2A, 45V Trench Schottky Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Patented Trench Schottky technology
- Low power loss, high efficiency
- Ideal for automated placement
- 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: Micro SMA
- 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: 0.006g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	2	A
V_{RRM}	45	V
I_{FSM}	30	A
$T_{J\ MAX}$	175	°C
Package	Micro SMA	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE



Micro SMA



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**TSU2M45H**	**UNIT**
Marking code on the device			Z3	
Repetitive peak reverse voltage		V_{RRM}	45	V
Reverse voltage, total rms value		$V_{R(RMS)}$	31	V
Forward current		I_F	2	A
Surge peak forward current single half sine-wave superimposed on rated load	t = 8.3ms	I_{FSM}	30	A
	t = 1.0ms		80	A
Junction temperature		T_J	- 55 to +175	°C
Storage temperature		T_{STG}	- 55 to +175	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	19	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	68	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	33	°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	TYP	MAX	UNIT
Forward voltage(1)	I_F = 1A, T_J = 25°C	V_F	0.52	-	V
	I_F = 2A, T_J = 25°C		0.59	0.67	V
	I_F = 1A, T_J = 125°C		0.43	-	V
	I_F = 2A, T_J = 125°C		0.54	0.62	V
Reverse current @ rated V_R(2)	T_J = 25°C	I_R	-	150	μA
	T_J = 125°C		-	5	mA
Junction capacitance	1MHz, V_R = 4.0V	C_J	152	-	pF

Notes:

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

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSU2M45H	Micro SMA	12,000 / Tape & Reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted

