

1A, 100V - 200V Ultra Fast Surface Mount Rectifier

FEATURES

- Planar technology
- Ideal for automated placement
- Low reverse leakage
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

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	1	A
V_{RRM}	100 - 200	V
I_{FSM}	28	A
T_{JMAX}	175	°C
Package	Micro SMA	
Configuration	Single die	



Micro SMA



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	PU1BM	PU1DM	UNIT
Marking code on the device		P5	P6	
Repetitive peak reverse voltage	V_{RRM}	100	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	140	V
Forward current	I_F	1		A
Surge peak forward current, single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	28		A
	$t = 1.0\text{ms}$	52		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	$R_{\theta JL}$	28	$^{\circ}\text{C}/\text{W}$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	60	$^{\circ}\text{C}/\text{W}$
Junction-to-case thermal resistance	$R_{\theta JC}$	34	$^{\circ}\text{C}/\text{W}$

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	$I_F = 0.5\text{A}, T_J = 25^{\circ}\text{C}$	V_F	0.84	-	V
	$I_F = 1.0\text{A}, T_J = 25^{\circ}\text{C}$		0.90	1.05	V
	$I_F = 0.5\text{A}, T_J = 125^{\circ}\text{C}$		0.70	-	V
	$I_F = 1.0\text{A}, T_J = 125^{\circ}\text{C}$		0.76	0.90	V
Reverse current @ rated V_R ⁽²⁾	$T_J = 25^{\circ}\text{C}$	I_R	-	1	μA
	$T_J = 125^{\circ}\text{C}$		-	15	μA
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	t_{rr}	-	25	ns
	$I_F = 1.0\text{A}, di/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{V}$		36	-	ns
Reverse recovery current	$I_F = 1.0\text{A}, di/dt = 200\text{ A}/\mu\text{s}, V_R = 100\text{V}$	I_{RM}	3.4	-	A
Reverse recovery charge		Q_{rr}	40	-	nC
Reverse recovery time		t_{rr}	24	-	ns
Junction capacitance		C_J	18	-	pF

Notes:

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

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
PU1xM	Micro SMA	12,000 / Tape & Reel

Notes:

1. "x" defines voltage from 100V(PU1BM) to 200V(PU1DM)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

