

5A, 100V - 150V Trench Schottky Surface Mount 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
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

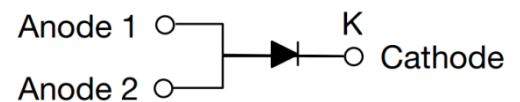
APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

MECHANICAL DATA

- Case: SMPC4.0
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 0.090g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	5	A
V_{RRM}	100 - 150	V
I_{FSM}	100	A
T_{JMAX}	150	°C
Package	SMPC4.0	
Configuration	Single die	


SMPC4.0


ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	TSPB5H 100S	TSPB5H 150S	UNIT
Marking code on the device		B5H100	B5H150	
Repetitive peak reverse voltage	V_{RRM}	100	150	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	105	V
Forward current	I_F	5		A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	100		A
Critical rate of rise of off-state voltage	dv/dt	10,000		V/ μs
Junction temperature	T_J	- 55 to +150		°C
Storage temperature	T_{STG}	- 55 to +150		°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	15	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	TSPB5H100S	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.59	0.66	V
	TSPB5H150S			0.74	0.84	V
	TSPB5H100S	$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.53	0.60	V
	TSPB5H150S			0.60	0.70	V
Reverse current @ rated V_R ⁽²⁾	TSPB5H100S	$T_J = 25^\circ\text{C}$	I_R	-	150	μA
	TSPB5H150S			-	100	μA
	TSPB5H100S	$T_J = 125^\circ\text{C}$		-	18	mA
	TSPB5H150S			-	12	mA

Notes:

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

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
TSPB5HxS	SMPC4.0	6,000 / Tape & Reel

Notes:

1. "x" defines voltage from 100V(TSPB5H100S) to 150V(TSPB5H150S)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

