

## 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	

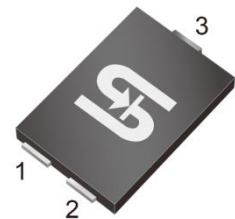
### APPLICATIONS

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

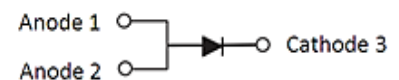


### MECHANICAL DATA

- 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

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

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage per diode <sup>(1)</sup>	$I_F = 15\text{A}, T_J = 25^\circ\text{C}$	$V_F$	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 <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	2000	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		30	140	mA

**Notes:**

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

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

**Note:**

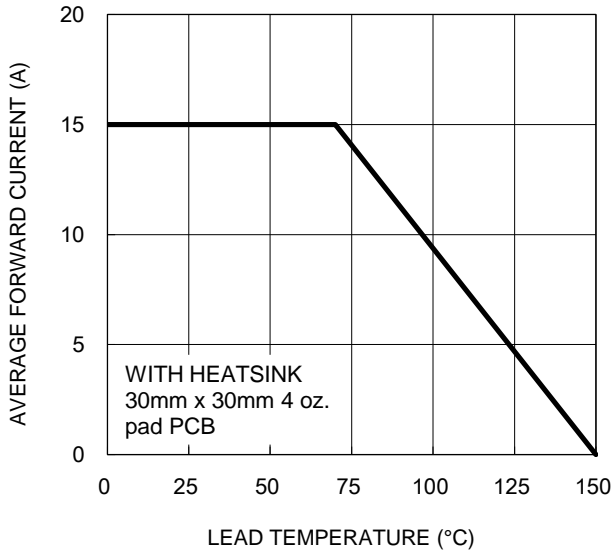
1. Whole series with green compound (halogen-free)

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

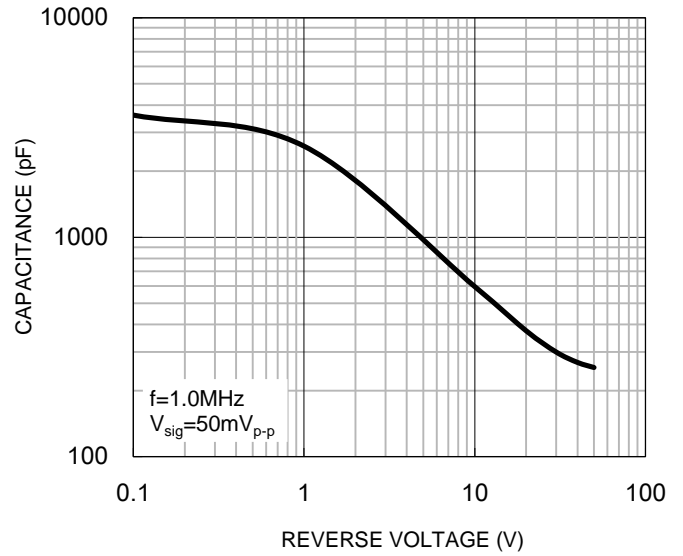
**CHARACTERISTICS CURVES**

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

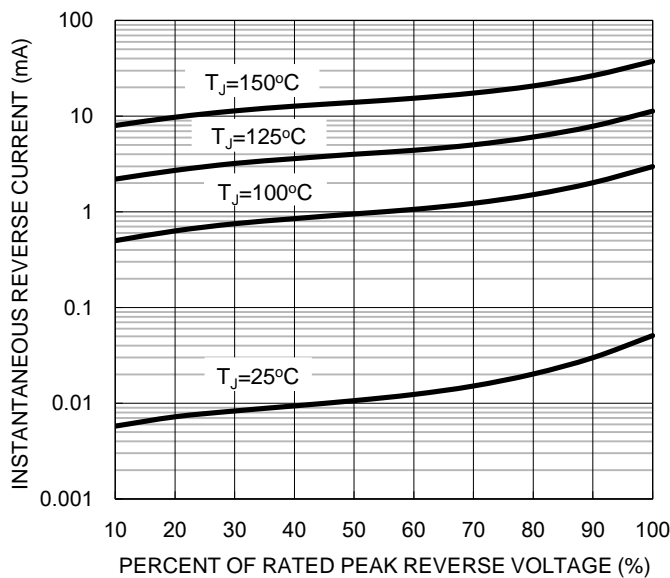
**Fig.1 Forward Current Derating Curve**



