

## 3A, 45V Trench Schottky Rectifiers

### FEATURES

- Patented Trench Schottky technology
- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

### MECHANICAL DATA

- Case: SOD-128
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 0.0282g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	3	A
$V_{RRM}$	45	V
$I_{FSM}$	30	A
$V_F$ at $I_F=3A$	0.56	V
$T_{JMAX}$	150	°C
Package	SOD-128	
Configuration	Single die	



SOD-128

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	TSS83L45	UNIT
Marking code on the device		83L45	
Repetitive peak reverse voltage	$V_{RRM}$	45	V
Reverse voltage, total rms value	$V_{R(RMS)}$	32	V
Forward current	$I_{F(AV)}$	3	A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	30	A
Non-repetitive reverse current surge peak per diode <sup>(1)</sup>	$I_{RSM}$	10	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

#### Notes:

1. Pulse / period : 2 us / 1000us, pulse No. : 10 times

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	23	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	75	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	25	°C/W

**Thermal Performance Note:** Units mounted on recommended PCB (5mm x 5mm Cu pad test board)

<b>ABSOLUTE MAXIMUM RATINGS</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 per diode <sup>(1)</sup>	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.39	0.47	V
	$I_F = 3\text{A}, T_J = 25^\circ\text{C}$		0.50	0.56	V
	$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		0.29	0.36	V
	$I_F = 3\text{A}, T_J = 125^\circ\text{C}$		0.44	0.50	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	500	uA
	$T_J = 125^\circ\text{C}$		-	20	mA
Junction capacitance	1 MHz, $V_R = 4.0\text{V}$	$C_J$	220	-	pF

**Notes:**

1. Pulse test with PW=0.3 ms
2. Pulse test with PW=30 ms

<b>ORDERING INFORMATION</b>				
<b>PART NO.</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>PACKAGE</b>	<b>PACKING</b>
TSS83L45 (Note 1)	MW	G	SOD-128	3,500 / 7" Plastic reel
	MX		SOD-128	14,000 / 13" Plastic reel

**Notes:**

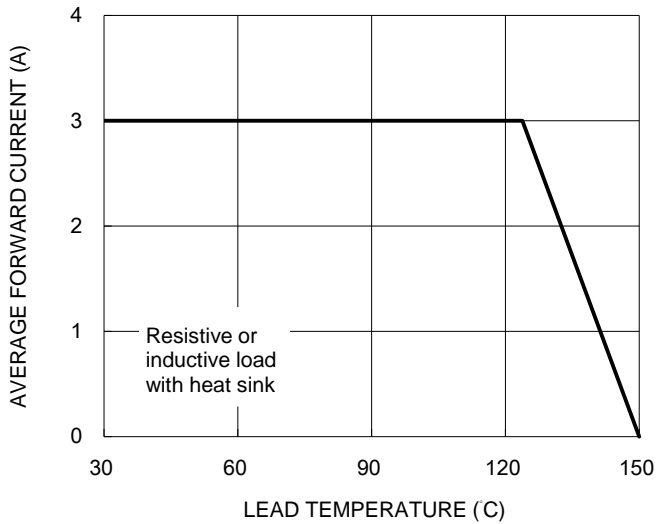
1. Whole series with green compound

<b>EXAMPLE</b>				
<b>PREFERRED P/N</b>	<b>PART NO.</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
TSS83L45 MWG	TSS83L45	MW	G	Green compound

