



**THE DATASHEET OF  
TSP10U45S S1G**



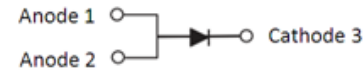
## 10A, 45V Trench Schottky Rectifier

### FEATURES

- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Lower power loss/ High efficiency
- High forward surge capability
- Ideal for automated placement
- 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)**



### 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 <sub>A</sub> =25°C unless otherwise noted)							
PARAMETER		SYMBOL	TSP10U45S			UNIT	
Marking code			10U45				
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	45			V	
Maximum average forward rectified current		I <sub>F(AV)</sub>	10			A	
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	275			A	
Maximum instantaneous forward voltage (Note 1)	I <sub>F</sub> = 5A	T <sub>J</sub> = 25°C	V <sub>F</sub>	MIN	TYP	MAX	
				-	0.37	-	
	I <sub>F</sub> = 10A	-		0.42	0.46		
	I <sub>F</sub> = 5A	T <sub>J</sub> = 125°C		-	0.28	-	
	I <sub>F</sub> = 10A		-	0.37	0.41	V	
Maximum instantaneous reverse current at rated reverse voltage	T <sub>J</sub> = 25°C		I <sub>R</sub>	-	150	300	μA
	T <sub>J</sub> = 125°C			-	50	140	mA
Maximum DC reverse voltage		V <sub>DC</sub>	32			V	
Typical thermal resistance per diode		R <sub>θJL</sub>	25			°C/W	
Operating temperature range		T <sub>J</sub>	- 55 to +150			°C	
Storage temperature range		T <sub>STG</sub>	- 55 to +150			°C	

Note1: Pulse Test with Pulse Width=300μs, 1% Duty Cycle

**ORDERING INFORMATION**

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TSP10U45S	S1	G	SMPC	1,500/ 7" Plastic reel
	S2		SMPC	6,000/ 13" Plastic reel

Note: Whole series with green compound

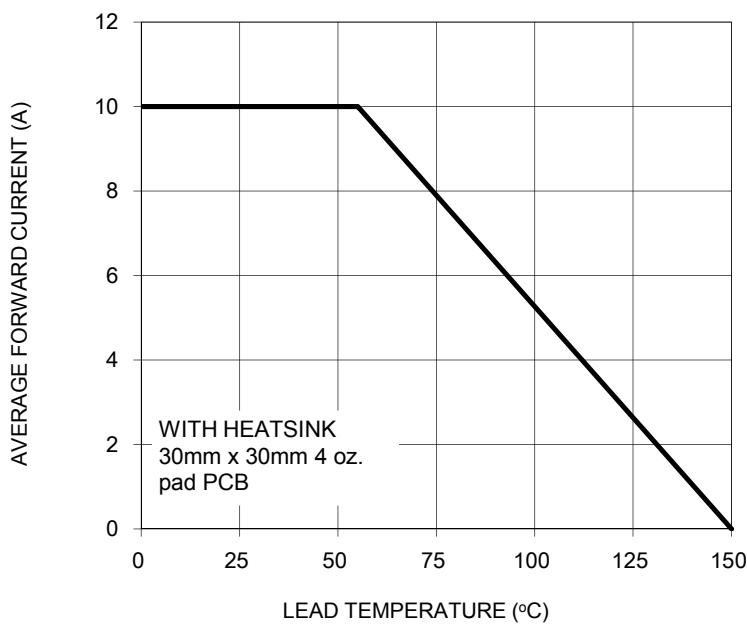
**EXAMPLE**

PREFERRED PART NO.	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TSP10U45S S1G	TSP10U45S	S1	G	Green compound

