

3A, 150V Trench Schottky Rectifiers

FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

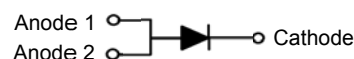
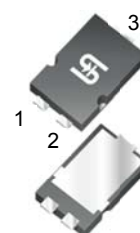
APPLICATIONS

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

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)
- Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 95 mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	3	A
V_{RRM}	150	V
I_{FSM}	90	A
V_F at $I_F=3A$	0.86	V
$T_{J\ MAX}$	150	°C
Package	SMPC	
Configuration	Single dice	



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	TSP3H150S	UNIT
Marking code on the device		3H150	
Maximum repetitive peak reverse voltage	V_{RRM}	150	V
Maximum RMS voltage	V_{RMS}	105	V
Maximum DC blocking voltage	V_{DC}	150	V
Maximum average forward rectified current	$I_{F(AV)}$	3	A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	90	A
Non-repetitive peak reverse current ^(Note1)	I_{RSM}	2	A
Voltage rate of change (Rated V_R)	dV/dt	10,000	V/ μs
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	°C

Notes:

1: Pulse width : 5 us / pulse No. : 10 times

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Lead Thermal Resistance	$R_{\theta JL}$	16	°C/W
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	58.5	°C/W
Junction to Case Thermal Resistance	$R_{\theta JC}$	21.5	°C/W

Thermal Performance Note: Units mounted on recommended PCB (16mm x 16mm Cu test board)

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Maximum instantaneous forward voltage ^(Note 1)	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.65	0.74	V
	$I_F = 3\text{A}, T_J = 25^\circ\text{C}$		-	0.77	0.86	V
	$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		-	0.53	0.62	V
	$I_F = 3\text{A}, T_J = 125^\circ\text{C}$		-	0.62	0.71	V
Maximum reverse current @ rated V_R ^(Note 2)	$T_J = 25^\circ\text{C}$	I_R	-	1	10	μA
	$T_J = 125^\circ\text{C}$		-	1	10	mA
Junction capacitance	1 MHz, $V_R = 4.0\text{V}$	C_J	-	150	-	pF
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$	t_{rr}	-	20	-	ns

Notes:

1. Pulse test with $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

ORDERING INFORMATION

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TSP3H150S ^(Note 1)	S1	G	SMPC	1,500 / 7" Plastic reel
	S2			6,000 / 13" Paper reel

Notes:

1. Whole series with green compound

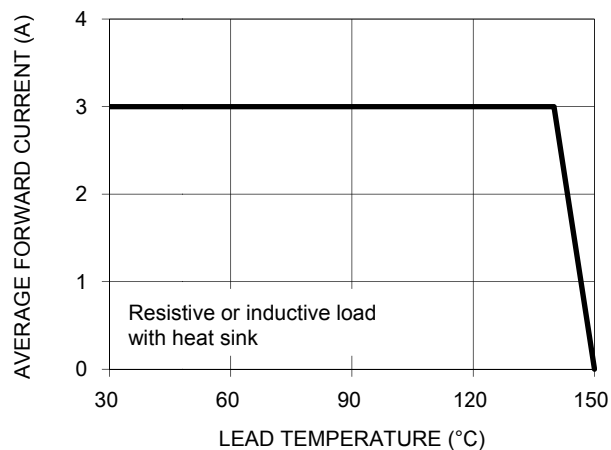
EXAMPLE

EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TSP3H150S S1G	TSP3H150S	S1	G	Green compound

