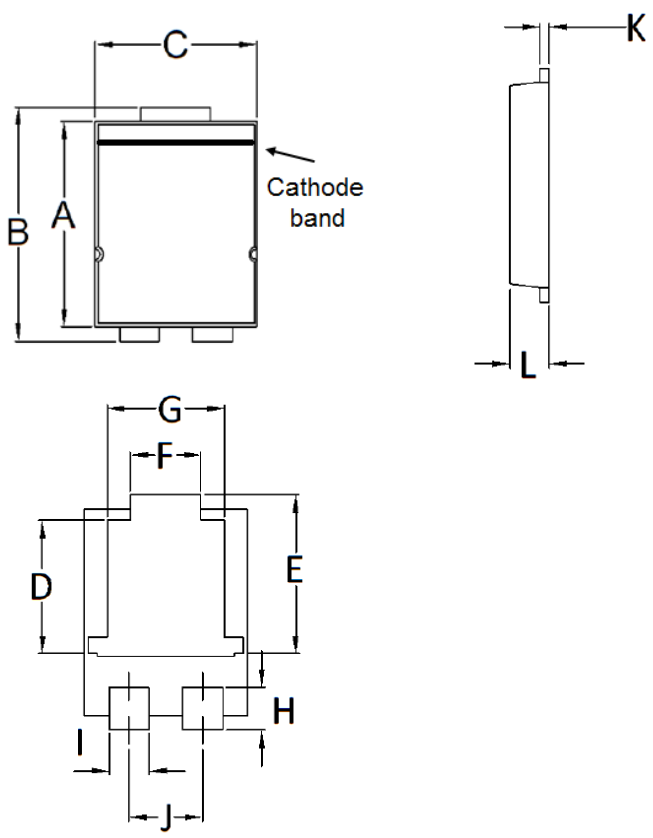


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



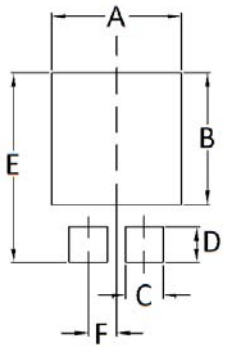
PACKAGE OUTLINE DIMENSIONS

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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