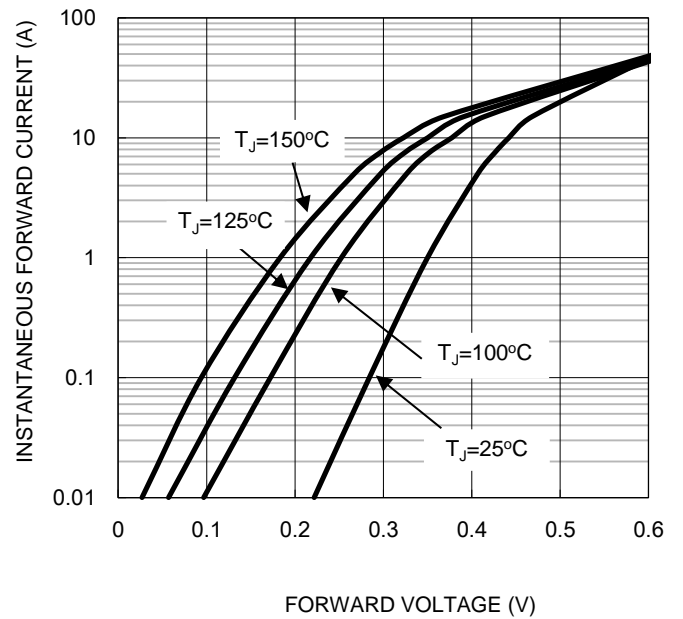
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



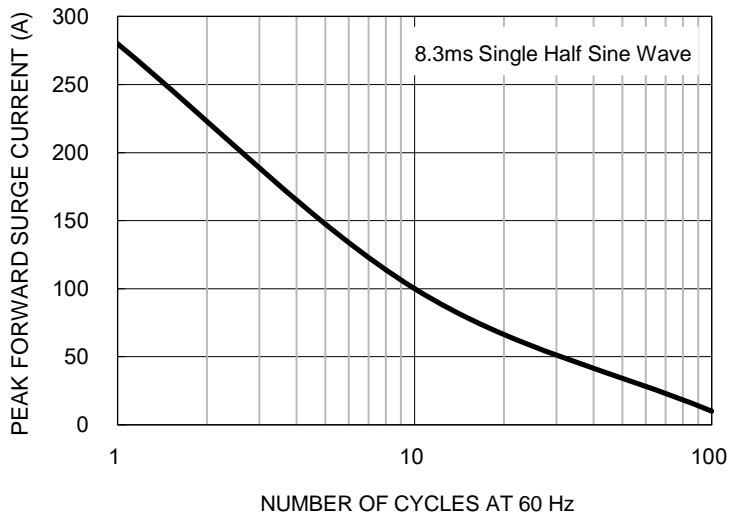
**Fig.4 Typical Forward Characteristics**



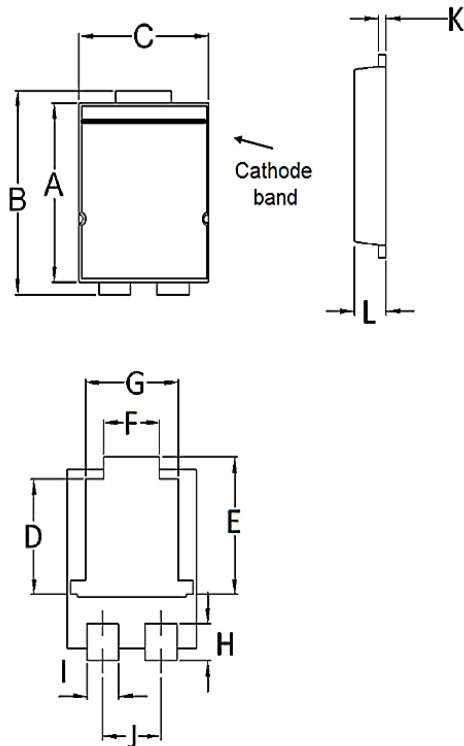
**CHARACTERISTICS CURVES**

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

**Fig.5 Maximum Non-repetitive Peak Forward Surge Current**

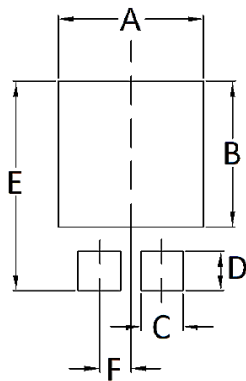


**PACKAGE OUTLINE DIMENSIONS**



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