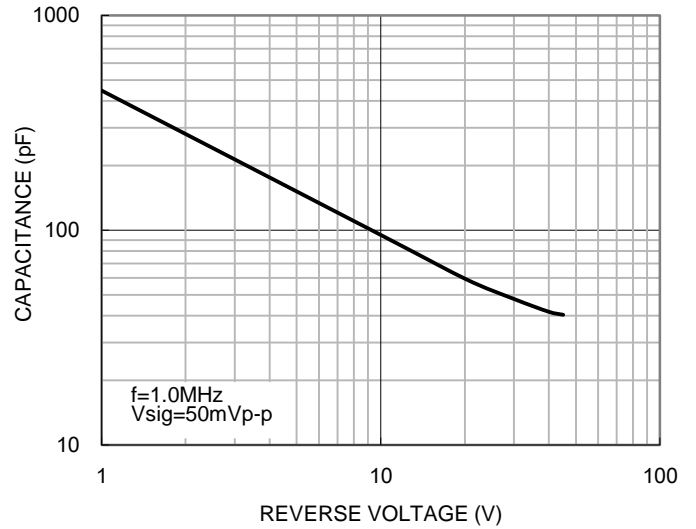
**CHARACTERISTICS CURVES**

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

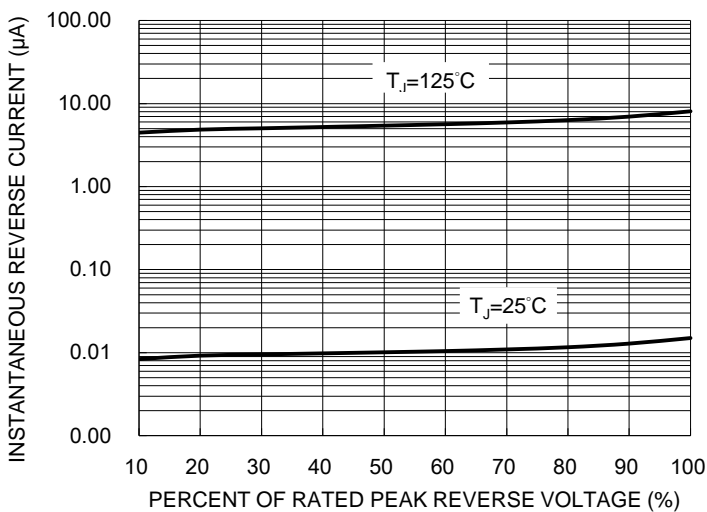
**Forward Current Derating Curve**



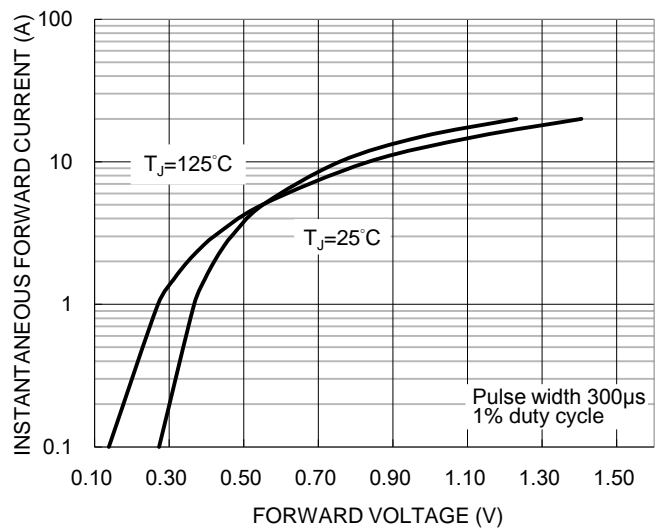
**Typical Junction Capacitance**



**Typical Reverse Characteristics**

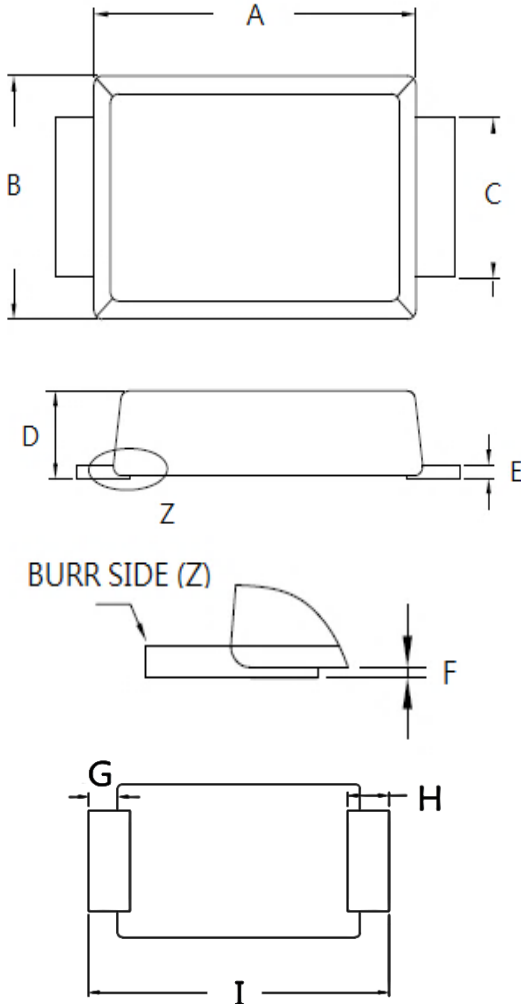


**Typical Forward Characteristics**



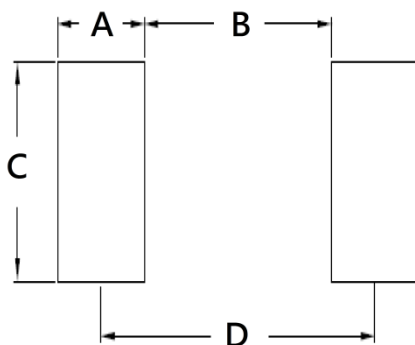
**PACKAGE OUTLINE DIMENSIONS**

SOD-128



DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	3.60	4.00	0.142	0.157
B	2.30	2.70	0.091	0.106
C	1.60	1.90	0.063	0.075
D	0.90	1.10	0.035	0.043
E	0.10	0.22	0.004	0.009
F	0.00	0.10	0.000	0.004
G	0.30	0.60	0.012	0.024
H	0.40	0.80	0.016	0.031
I	4.40	5.00	0.173	0.197

**SUGGESTED PAD LAYOUT**



DIM	Unit (mm)	Unit (inch)
A	1.40	0.055
B	3.00	0.118
C	2.10	0.082
D	4.40	0.173

**MARKING DIAGRAM**



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

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