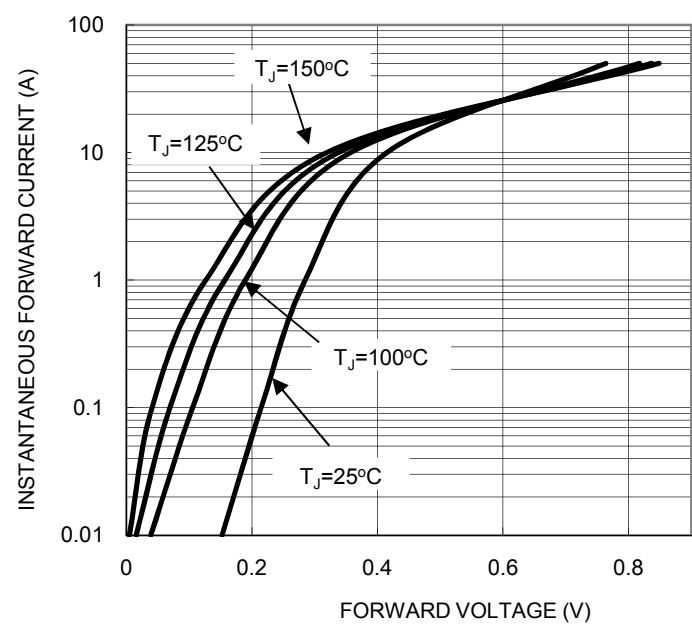
**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub>=25°C unless otherwise noted)

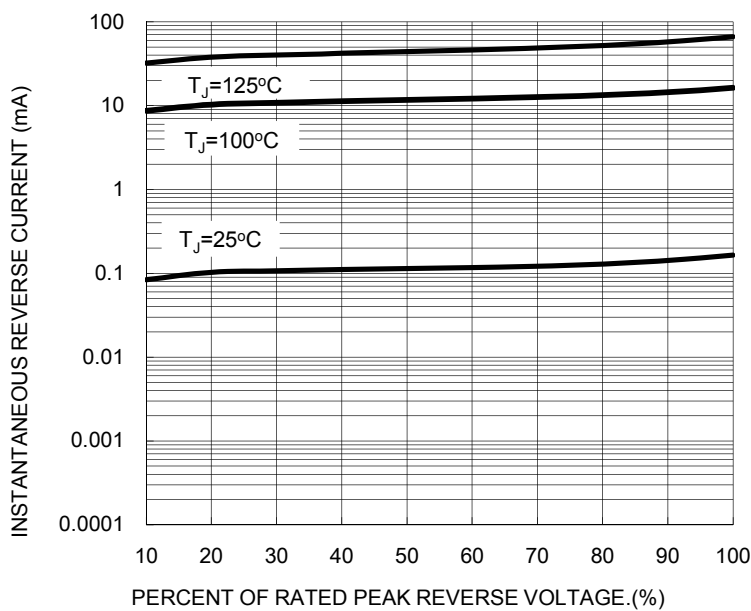
**FIG.1 FORWARD CURRENT DERATING CURVE**



