

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

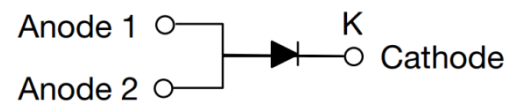
APPLICATIONS

- 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 120S	TSPB5H 150S	UNIT
Marking code on the device		B5H100	B5H120	B5H150	
Repetitive peak reverse voltage	V_{RRM}	100	120	150	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	84	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
	TSPB5H120S			0.66	0.74	V
	TSPB5H150S			0.74	0.84	V
	TSPB5H100S	$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.53	0.60	V
	TSPB5H120S			0.56	0.64	V
	TSPB5H150S			0.60	0.70	V
Reverse current @ rated V_R ⁽²⁾	TSPB5H100S	$T_J = 25^\circ\text{C}$	I_R	-	150	μA
	TSPB5H120S			-	100	μA
	TSPB5H150S			-	18	mA
	TSPB5H100S	$T_J = 125^\circ\text{C}$		-	18	mA
	TSPB5H120S			-	12	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

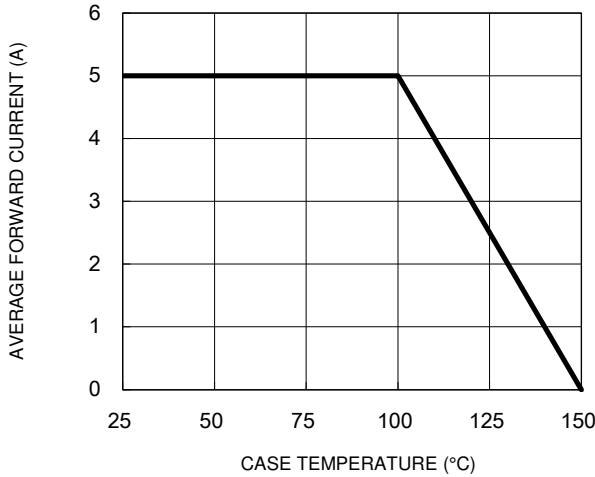


Fig.2 Typical Junction Capacitance

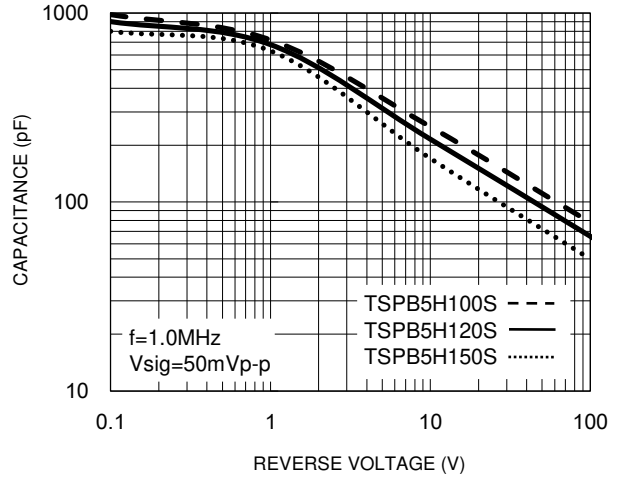


Fig.3 Typical Reverse Characteristics

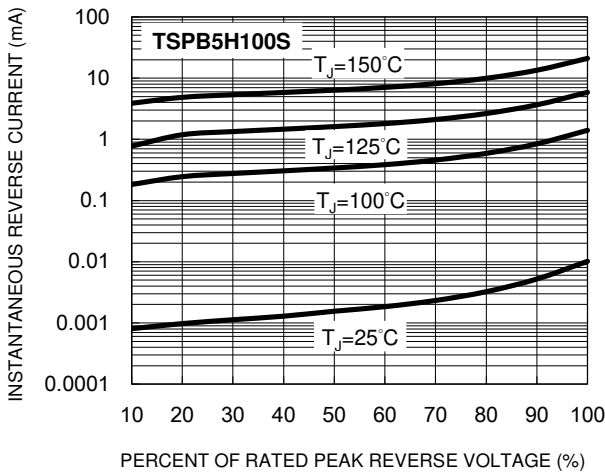


Fig.4 Typical Forward Characteristics

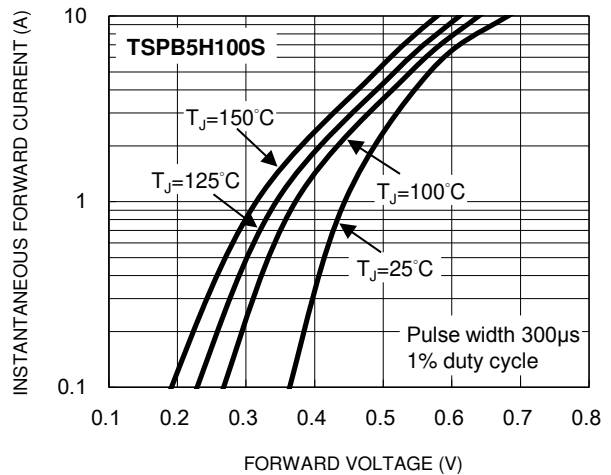


Fig.5 Typical Reverse Characteristics

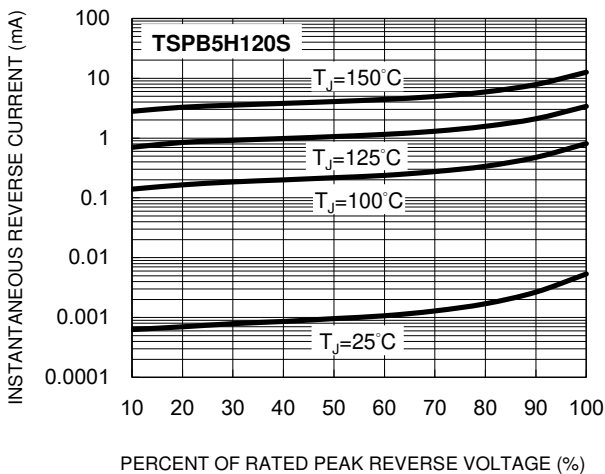
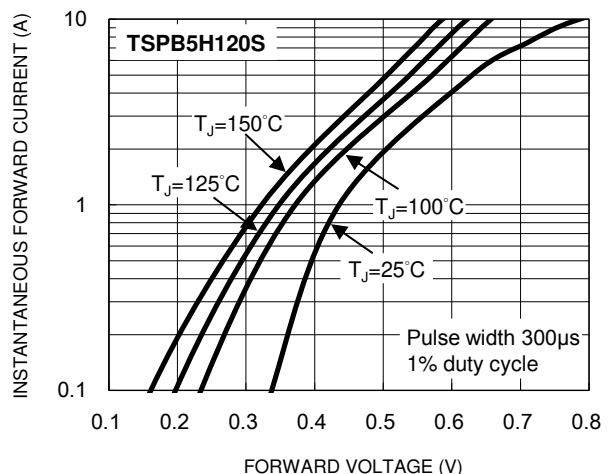


