

15A, 120V - 200V Trench Schottky Surface Mount 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
- 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 converters

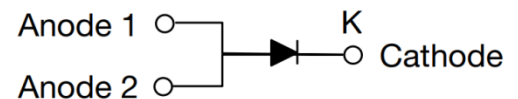
MECHANICAL DATA

- Case: TO-277A (SMPC)
- 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: 0.095g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	15	A
V_{RRM}	120 - 200	V
I_{FSM}	250	A
T_{JMAX}	150	°C
Package	TO-277A (SMPC)	
Configuration	Single die	



TO-277A (SMPC)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	TSP15H120S	TSP15H150S	TSP15H200S	UNIT
Marking code on the device		15H120	15H150	15H200	
Repetitive peak reverse voltage	V_{RRM}	120	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	84	105	140	V
Forward current	I_F	15			A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	250			A
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	$R_{\theta JL}$	9	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	TSP15H120S	$I_F = 7.5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.57	-	V
	TSP15H150S			0.69	-	V
	TSP15H200S			0.73	-	V
	TSP15H120S	$I_F = 15.0\text{A}, T_J = 25^\circ\text{C}$		0.67	0.75	V
	TSP15H150S			0.75	0.84	V
	TSP15H200S			0.79	0.89	V
	TSP15H120S	$I_F = 7.5\text{A}, T_J = 125^\circ\text{C}$		0.48	-	V
	TSP15H150S			0.56	-	V
	TSP15H200S			0.59	-	V
	TSP15H120S	$I_F = 15.0\text{A}, T_J = 125^\circ\text{C}$		0.58	0.66	V
	TSP15H150S			0.63	0.73	V
	TSP15H200S			0.66	0.76	V
Reverse current @ rated V_R ⁽²⁾	TSP15H120S	$T_J = 25^\circ\text{C}$	I_R	-	250	μA
	TSP15H150S TSP15H200S			-	150	μA
	TSP15H120S	$T_J = 125^\circ\text{C}$		-	35	mA
	TSP15H150S TSP15H200S			-	25	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
TSP15HxS	TO-277A (SMPC)	6,000 / Tape & Reel

Notes:

1. "x" defines voltage from 120V(TSP15H120S) to 200V(TSP15H200S)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