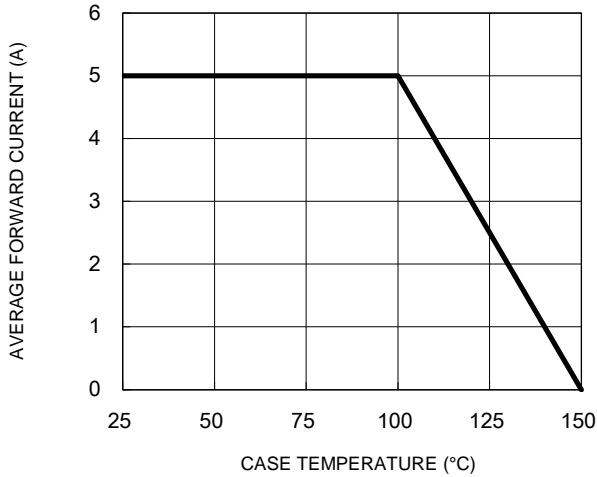


Fig.2 Typical Junction Capacitance

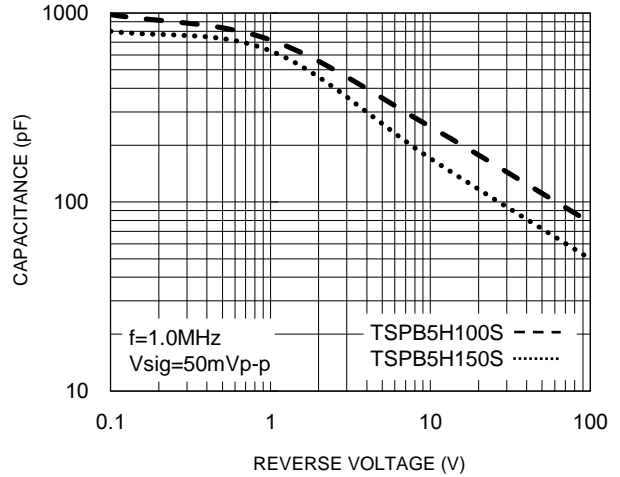


Fig.3 Typical Reverse Characteristics

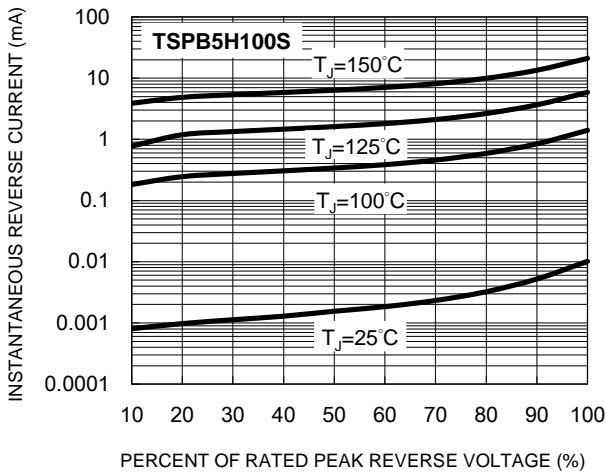


Fig.4 Typical Forward Characteristics

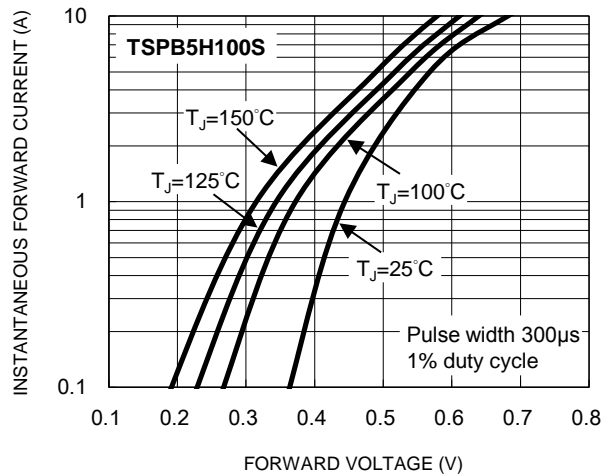


Fig.5 Typical Reverse Characteristics

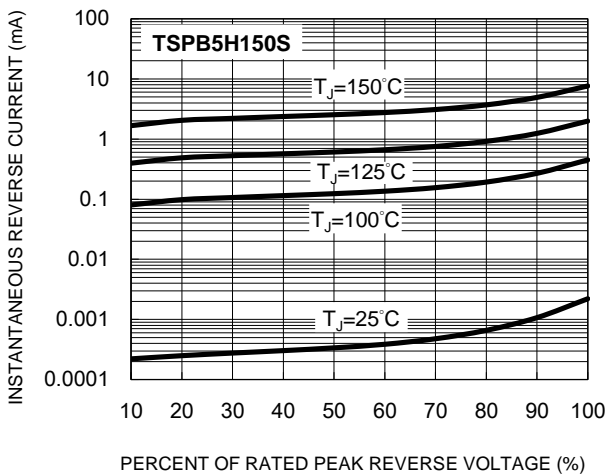
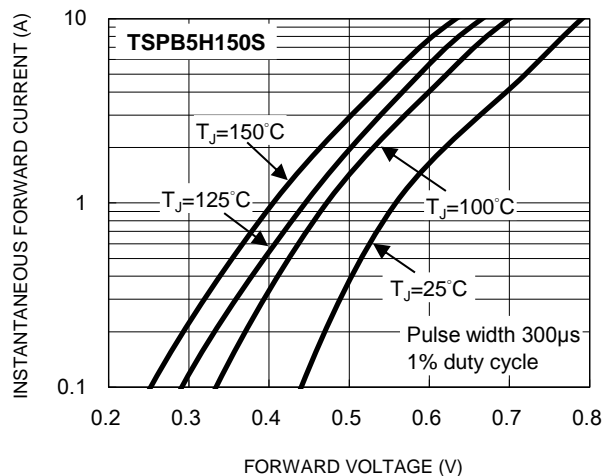
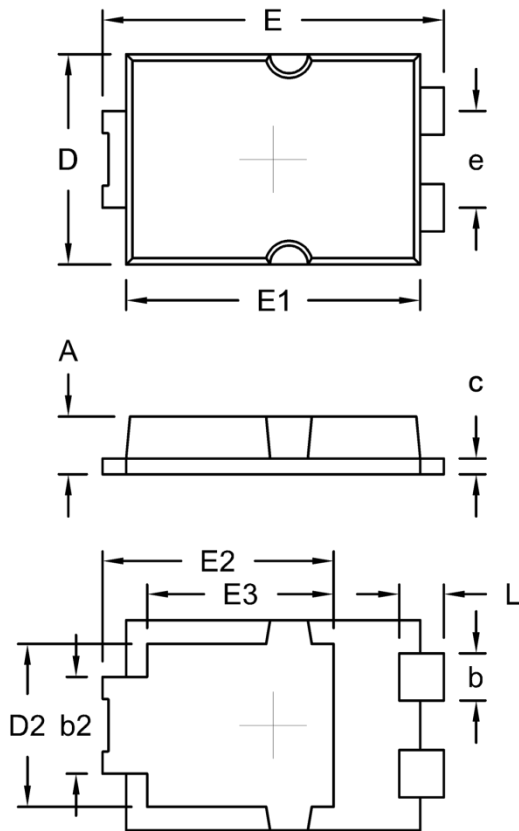


Fig.6 Typical Forward Characteristics



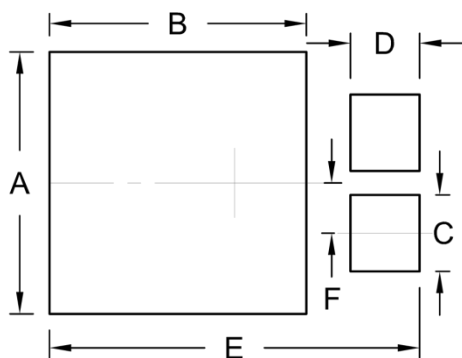
PACKAGE OUTLINE DIMENSIONS

SMPC4.0



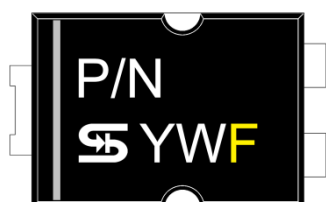
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.00	1.20	0.039	0.047
b	0.75	1.05	0.030	0.041
b2	1.69	1.99	0.067	0.078
c	0.20	0.40	0.008	0.016
D	3.95	4.05	0.156	0.159
D2	2.95	3.25	0.116	0.128
E	6.35	6.65	0.250	0.262
E1	5.55	5.65	0.219	0.222
E2	4.25	4.55	0.167	0.179
E3	3.40	3.70	0.134	0.146
e	1.69	1.99	0.067	0.078
L	0.70	1.00	0.028	0.039

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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