

15A, 50V 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

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	15	A
V_{RRM}	50	V
I_{FSM}	280	A
T_{JMAX}	150	°C
Package	TO-277A (SMPC)	
Configuration	Single die	

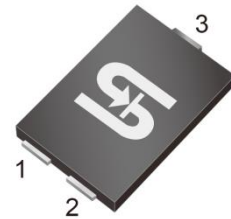
APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

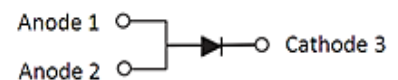


MECHANICAL DATA

- Case: TO-277A (SMPC)
- Molding compound meets UL 94 V-0 flammability rating
- Packing code with suffix "G" means green compound (halogen-free)
- Moisture sensitivity level: level 1, per J-STD-020
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 0.095g (approximately)



TO-277A (SMPC)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	TSP15U50S	UNIT
Marking code on the device		15U50	
Repetitive peak reverse voltage	V_{RRM}	50	V
Forward current	$I_{F(AV)}$	15	A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	280	A
Junction temperature	T_J	- 55 to +150	°C
Storage temperature	T_{STG}	- 55 to +150	°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	10	°C/W

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 15\text{A}, T_J = 25^\circ\text{C}$	V_F	0.48	0.56	V
	$I_F = 15\text{A}, T_J = 125^\circ\text{C}$		0.44	0.50	V
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	2000	μA
	$T_J = 125^\circ\text{C}$		30	140	mA

Notes:

1. Pulse test with $PW=0.3$ ms
2. Pulse test with $PW=30$ ms

ORDERING INFORMATION				
PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TSP15U50 (Note 1)	S1	G	SMPC	1,500/ 7" Plastic reel
	S2		SMPC	6,000/ 13" Plastic reel

Note:

1. Whole series with green compound (halogen-free)

EXAMPLE				
EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TSP15U50 S1G	TSP15U50	S1	G	Green compound

