Surface Mount Ultrafast Rectifiers

FEATURES

- Very low profile, typical height of 1.1mm
- Excellent high temperature stability
- Glass passivated chip junction
- Controled avalanche characteristics
- Low leakage current
- High forward surge capability
- Moisture sensitivity level: level 1, per J-STD-020
- 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

For use in high voltage, high frequency power factor corrections, switching mode power supplies, freewheeling diodes and secondary dc to dc rectifications

MECHANICAL DATA

Case: TO-277A (SMPC)
Molding compound, UL flammability classification rating 94V-0
Packing code 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_A=25°C unless otherwise noted)								
PARAMETER			SYMBOL	TPUH6D		TPUH6J		UNIT
Marking code				UH6D		UH6J		
Maximum repetitive peak reverse voltage			V_{RRM}	200		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}	80				A
Maximum instantaneous forward voltage (1)	Test condition		V_F	TYP	MAX	TYP	MAX	V
	I_F=3A	T_J=25°C		0.80	-	1.98	-	
		T_J=125°C		0.65	-	1.23	-	
	I_F=6A	T_J=25°C		0.87	1.05	2.45	3.00	
		T_J=125°C		0.73	0.90	1.59	1.80	
Maximum reverse current @ rated VR T_J=25°C			I_R	10				μA
T_J=125°C				200				
Maximum reverse recovery time	I_F=0.5A, I_R=1A, I_{RR}=0.25A		t_{rr}	25				ns
	I_F=1A, di/dt=-50A/μs, V_R=30V			45				
Typical thermal resistance			$R_{\theta JM}$ (2)	12				°C/W
			$R_{\theta JA}$ (3)	80				
Typical junction capacitance (4)			C_J	50				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 V

ORDERING INFORMATION				
PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TPUH6x (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 (TPUH6D) to 600V (TPUH6J)

Note 2: Whole series with green compound

EXAMPLE				
PREFERRED PART NO.	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TPUH6J S1G	TPUH6J	S1	G	Green compound

RATINGS AND CHARACTERISTICS CURVES

(T_A=25°C unless otherwise noted)