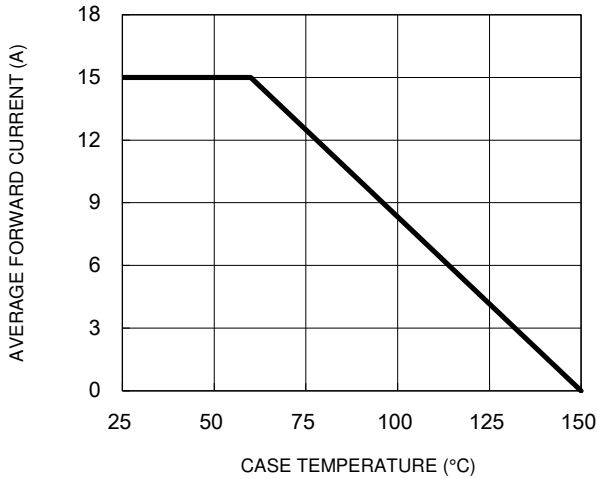


Fig.2 Typical Junction Capacitance

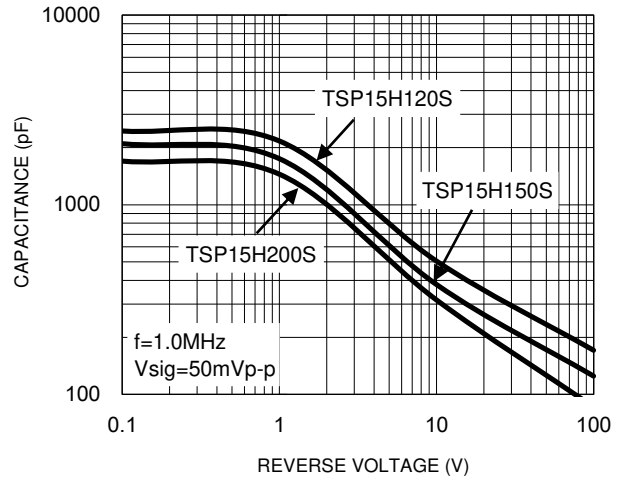


Fig.3 Typical Reverse Characteristics

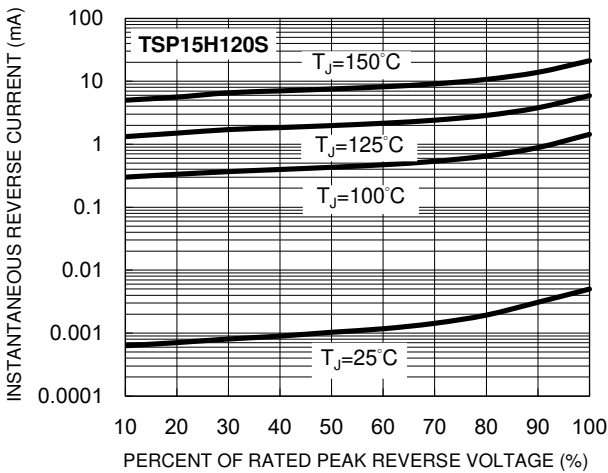


Fig.4 Typical Forward Characteristics

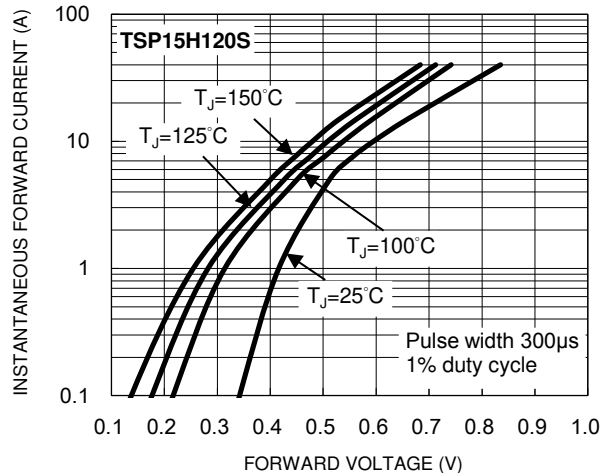


Fig.5 Typical Reverse Characteristics

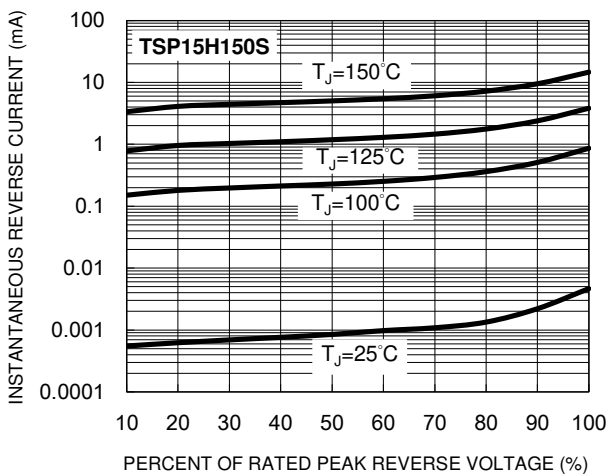
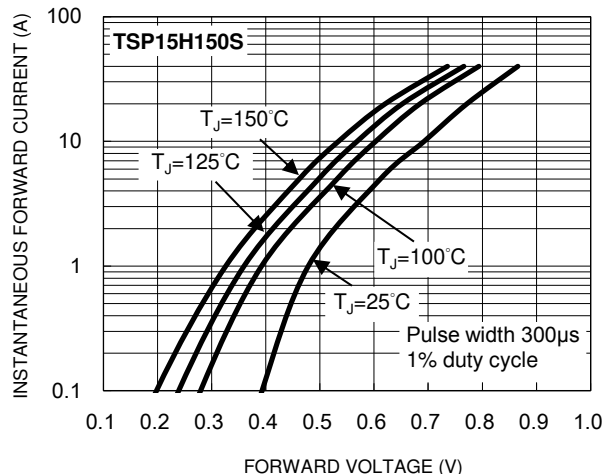