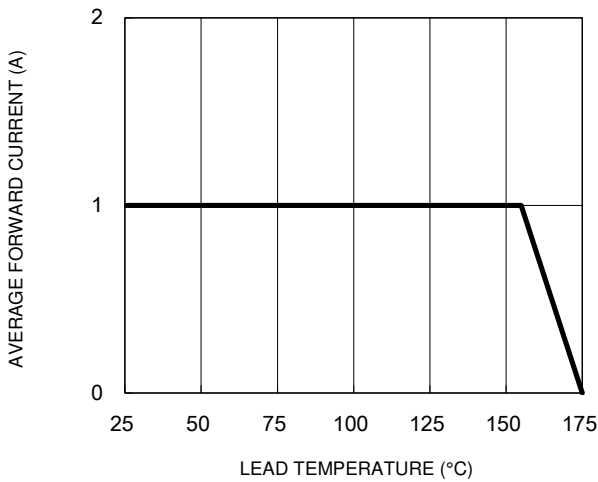


Fig.2 Typical Junction Capacitance

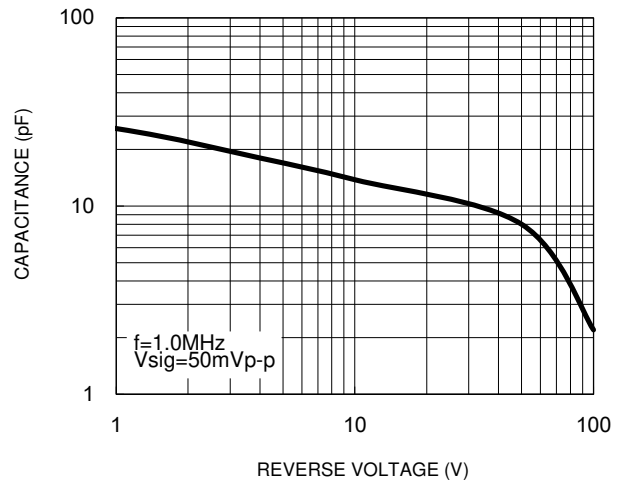


Fig.3 Typical Reverse Characteristics

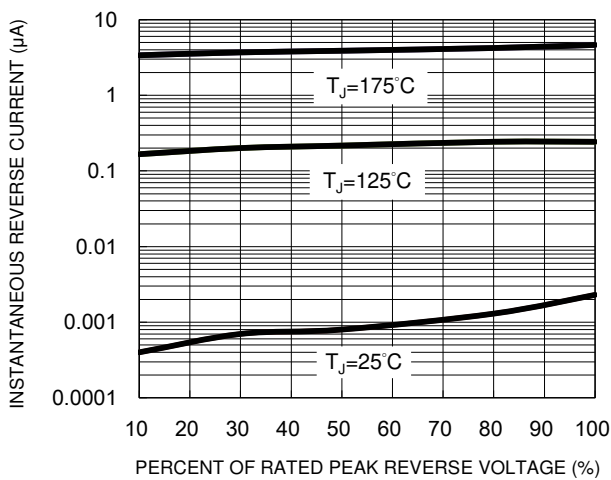


Fig.4 Typical Forward Characteristics

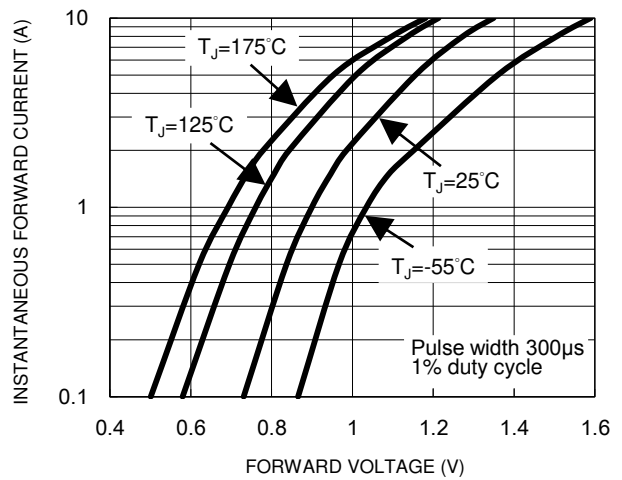
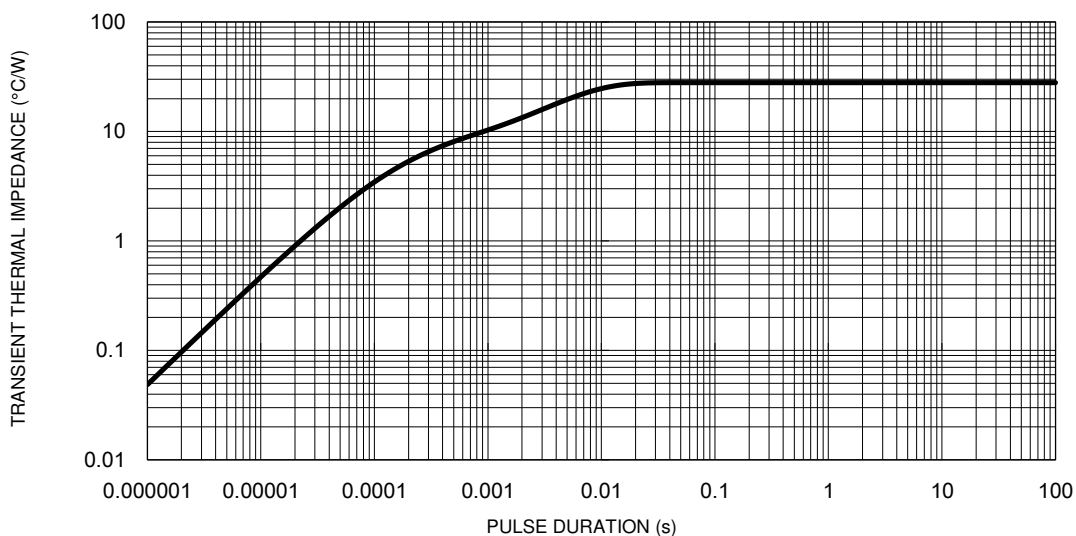
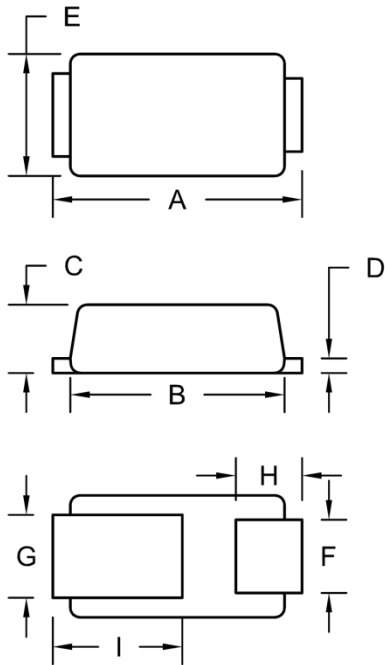


Fig.5 Typical Transient Thermal Impedance



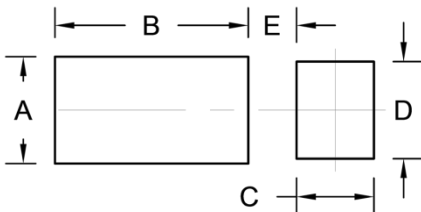
PACKAGE OUTLINE DIMENSIONS

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

MARKING DIAGRAM



P/N = Marking Code
YW = Data Code

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