

10A, 45V - 60V Trench Schottky Surface Mount Rectifier

FEATURES

- Patented Trench Schottky technology
- Low power loss / high efficiency
- Ideal for automated placement
- Guard ring for over-voltage protection
- High forward surge capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

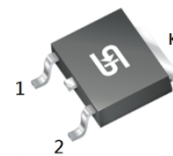
APPLICATIONS

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

MECHANICAL DATA

- Case: TO-252 (D-PAK)
- 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: As marked
- Weight: 0.400g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	10	A
V_{RRM}	45 - 60	V
I_{FSM}	120	A
T_{JMAX}	150	°C
Package	TO-252 (D-PAK)	
Configuration	Single die	



TO-252 (D-PAK)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	TSSD10L45SW	TSSD10L60SW	UNIT
Marking code on the device		10L45SW	10L60SW	
Repetitive peak reverse voltage	V_{RRM}	45	60	V
Reverse voltage, total rms value	$V_{R(RMS)}$	31	42	V
Forward current	I_F	10		A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	120		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	$R_{\theta JL}$	16	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	51	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	19	°C/W

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	TSSD10L45SW	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.43	-	V
		$I_F = 10\text{A}, T_J = 25^\circ\text{C}$		0.49	0.55	V
		$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.33	-	V
		$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.41	0.50	V
	TSSD10L60SW	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$		0.47	-	V
		$I_F = 10\text{A}, T_J = 25^\circ\text{C}$		0.55	0.66	V
		$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.36	-	V
		$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.47	0.64	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	50	μA
		$T_J = 125^\circ\text{C}$		-	20	mA
Junction capacitance	TSSD10L45SW	1MHz, $V_R = 4.0\text{V}$	C_J	1290	-	pF
	TSSD10L60SW			1585	-	pF

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
TSSD10LxSW	TO-252 (D-PAK)	2,500 / Tape & Reel

Notes:

1. "x" defines voltage from 45V(TSSD10L45SW) to 60V(TSSD10L60SW)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