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

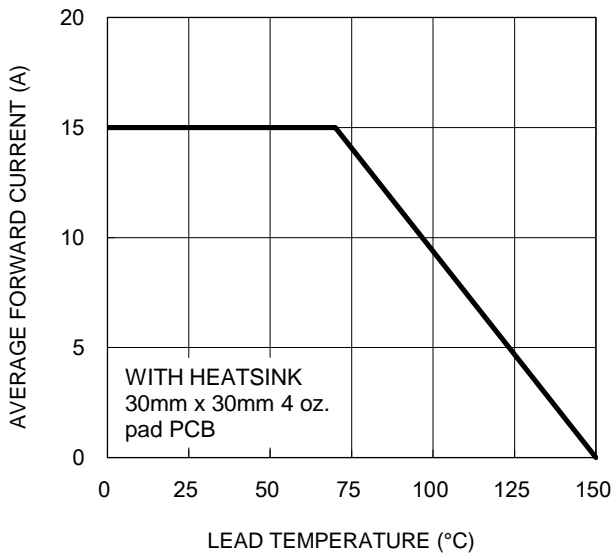


Fig.2 Typical Junction Capacitance

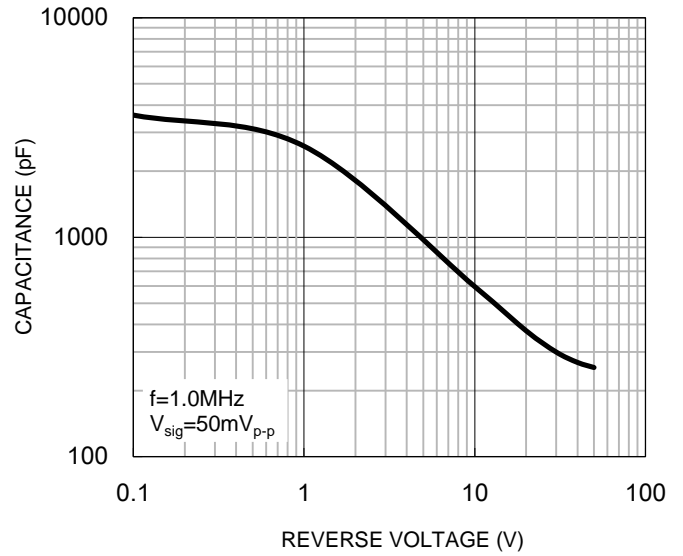


Fig.3 Typical Reverse Characteristics

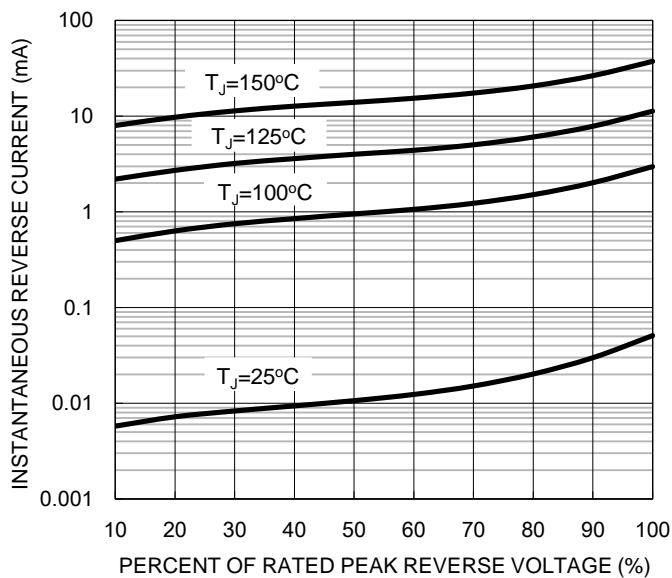
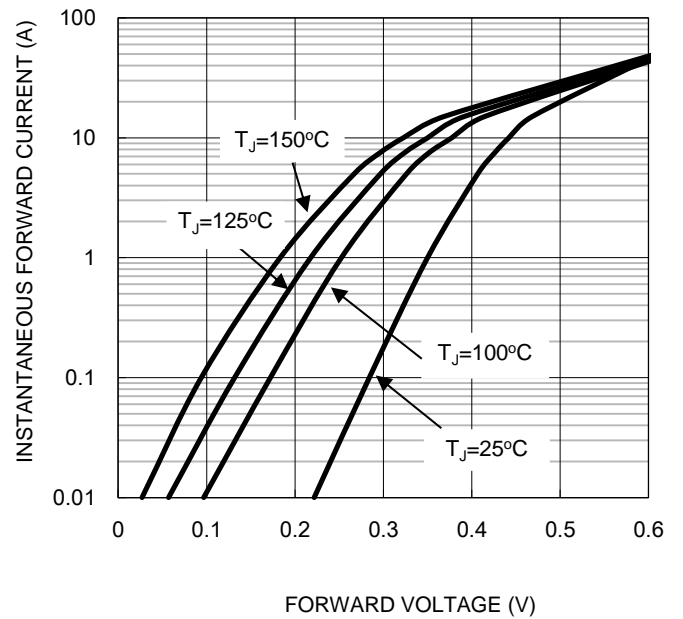


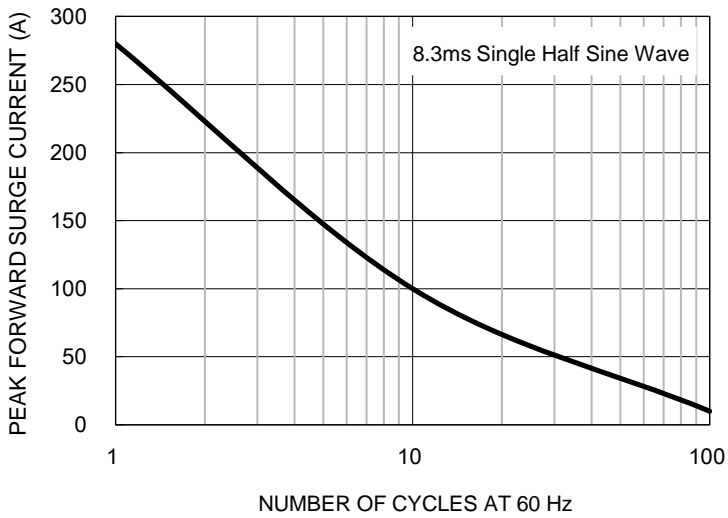
Fig.4 Typical Forward Characteristics



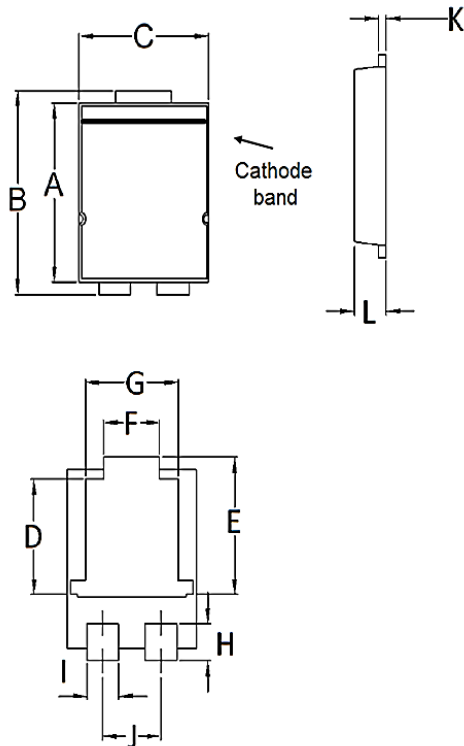
CHARACTERISTICS CURVES

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

Fig.5 Maximum Non-repetitive Peak Forward Surge Current

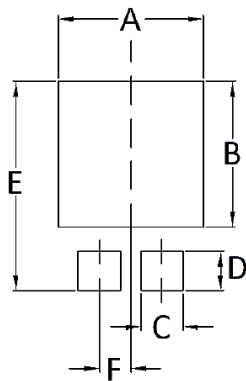


PACKAGE OUTLINE DIMENSIONS



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.