

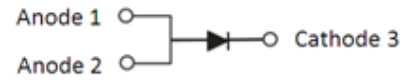
**10A, 45V Trench Schottky Rectifier**

**FEATURES**

- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Low 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



**SMPC4.0**



**TYPICAL APPLICATIONS**

Trench Schottky barrier rectifier is designed for high frequency switched mode power supplies such as adapters, lighting, and DC/DC converters.

**MECHANICAL DATA**

**Case:** SMPC4.0

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 2 whisker test

**Polarity:** Indicated by cathode band

**Weight:** 95mg (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)							
PARAMETER		SYMBOL	TSPB10U45S			UNIT	
Marking code			B10U45				
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	
			MIN	TYP	MAX		
Maximum instantaneous forward voltage (Note 1)	I <sub>F</sub> = 5A	T <sub>J</sub> = 25°C	V <sub>F</sub>	-	0.37	-	V
	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	
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	

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

**ORDERING INFORMATION**

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TSPB10U45S	S1	G	SMPC4.0	1,500/ 7" Plastic reel
	S2		SMPC4.0	6,000/ 13" Plastic reel

Note: Whole series with green compound

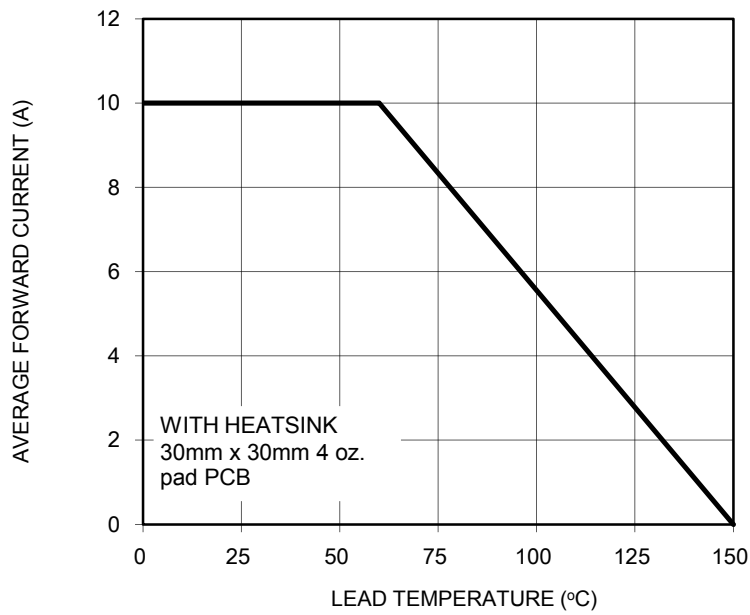
**EXAMPLE**

PREFERRED PART NO.	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TSPB10U45S S1G	TSPB10U45S	S1	G	Green compound

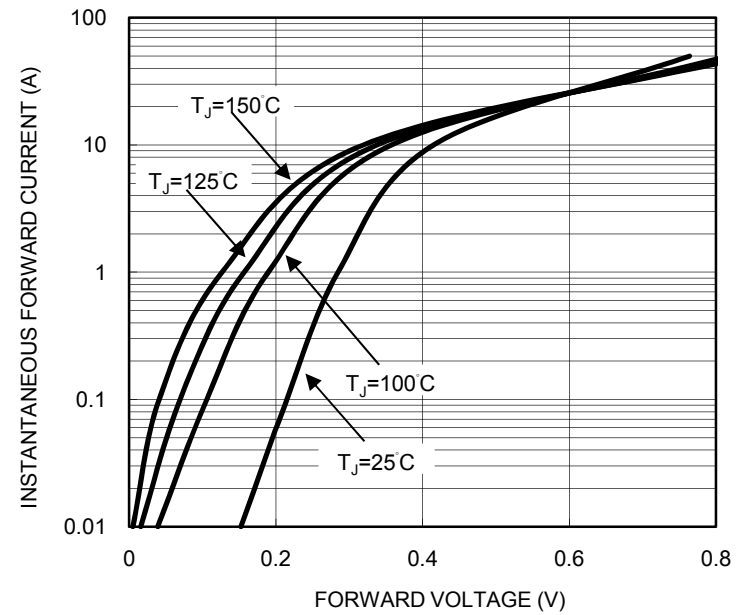
**RATINGS AND CHARACTERISTICS CURVES**

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

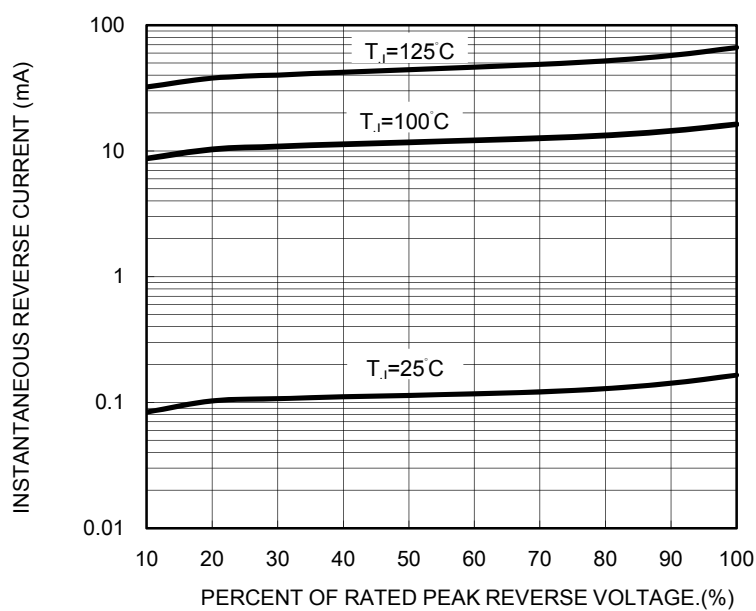
**FIG.1 FORWARD CURRENT DERATING CURVE**