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

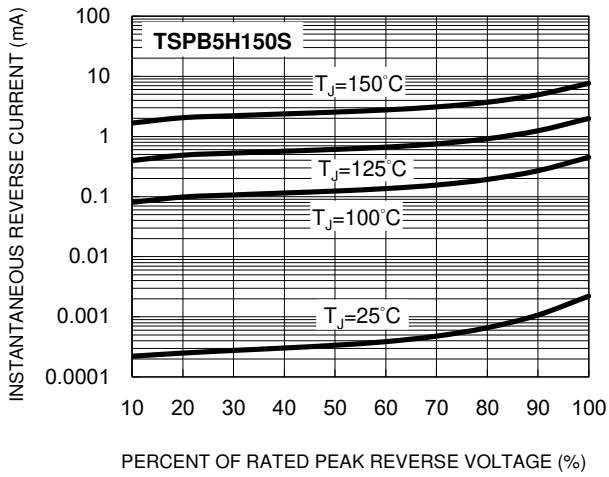
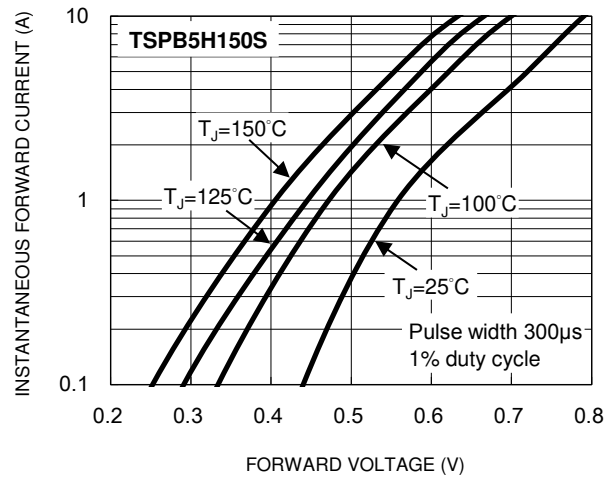
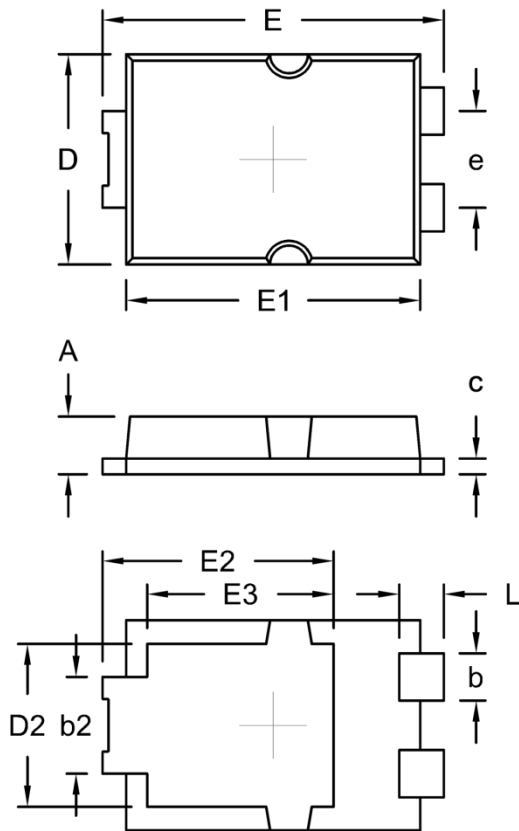


Fig.8 Typical Forward Characteristics



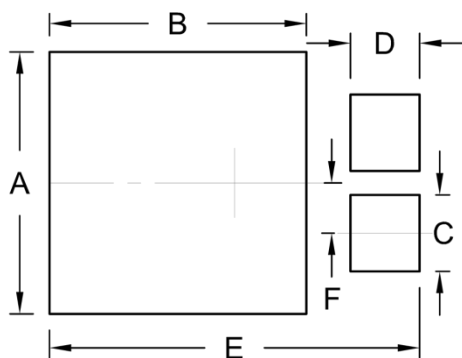
PACKAGE OUTLINE DIMENSIONS

SMPC4.0



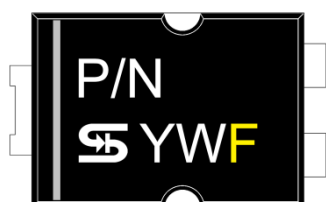
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.00	1.20	0.039	0.047
b	0.75	1.05	0.030	0.041
b2	1.69	1.99	0.067	0.078
c	0.20	0.40	0.008	0.016
D	3.95	4.05	0.156	0.159
D2	2.95	3.25	0.116	0.128
E	6.35	6.65	0.250	0.262
E1	5.55	5.65	0.219	0.222
E2	4.25	4.55	0.167	0.179
E3	3.40	3.70	0.134	0.146
e	1.69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