

## 1A, 100-200V Ultrafast Surface Mount Rectifier

### FEATURES

- AEC-Q101 qualified
- 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

- High frequency switching
- DC/DC converter
- Snubber

### 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
$T_{J\ MAX}$	175	°C
Package	Micro SMA	


**HALOGEN  
FREE**

**Micro SMA**


ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	PU1BMH	PU1DMH	UNIT
Marking code on the device		P1	P2	
Repetitive peak reverse voltage	$V_{RRM}$	100	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	140	V
DC blocking voltage	$V_{DC}$	100	200	V
Forward current	$I_F$	1		A
Surge peak forward current single half sine-wave superimposed on rated load per diode	8.3ms at $T_A = 25^\circ\text{C}$	$I_{FSM}$ 28		A
	1.0ms at $T_A = 25^\circ\text{C}$	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	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	60	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	34	°C/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 <sup>(1)</sup>	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	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 $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	1	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	15	$\mu\text{A}$
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	-	
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	1MHz, $V_R = 4.0\text{V}$	$C_J$	18	-	pF

**Notes:**

(1) Pulse test with  $PW = 0.3\text{ms}$

(2) Pulse test with  $PW = 30\text{ms}$

**ORDERING INFORMATION**

ORDERING CODE <sup>(1)</sup>	PACKAGE	PACKING
PU1xMH M3G	Micro SMA	3000 / 7" reel

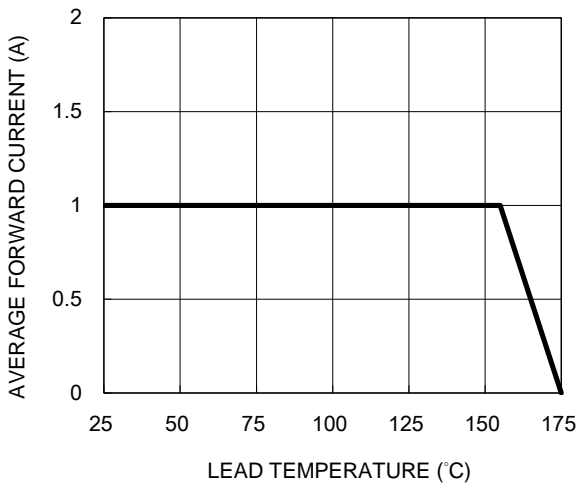
**Notes:**

(1) "x" defines voltage from 100V(PU1BMH) to 200V(PU1DMH)

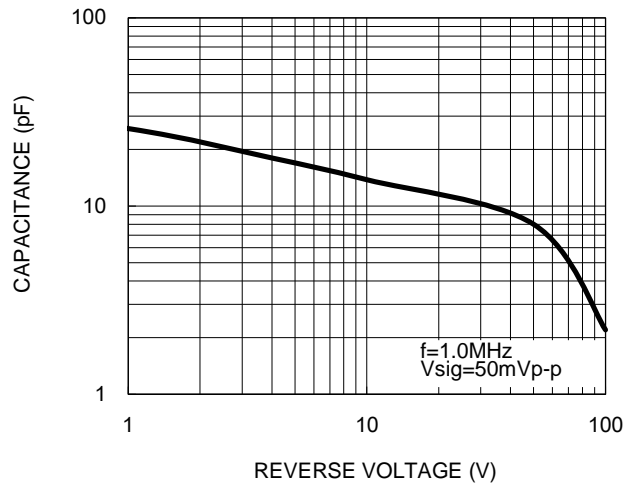
## CHARACTERISTICS CURVES

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

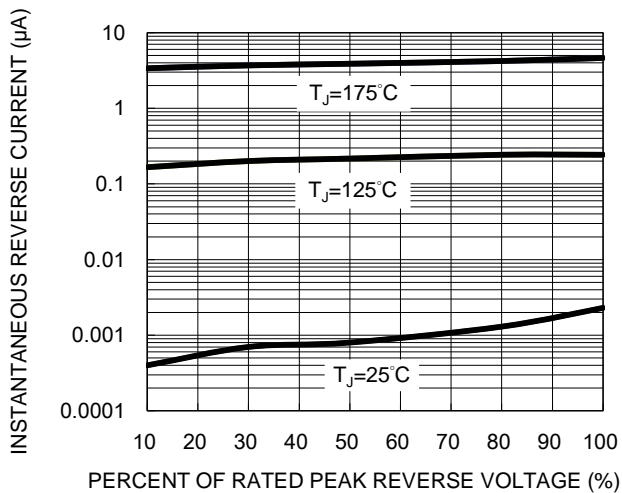
**Fig.1 Forward Current Derating Curve**



