

## 10A, 100V - 200V 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

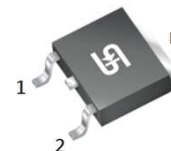
### APPLICATIONS

- 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
$V_{RRM}$	100 - 200	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	TSSD10L 100SW	TSSD10L 150SW	TSSD10L 200SW	UNIT
Marking code on the device		10L100SW	10L150SW	10L200SW	
Repetitive peak reverse voltage	$V_{RRM}$	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	105	140	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
Critical rate of rise of off-state voltage	dv/dt	10,000			V/ $\mu\text{s}$
Junction temperature	$T_J$	- 55 to +150			°C
Storage temperature	$T_{STG}$	- 55 to +150			°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	13	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	59	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	15	°C/W

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

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	TSSD10L100SW	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.56	-	V
		$I_F = 10\text{A}, T_J = 25^\circ\text{C}$		0.70	0.80	V
		$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.51	-	V
		$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.62	0.71	V
	TSSD10L150SW TSSD10L200SW	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$		0.81	-	V
		$I_F = 10\text{A}, T_J = 25^\circ\text{C}$		0.91	1.05	V
		$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		0.63	-	V
		$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.72	0.83	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	TSSD10L100SW	$T_J = 25^\circ\text{C}$	$I_R$	-	50	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$		-	20	mA
	TSSD10L150SW TSSD10L200SW	$T_J = 25^\circ\text{C}$		-	20	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$		-	1	mA
Junction capacitance	TSSD10L100SW	1MHz, $V_R = 4.0\text{V}$	$C_J$	540	-	pF
	TSSD10L150SW			325	-	pF
	TSSD10L200SW					

**Notes:**

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

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
TSSD10LxSW	TO-252 (D-PAK)	2,500 / Tape & Reel

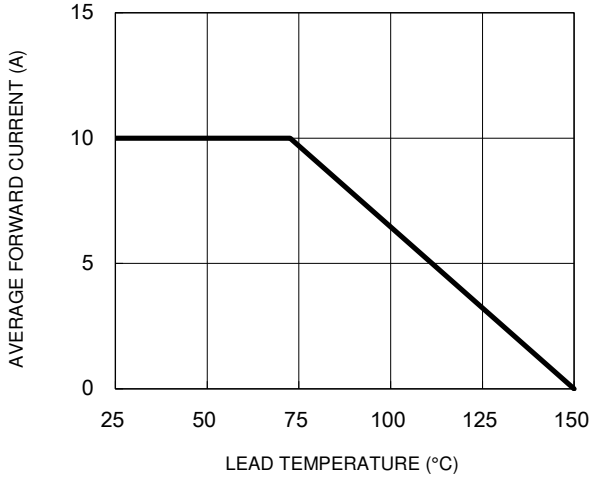
**Notes:**

1. "x" defines voltage from 100V(TSSD10L100SW) to 200V(TSSD10L200SW)

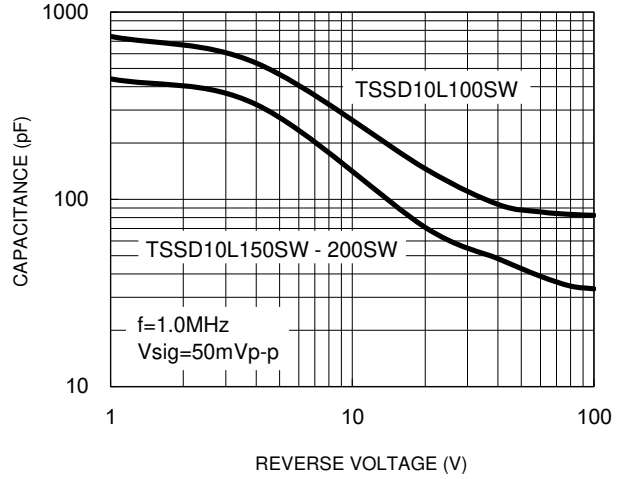
**CHARACTERISTICS CURVES**

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

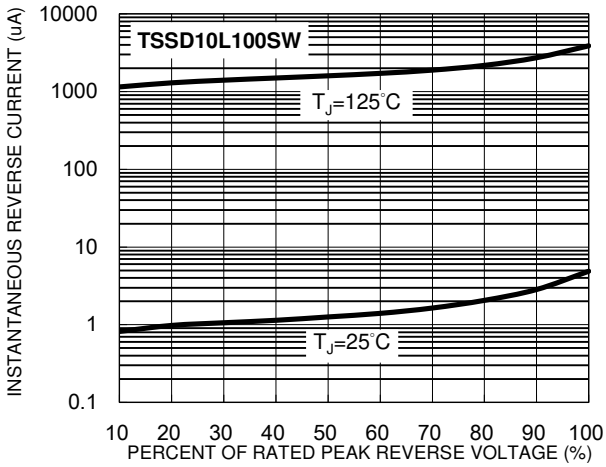
**Fig.1 Forward Current Derating Curve**