FIG.1 MAXIMUM FORWARD CURRENT DERATING CURVE

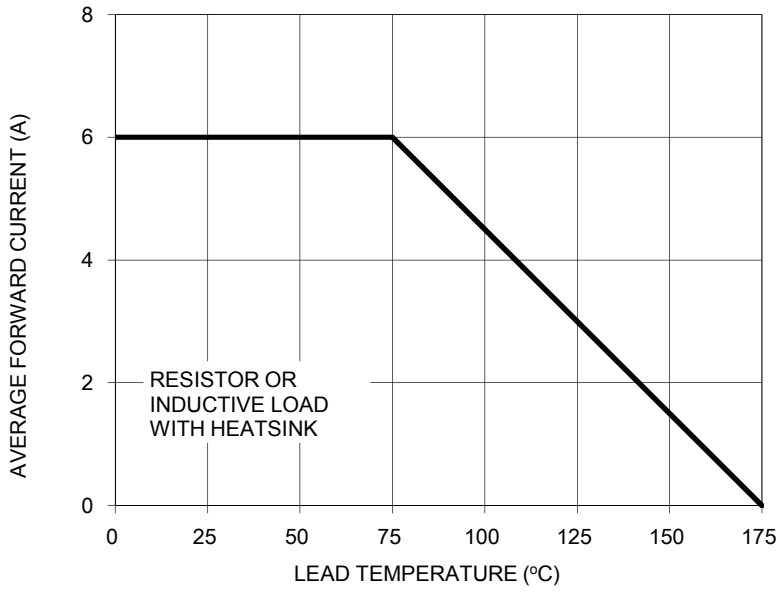


FIG. 2 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

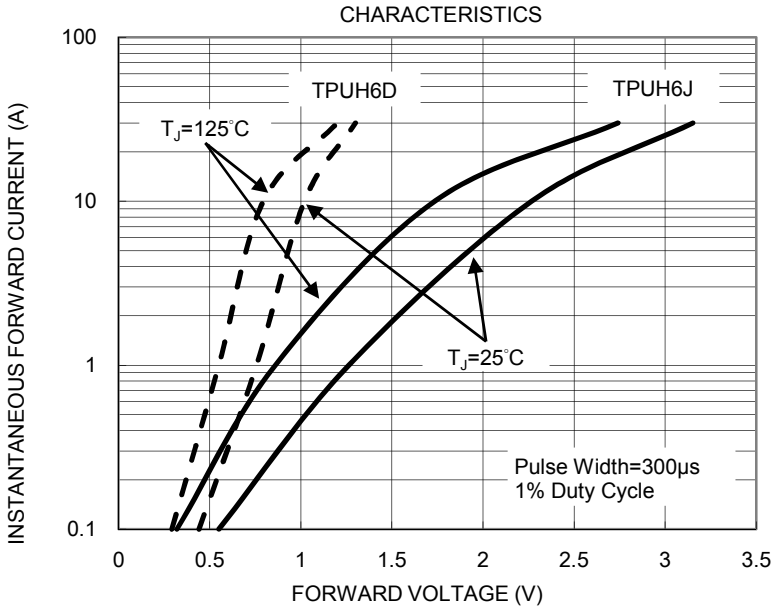


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD PEAK SURGE CURRENT

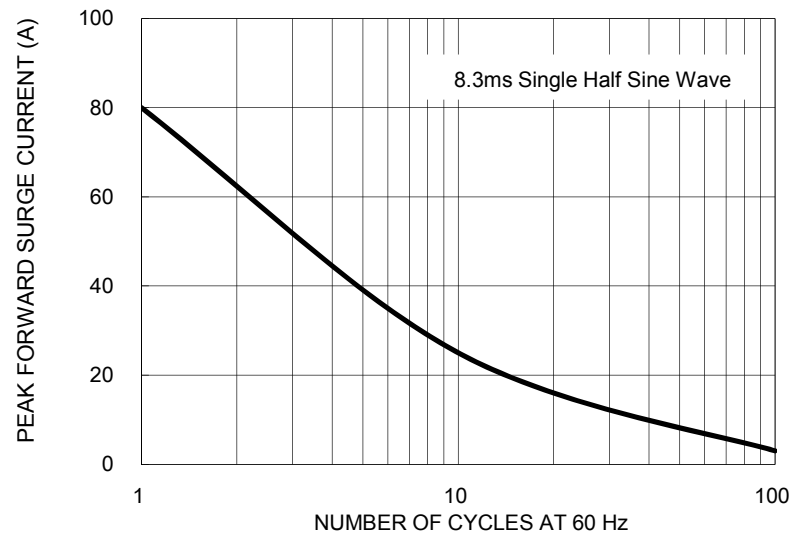


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

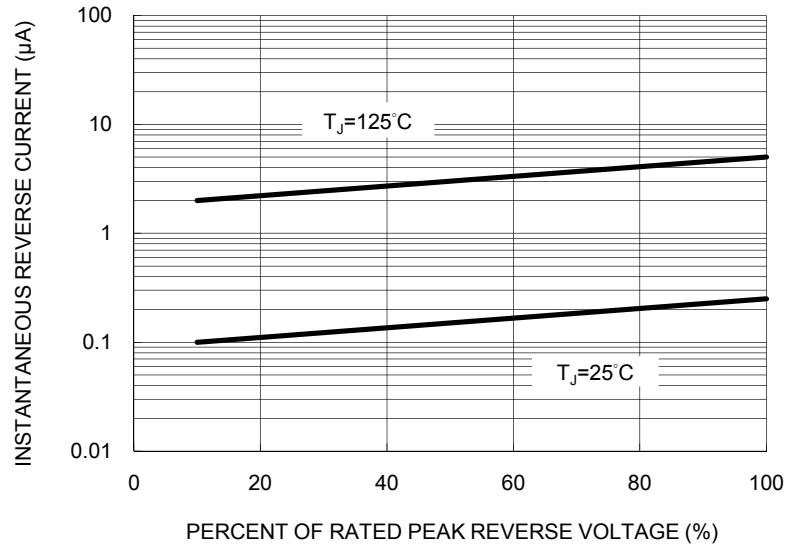