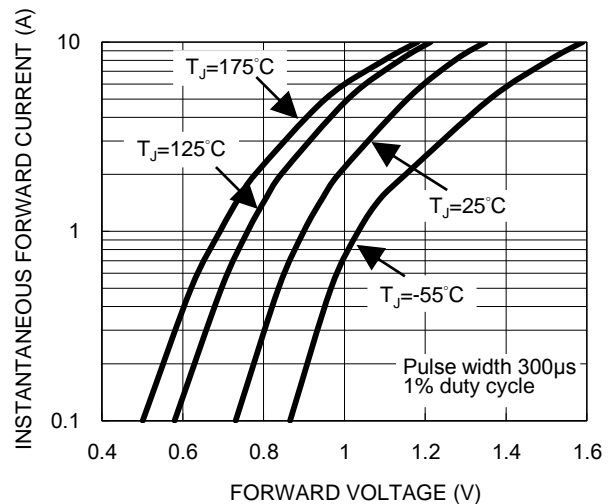
**Fig.2 Typical Junction Capacitance**



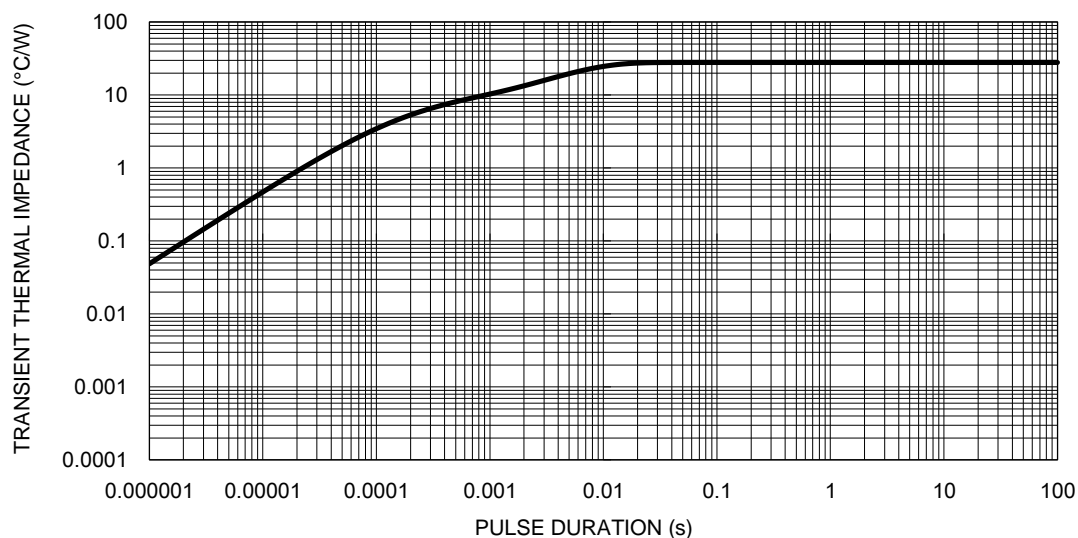
**Fig.3 Typical Reverse Characteristics**



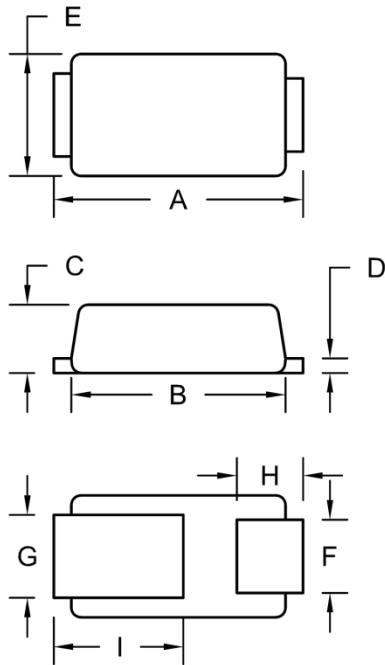
**Fig.4 Typical Forward Characteristics**



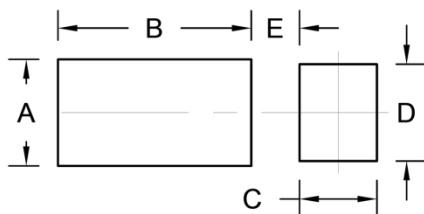
**Fig.5 Typical Transient Thermal Impedance**



**PACKAGE OUTLINE DIMENSIONS** (Unit: Millimeters)

**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 = Date Code

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