TSUP5M45SH

Taiwan Semiconductor

5A, 45V Trench Schottky Rectifier

FEATURES

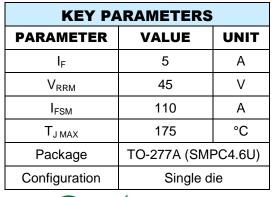
- AEC-Q101 qualified
- Patented Trench Schottky technology
- Low power loss, high efficiency
- Ideal for automated placement
- Wettable flank
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

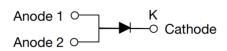
- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter
- Automotive

MECHANICAL DATA

- Case: TO-277A (SMPC4.6U)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.104g (approximately)



TO-277A (SMPC4.6U)



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C unless otherwise noted)				
PARAMETER		SYMBOL	TSUP5M45SH	UNIT
Marking code on the device			5M45	
Repetitive peak reverse voltage		V _{RRM}	45	V
Reverse voltage, total rms value		V _{R(RMS)}	32	V
Forward current		I _F	5	А
Surge peak forward current single half sine-wave superimposed on rated load	t = 8.3ms		110	Α
	t = 1.0ms	I _{FSM}	180	A
Junction temperature		TJ	-55 to +175	°C
Storage temperature		T _{STG}	-55 to +175	°C







THERMAL PERFORMANCE			
PARAMETER	SYMBOL	ТҮР	UNIT
Junction-to-lead thermal resistance	R _{ƏJL}	5	°C/W
Junction-to-ambient thermal resistance	R _{ÐJA}	45	°C/W
Junction-to-case thermal resistance	R _{eJC}	9	°C/W

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}C$ unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	ТҮР	MAX	UNIT
Forward voltage ⁽¹⁾	$I_F = 2.5A, T_J = 25^{\circ}C$	V _F	0.49	-	V
	$I_F = 5.0A, T_J = 25^{\circ}C$		0.54	0.60	V
	$I_F = 2.5A, T_J = 125^{\circ}C$		0.39	-	V
	$I_F = 5.0A, T_J = 125^{\circ}C$		0.46	0.54	V
Reverse current @ rated V _R ⁽²⁾	T _J = 25°C	I _R	-	150	μA
	T _J = 125°C		-	6	mA
Junction capacitance	$1 MHz, V_R = 4.0 V$	CJ	589	-	pF

Notes:

1. Pulse test with PW = 0.3ms

2. Pulse test with PW = 30ms

ORDERING INFORMATION			
ORDERING CODE	PACKAGE	PACKING	
TSUP5M45SH	TO-277A (SMPC4.6U)	6,000 / Tape & Reel	



CHARACTERISTICS CURVES

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

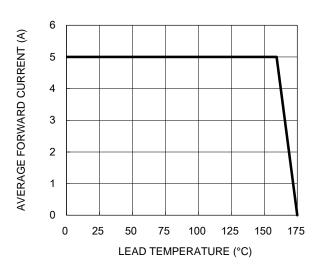
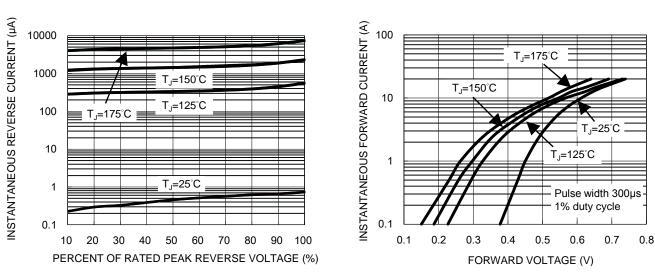
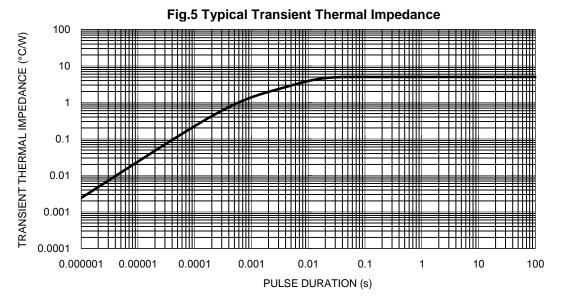


Fig.1 Forward Current Derating Curve

Fig.3 Typical Reverse Characteristics





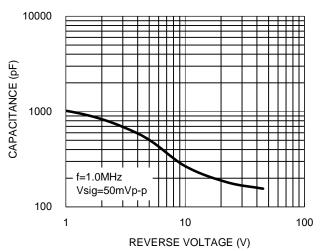


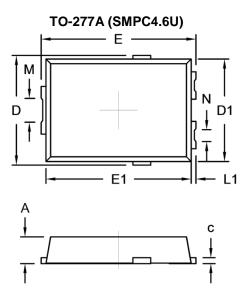
Fig.2 Typical Junction Capacitance

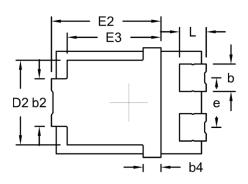
Fig.4 Typical Forward Characteristics



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PACKAGE OUTLINE DIMENSIONS





SUGGESTED PAD LAYOUT

 \mathbf{F}

А

1

В

D

F

1

С

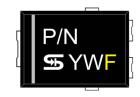
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DIM.	Unit (mm)		Unit (it (inch)	
	Min.	Min. Max.		Max.	
A	1.00	1.20	0.039	0.047	
b	1.05	1.35	0.041	0.053	
b2	1.90	2.20	0.075	0.087	
b4	0.75 (NOM.)	0.030 (NOM.)		
с	0.15	0.40	0.006	0.016	
D	4.45	4.75	0.175	0.187	
D1	4.25	4.35	0.167	0.171	
D2	3.40	3.70	0.134	0.146	
E	6.35	6.65	0.250	0.262	
E1	6.05	6.15	0.238	0.242	
E2	4.40	4.80	0.173	0.189	
E3	3.94 (NOM.)		0.155	(NOM.)	
е	2.08 (NOM.)		0.082 (NOM.)		
L	0.94	1.24	0.037	0.049	
L1	0.05	0.35	0.002	0.014	
М	0.65	1.15	0.026	0.045	
N	0.25	0.75	0.010	0.030	

Package body size D1 and E1 do not include mold flash Mold flash shall not exceed 0.1mm per side

Symbol	Unit (mm)	Unit (inch)
A	4.95	0.195
В	4.95	0.195
С	1.60	0.063
D	1.42	0.056
E	6.95	0.274
F	1.04	0.041

MARKING DIAGRAM



Е

P/N YW

F

4

= Marking Code

= Date Code

= Factory Code



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