Taiwan Semiconductor



3A, 45V Trench Schottky Rectifier

FEATURES

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

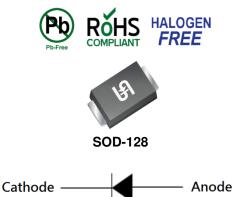
APPLICATIONS

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

MECHANICAL DATA

- Case: SOD-128
- 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: 0.028g (approximately)

KEY PARAMETERS			
PARAMETER	VALUE	UNIT	
I _F	3	А	
V _{RRM}	45	V	
I _{FSM}	30	А	
T _{J MAX}	150	°C	
Package	SOD-128		
Configuration	Single die		



ABSOLUTE MAXIMUM RATINGS (T _A = 25°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	3	А	
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	30	А	
Non-repetitive reverse current surge peak ⁽¹⁾	I _{RSM}	10	А	
Critical rate of rise of off-state voltage	dV/dt	10,000	V/µs	
Junction temperature	TJ	-55 to +150	°C	
Storage temperature	T _{STG}	-55 to +150	°C	

Notes:

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



THERMAL PERFORMANCE			
PARAMETER	SYMBOL	ТҮР	UNIT
Junction-to-lead thermal resistance	R _{ejl}	23	°C/W
Junction-to-ambient thermal resistance	R _{eja}	75	°C/W
Junction-to-case thermal resistance	R _{eJC}	25	°C/W

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

ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	ТҮР	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 1A, T_J = 25^{\circ}C$	V _F	0.39	0.47	V
	$I_F = 3A, T_J = 25^{\circ}C$		0.50	0.56	V
	$I_F = 1A, T_J = 125^{\circ}C$		0.29	0.36	V
	$I_F = 3A, T_J = 125^{\circ}C$		0.44	0.50	V
Reverse current @ rated $V_R^{(2)}$	$T_J = 25^{\circ}C$	- I _R	-	500	μA
	T _J = 125°C		-	20	mA
Junction capacitance	1MHz, V _R = 4.0V	CJ	220	-	pF

Notes:

1. Pulse test with PW = 0.3ms

2. Pulse test with PW = 30ms

ORDERING INFORMATION			
ORDERING CODE	PACKAGE	PACKING	
TSS83L45	SOD-128	14,000 / Tape & Reel	



CHARACTERISTICS CURVES

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

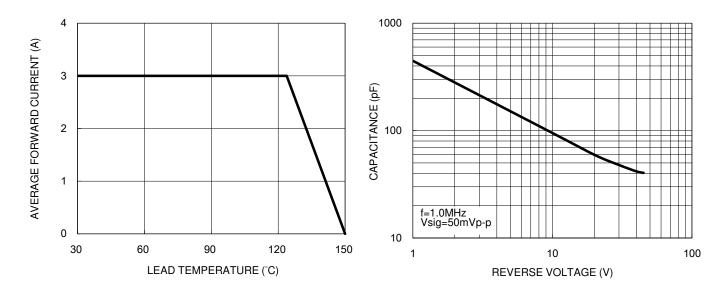
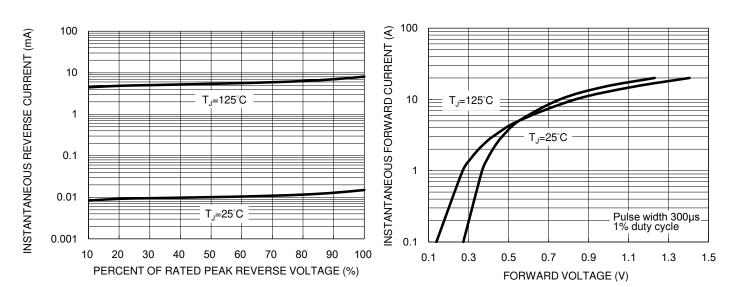


Fig.1 Forward Current Derating Curve

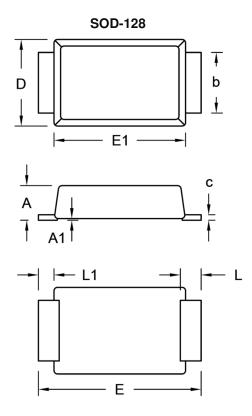
Fig.3 Typical Reverse Characteristics





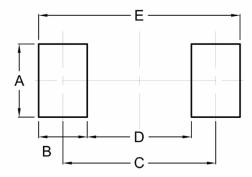


PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit	(inch)
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.043
A1	0.00	0.10	0.000	0.004
b	1.60	1.90	0.063	0.075
с	0.10	0.22	0.004	0.009
D	2.30	2.70	0.091	0.106
E	4.40	5.00	0.173	0.197
E1	3.60	4.00	0.142	0.157
L	0.40	0.80	0.016	0.031
L1	0.30	0.60	0.012	0.024

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
А	2.10	0.083
В	1.40	0.055
С	4.40	0.173
D	3.00	0.118
Е	5.80	0.228

MARKING DIAGRAM



P/N = Marking Code

YW = Date Code

F = Factory Code



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