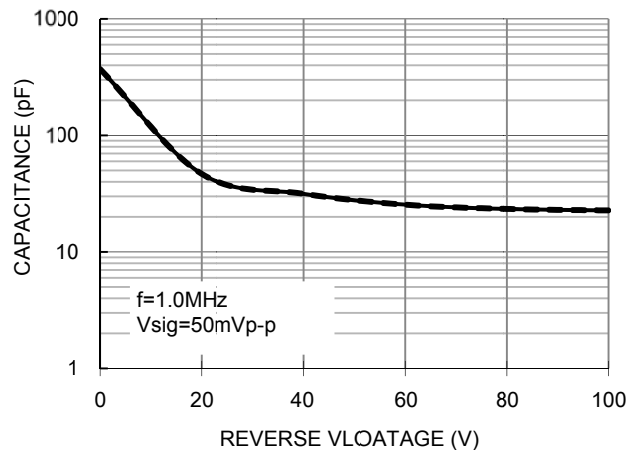
CHARACTERISTICS CURVES

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

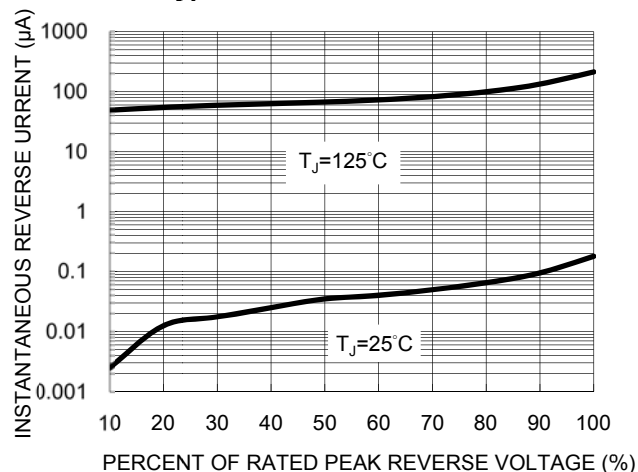
Forward Current Derating Curve



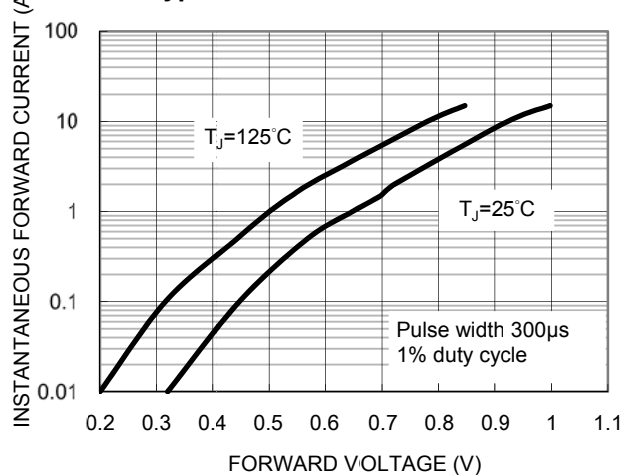
Typical Junction Capacitance



Typical Reverse Characteristics

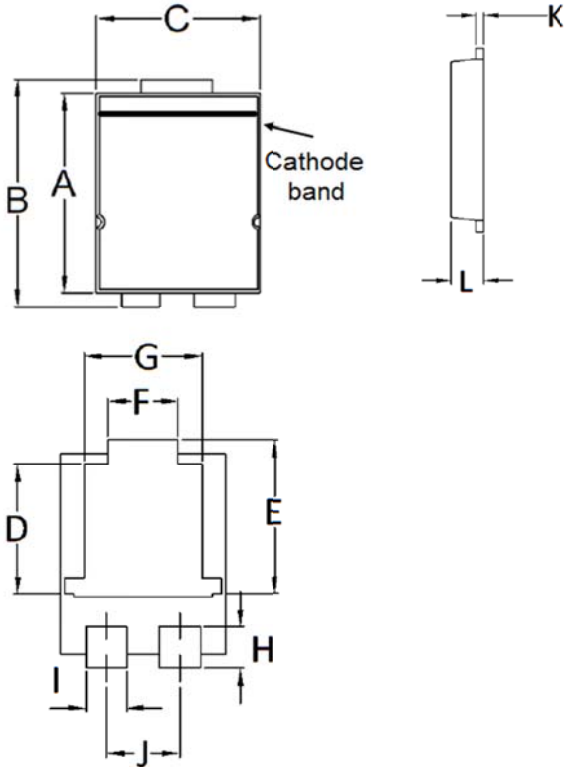


Typical Forward Characteristics



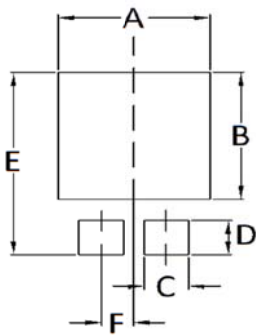
PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

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 (Unit: Millimeters)



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 = Specific Device Code
YWF = Date Code
F = Factory Code

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