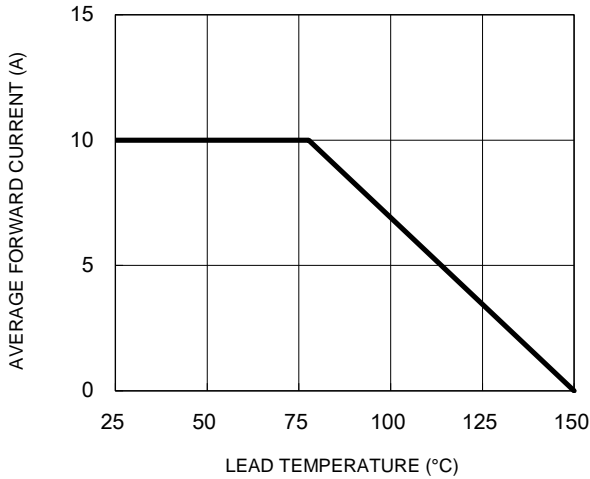


Fig.2 Typical Junction Capacitance

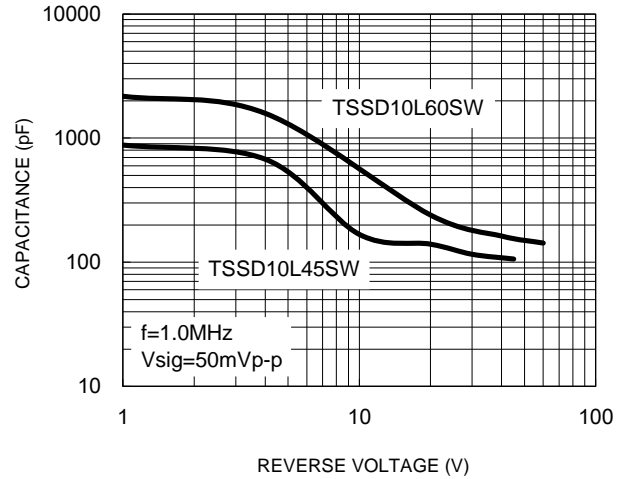


Fig.3 Typical Reverse Characteristics

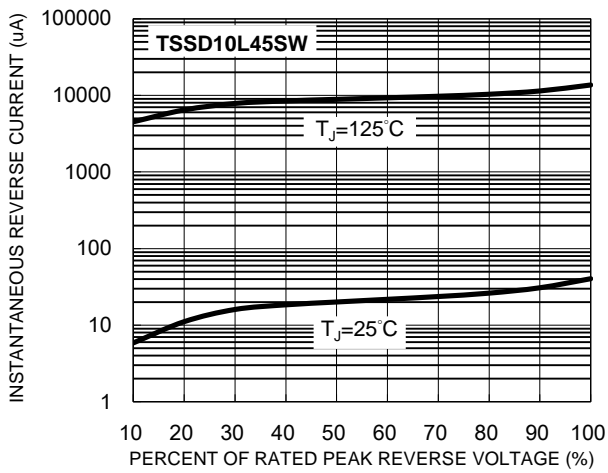


Fig.4 Typical Forward Characteristics

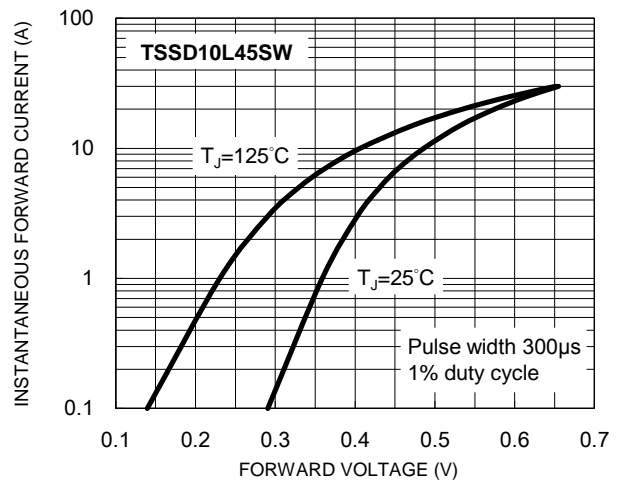


Fig.5 Typical Reverse Characteristics

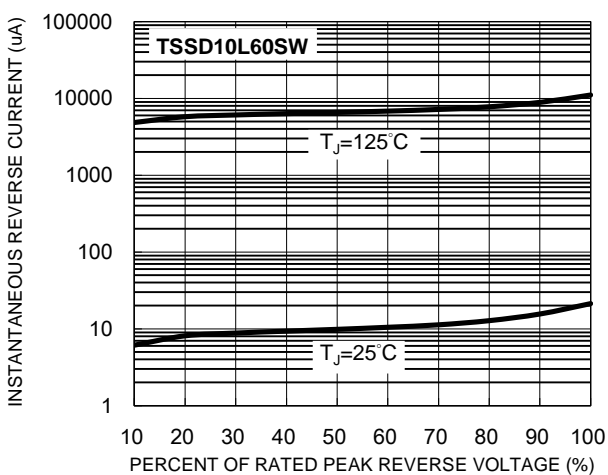
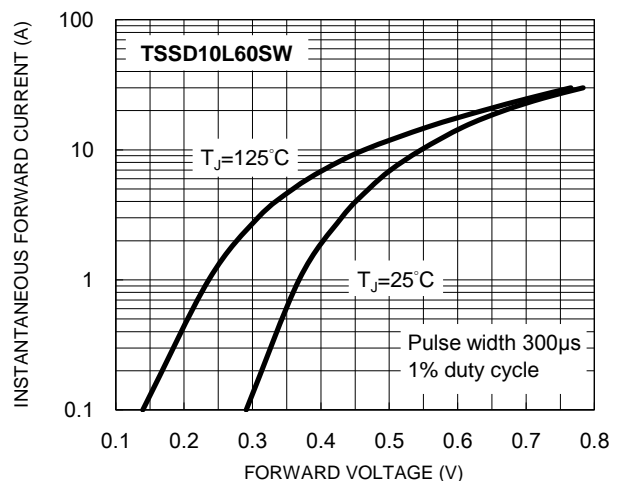
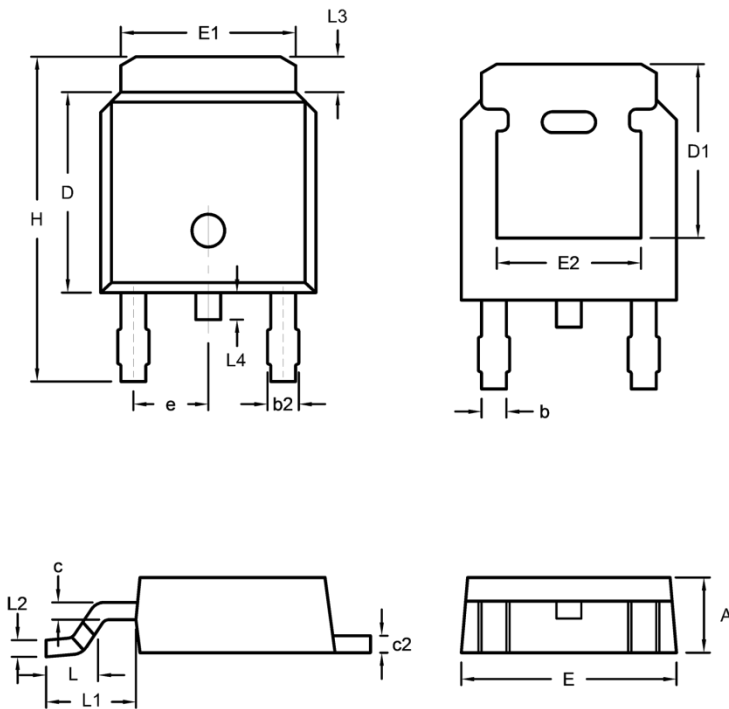


Fig.6 Typical Forward Characteristics



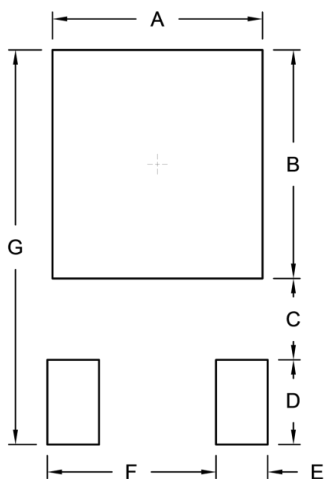
PACKAGE OUTLINE DIMENSIONS

TO-252 (D-PAK)



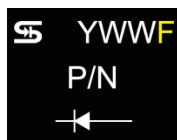
DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.20	2.38	0.087	0.094
b	0.64	0.88	0.025	0.035
b2	0.77	1.14	0.030	0.045
c	0.45	0.60	0.018	0.024
c2	0.45	0.58	0.018	0.023
D	6.00	6.22	0.236	0.245
D1	5.30	-	0.209	-
E	6.41	6.73	0.252	0.265
E1	5.21	5.47	0.205	0.215
E2	4.40	-	0.173	-
e	2.286 (REF)		0.090	
H	9.40	10.40	0.370	0.409
L	1.40	1.77	0.055	0.070
L1	2.743 (REF)		0.107	
L2	0.508 (REF)		0.020	
L3	0.89	1.27	0.035	0.050
L4	0.64	1.01	0.025	0.040

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	5.69	0.224
B	6.18	0.243
C	2.20	0.087
D	2.29	0.090
E	1.40	0.055
F	4.57	0.180
G	10.67	0.420

MARKING DIAGRAM



P/N = Marking Code
 YWW = Date Code
 F = Factory Code

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