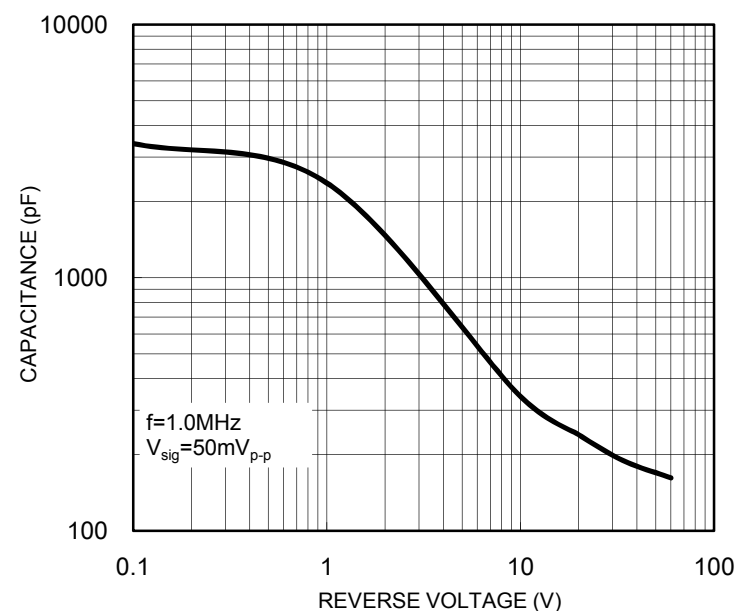
**FIG. 2 TYPICAL FORWARD CHARACTERISTICS**



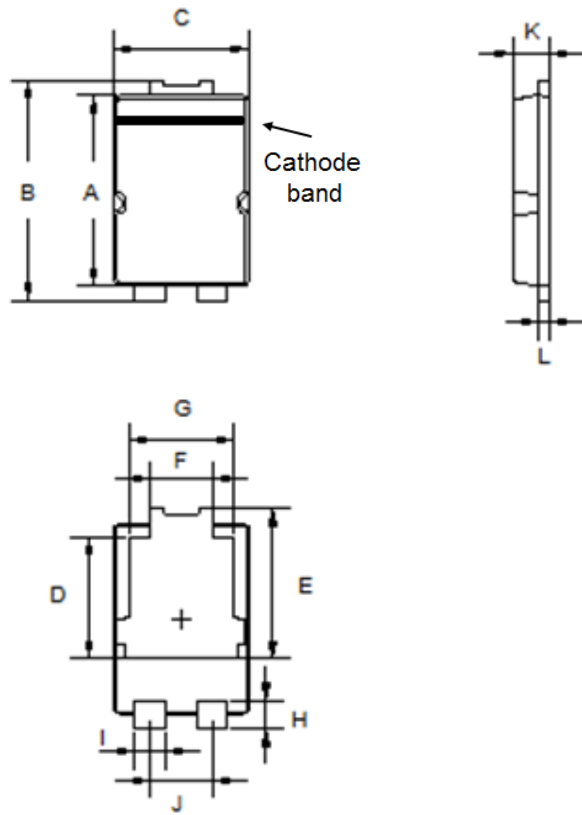
**FIG. 3 TYPICAL REVERSE CHARACTERISTICS**



**FIG. 4 TYPICAL JUNCTION CAPACITANCE**

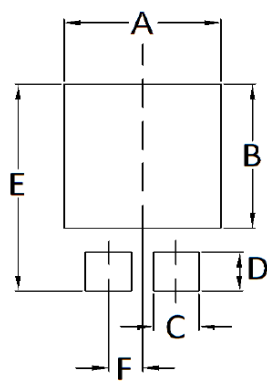


PACKAGE OUTLINE DIMENSIONS  
**SMPC4.0**



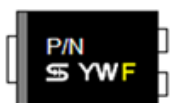
DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	5.55	5.65	0.219	0.222
B	6.35	6.65	0.250	0.262
C	3.95	4.05	0.156	0.159
D	3.40	3.70	0.134	0.146
E	4.25	4.55	0.167	0.179
F	1.69	1.99	0.067	0.078
G	2.95	3.25	0.116	0.128
H	0.70	1.00	0.028	0.039
I	0.75	1.05	0.030	0.041
J	1.69	1.99	0.067	0.078
K	1.00	1.20	0.039	0.047
L	0.20	0.40	0.008	0.016

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	0.92	0.036

MARKING DIAGRAM



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

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