

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: UL flammability classification rating 94V-0
- 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
$T_{J\ MAX}$	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 ⁽¹⁾	I_{RSM}	10	A
Critical rate of rise of off-state voltage	dV/dt	10,000	V/ μ s
Junction temperature	T_J	-55 to +150	°C
Storage temperature	T_{STG}	-55 to +150	°C

Notes:

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

THERMAL PERFORMANCE

PARAMETER	SYMBOL	LIMIT	UNIT
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)

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	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 ⁽²⁾	$T_J = 25^\circ\text{C}$	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 $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

ORDERING INFORMATION

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
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

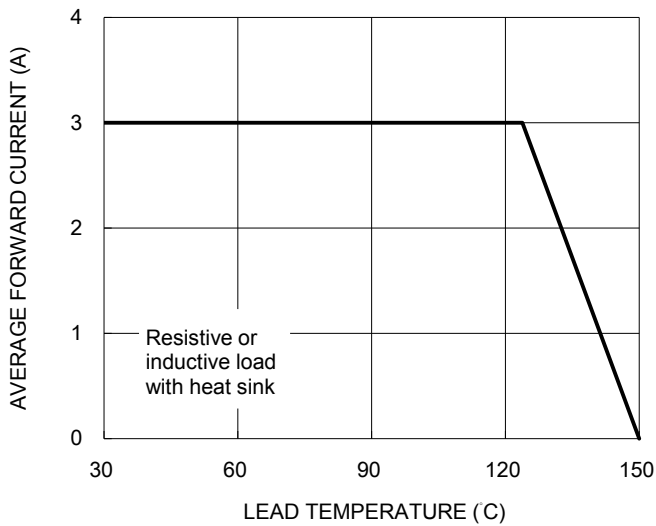
EXAMPLE

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

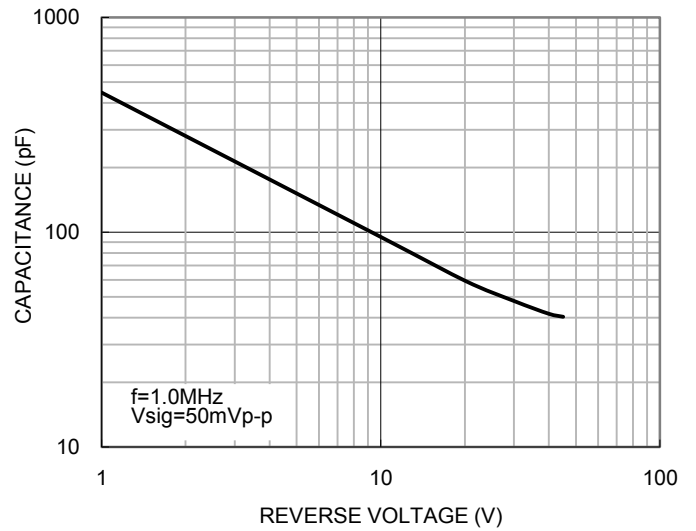
CHARACTERISTICS CURVES

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

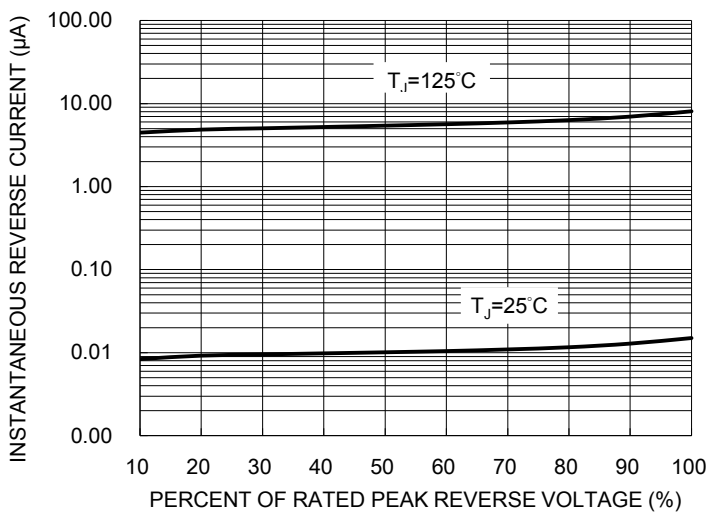
Forward Current Derating Curve



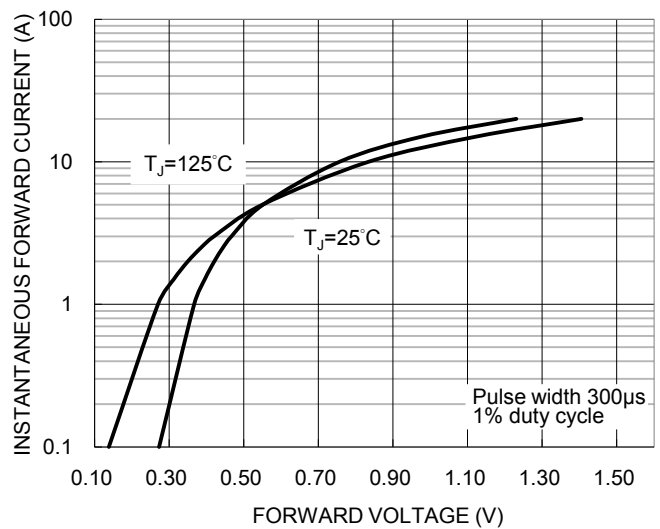
Typical Junction Capacitance



Typical Reverse Characteristics

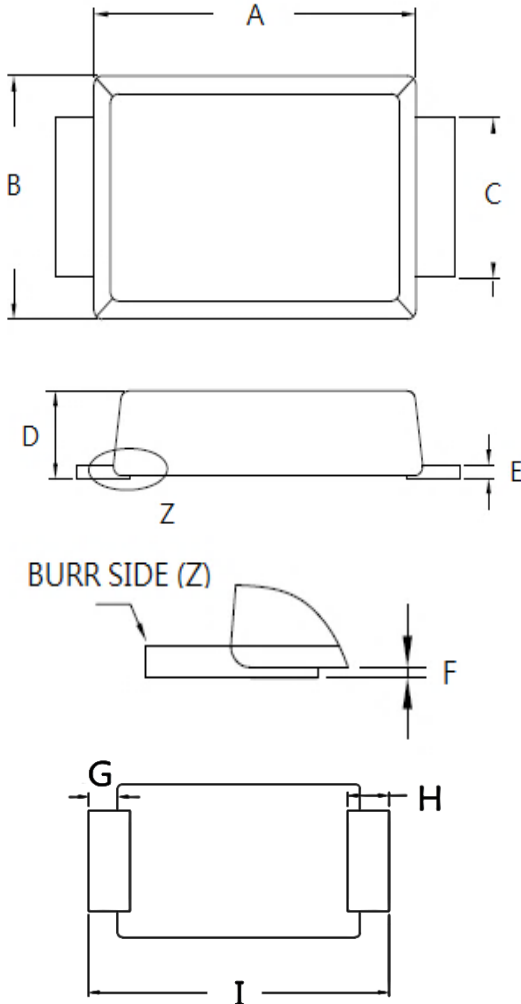


Typical Forward Characteristics



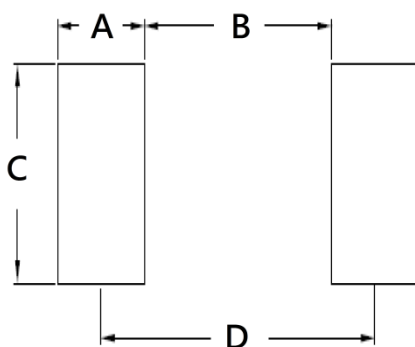
PACKAGE OUTLINE DIMENSIONS

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
YWF = Date Code
F = Factory Code

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