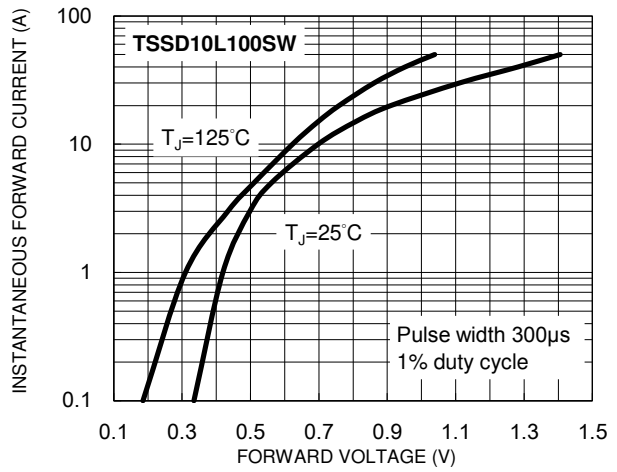
**Fig.2 Typical Junction Capacitance**



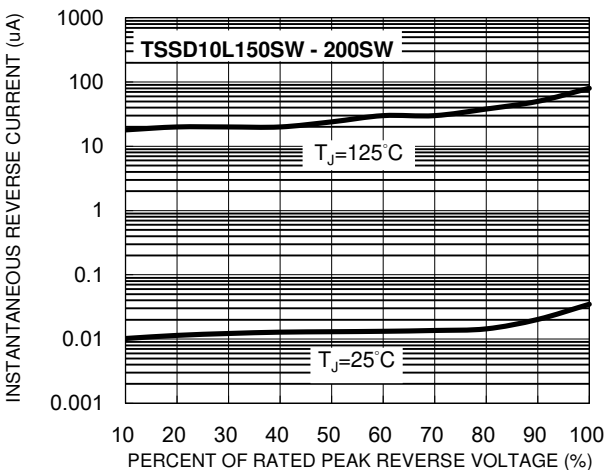
**Fig.3 Typical Reverse Characteristics**



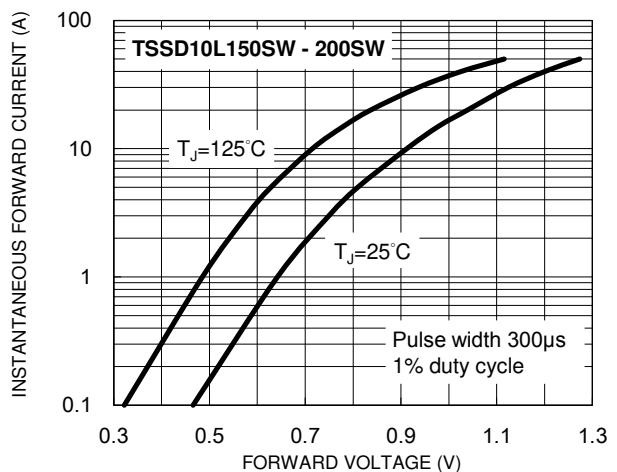
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Characteristics**

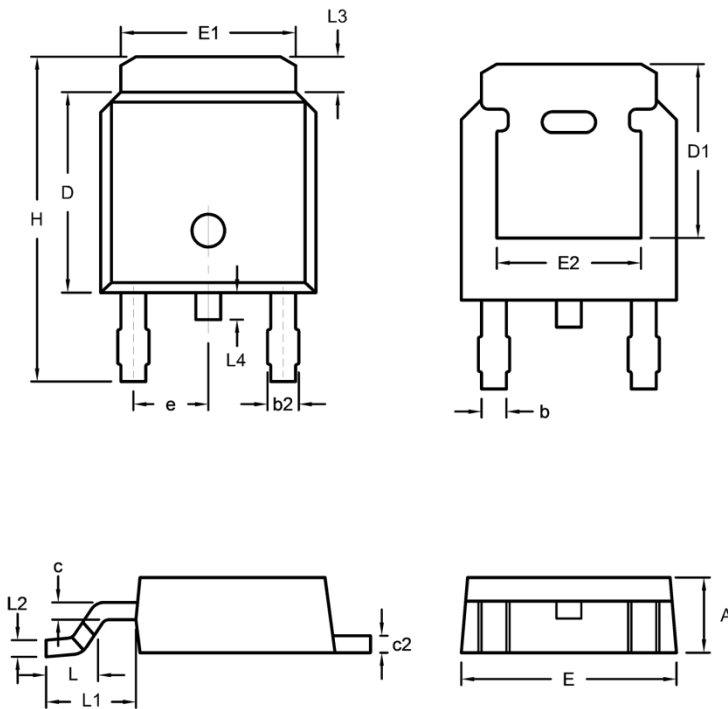


**Fig.6 Typical Forward Characteristics**



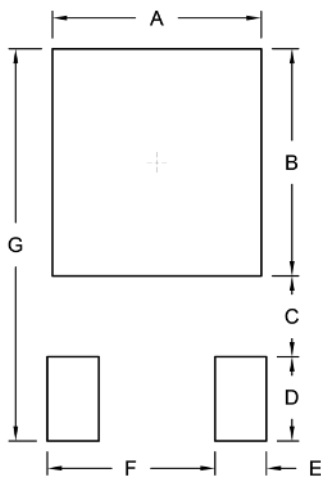
**PACKAGE OUTLINE DIMENSIONS**

**TO-252 (D-PAK)**



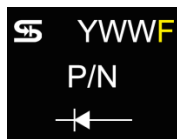
DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.20	2.38	0.087	0.094
b	0.64	0.88	0.025	0.035
b2	0.77	1.14	0.030	0.045
c	0.45	0.60	0.018	0.024
c2	0.45	0.58	0.018	0.023
D	6.00	6.22	0.236	0.245
D1	5.30	-	0.209	-
E	6.41	6.73	0.252	0.265
E1	5.21	5.47	0.205	0.215
E2	4.40	-	0.173	-
e	2.286 (REF)		0.090	
H	9.40	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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