FIG. 5 TYPICAL JUNCTION CAPACITANCE

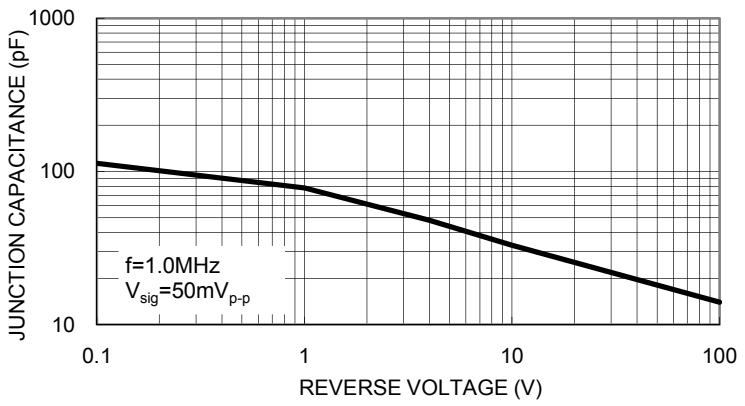
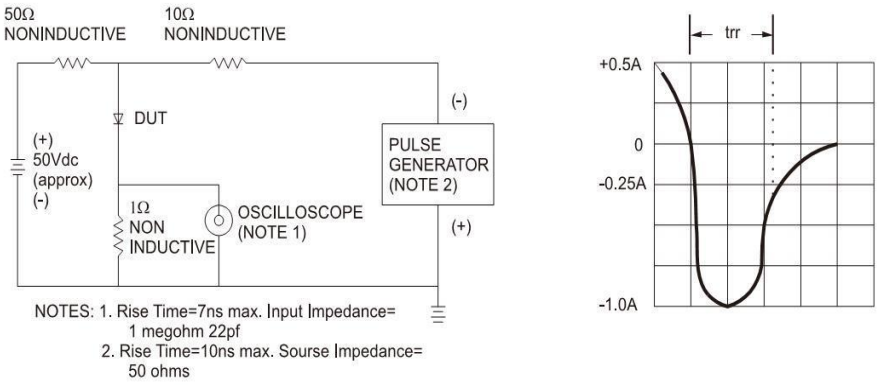
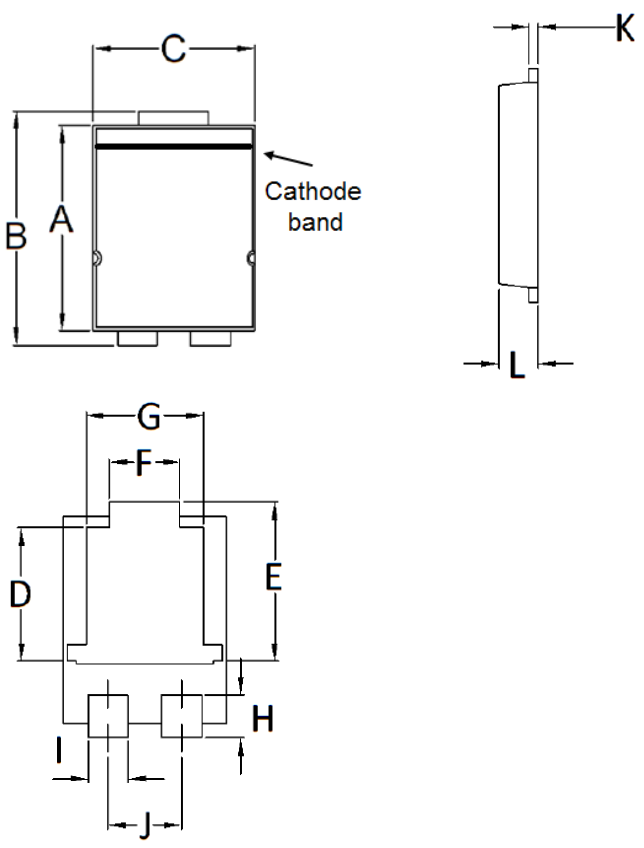


FIG.6 REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



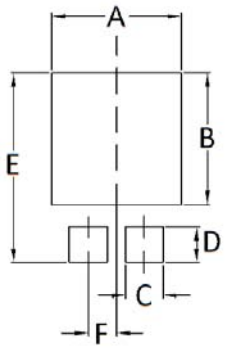
PACKAGE OUTLINE DIMENSIONS

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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