**FIG. 2 TYPICAL FORWARD CHARACTERISTICS**



**FIG. 3 TYPICAL REVERSE CHARACTERISTICS**



**FIG. 4 TYPICAL JUNCTION CAPACITANCE**

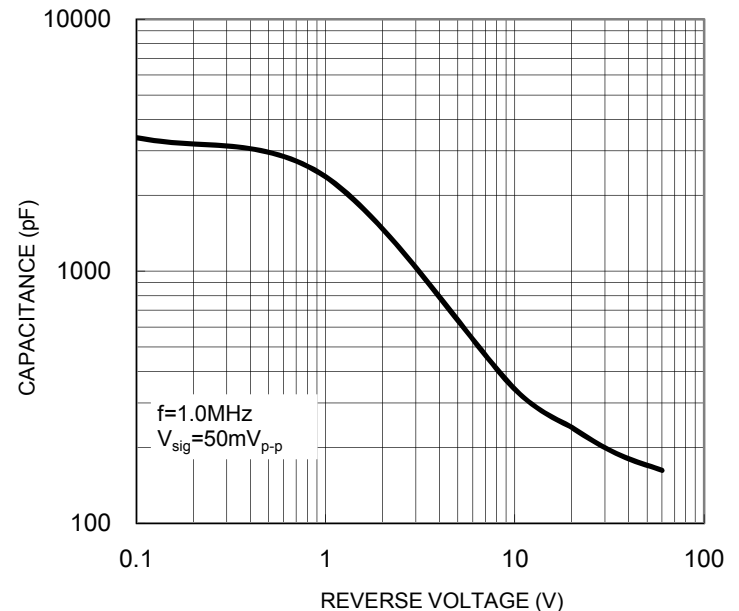
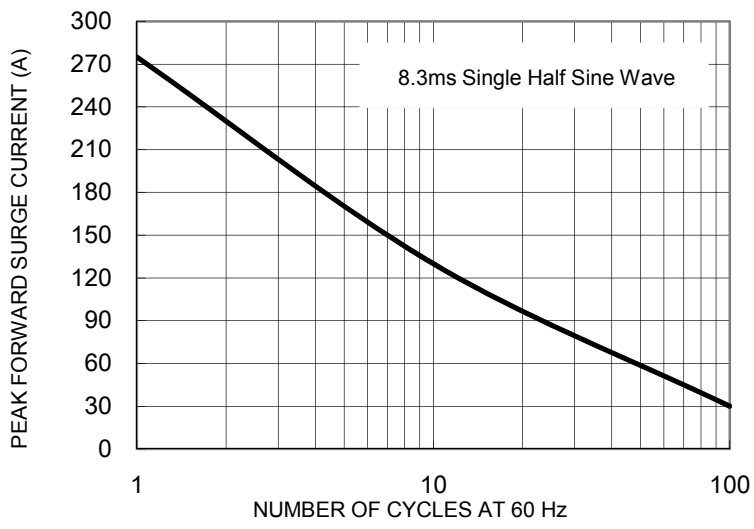
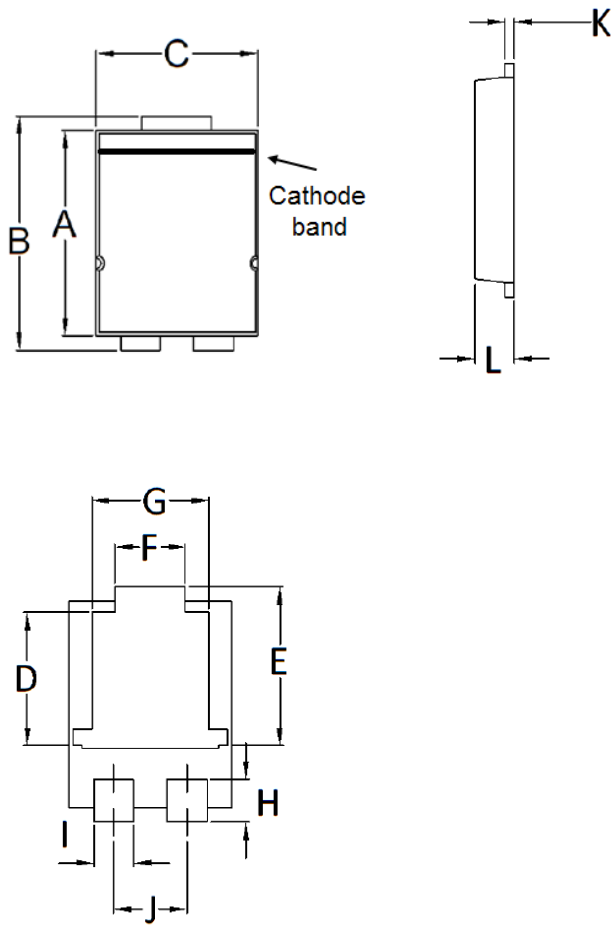


FIG. 5 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

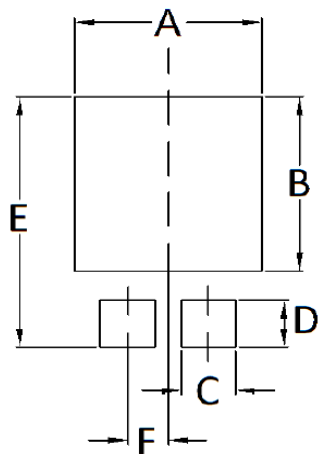


PACKAGE OUTLINE DIMENSIONS  
**TO-277A (SMPC)**



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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