Fig.1 Forward Current Derating Curve

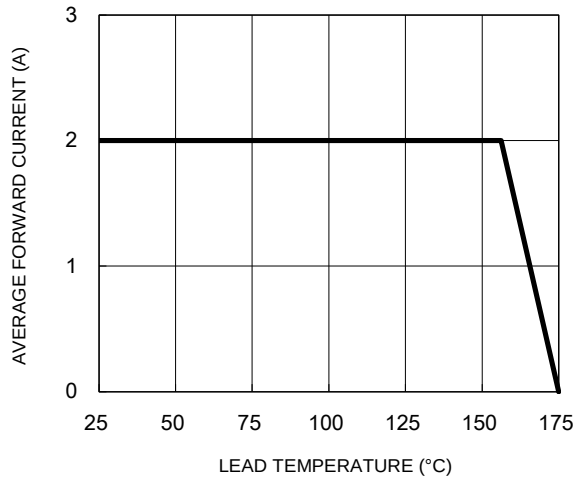


Fig.2 Typical Junction Capacitance

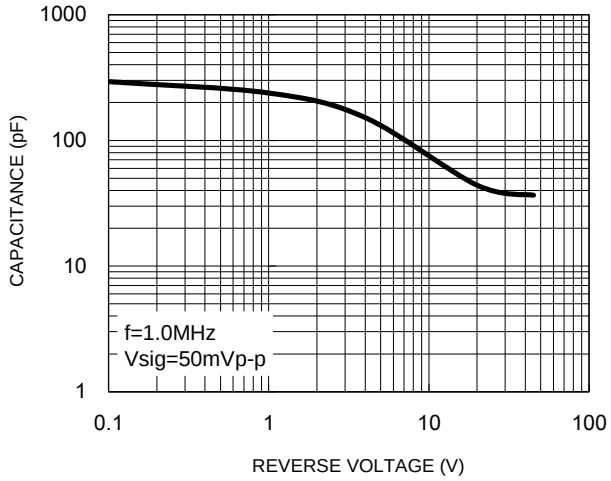


Fig.3 Typical Reverse Characteristics

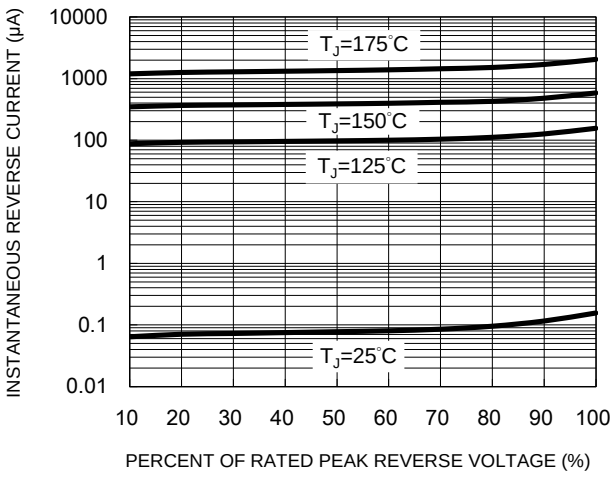


Fig.4 Typical Forward Characteristics

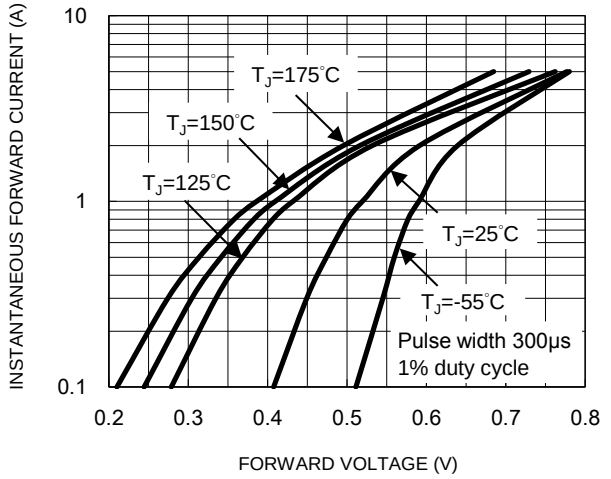
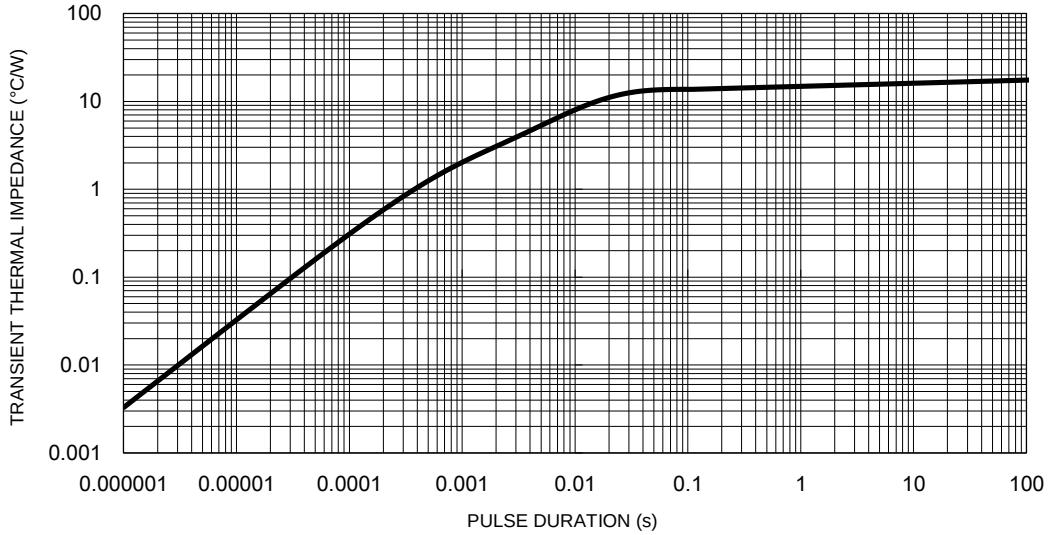
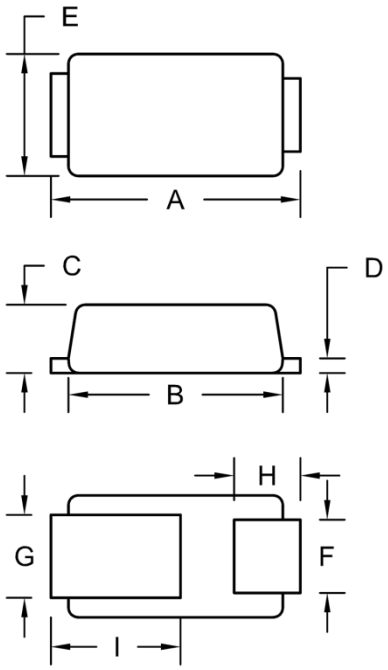


Fig.5 Typical Transient Thermal Impedance



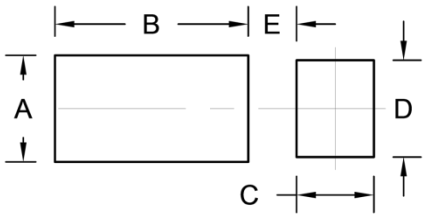
PACKAGE OUTLINE DIMENSIONS

Micro SMA



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.30	2.70	0.091	0.106
B	2.10	2.30	0.083	0.091
C	0.63	0.73	0.025	0.029
D	0.10	0.20	0.004	0.008
E	1.15	1.35	0.045	0.053
F	0.65	0.85	0.026	0.034
G	0.75	0.95	0.030	0.037
H	0.55	0.75	0.022	0.030
I	1.10	1.50	0.043	0.059

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.10	0.043
B	2.00	0.079
C	0.80	0.031
D	1.00	0.039
E	0.50	0.020

Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

MARKING DIAGRAM



P/N = Marking Code
YW = Date Code

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