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

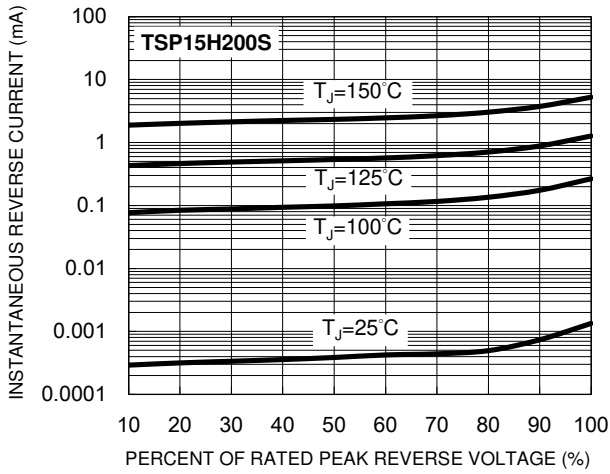


Fig.8 Typical Forward Characteristics

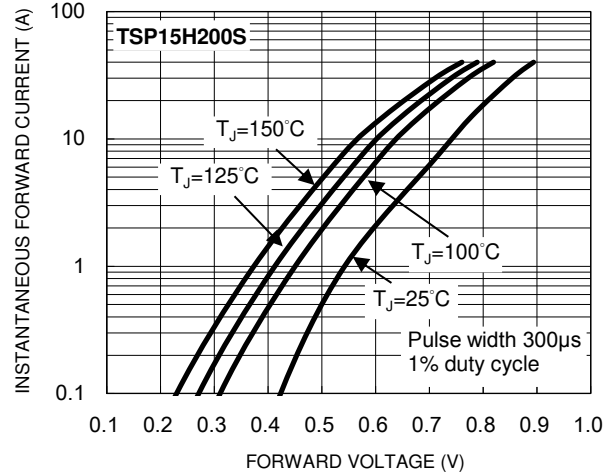
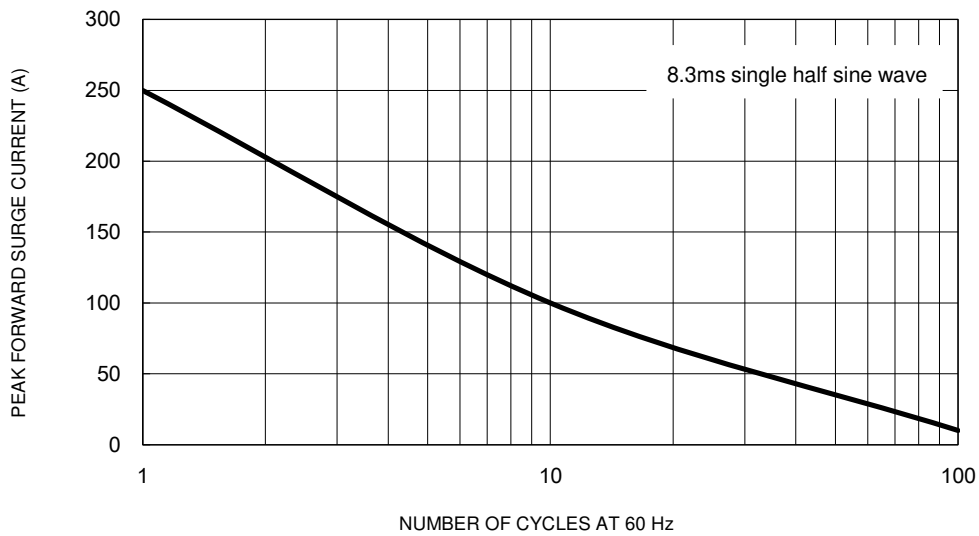
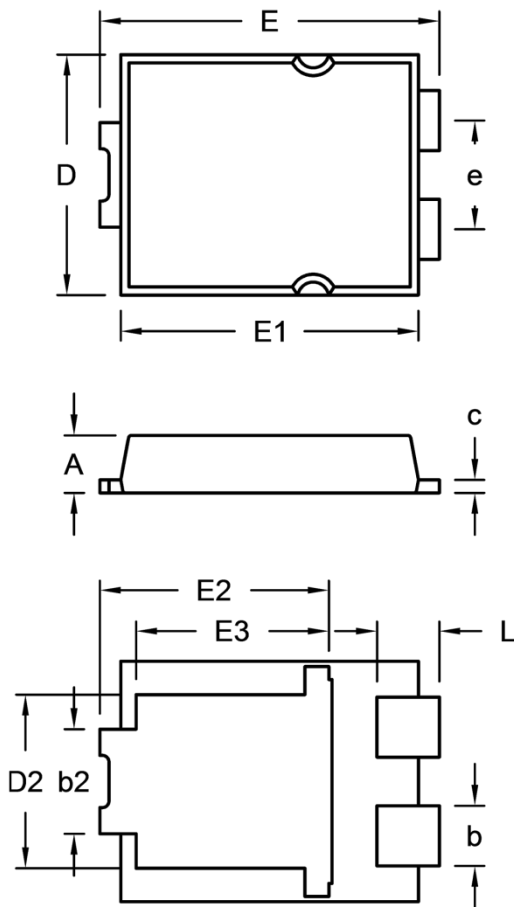


Fig.9 Maximum Non-Repetitive Forward Surge Current



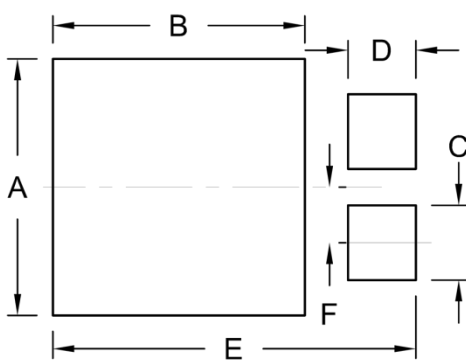
PACKAGE OUTLINE DIMENSIONS

TO-277A (SMPC)



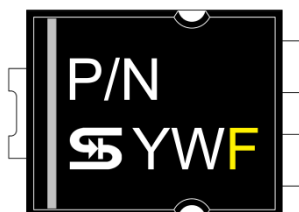
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.000	1.200	0.039	0.047
b	1.000	1.300	0.039	0.051
b2	1.850	2.150	0.073	0.085
c	0.175	0.325	0.007	0.013
D	4.550	4.650	0.179	0.183
D2	3.170	3.470	0.125	0.137
E	6.350	6.650	0.250	0.262
E1	5.650	5.750	0.222	0.226
E2	4.235	4.535	0.167	0.179
E3	3.540	3.840	0.139	0.151
e	1.930	2.230	0.076	0.088
L	1.043	1.343	0.041	0.053

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

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