

## 1A, 200V Ultra Fast Surface Mount Rectifier

### FEATURES

- AEC-Q101 qualified
- Very low profile - typical height of 0.68mm
- Reduce switching and conduction loss
- Ideal for automated placement
- Ultra fast recovery times for high frequency
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	1	A
$V_{RRM}$	200	V
$I_{FSM}$	15	A
$T_{J MAX}$	150	°C
Package	Micro SMA	
Configuration	Single die	

### APPLICATIONS

- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- Freewheeling application



Micro SMA



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	ESH1DMH	UNIT
Marking code on the device		D3	
Repetitive peak reverse voltage	$V_{RRM}$	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	V
Forward current	$I_F$	1	A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	15	A
Junction temperature	$T_J$	-55 to +150	°C
Storage temperature	$T_{STG}$	-55 to +150	°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	40	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	92	°C/W

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ C$  unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage <sup>(1)</sup>	$I_F = 1A, T_J = 25^\circ C$	$V_F$	1.25	1.50	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ C$	$I_R$	-	1	μA
	$T_J = 125^\circ C$		5	50	μA
Junction capacitance	1MHz, $V_R = 4.0V$	$C_J$	3	-	pF
Reverse recovery time	$I_F = 0.5A, I_R = 1.0A$ $I_{rr} = 0.25A$	$t_{rr}$	-	25	ns

**Notes:**

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

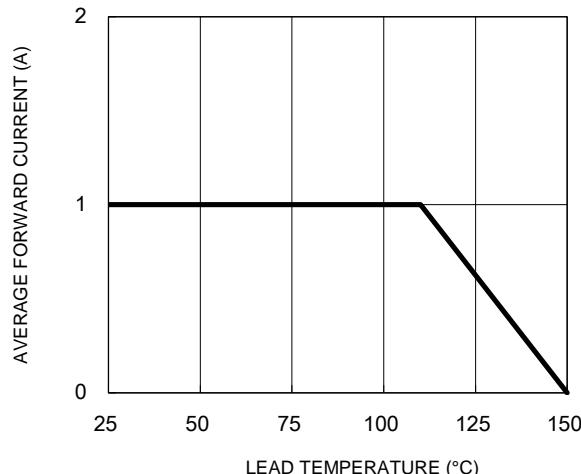
**ORDERING INFORMATION**

ORDERING CODE	PACKAGE	PACKING
ESH1DMH	Micro SMA	12,000 / Tape & Reel

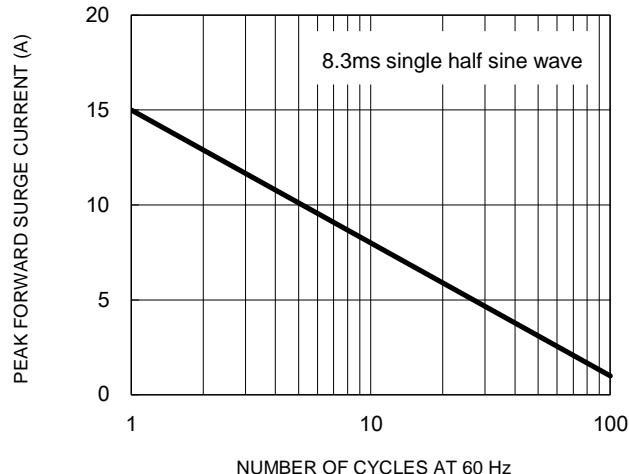
## CHARACTERISTICS CURVES

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

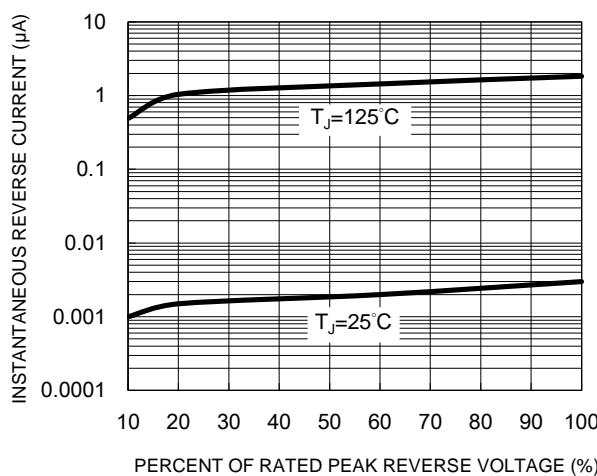
**Fig.1 Forward Current Derating Curve**



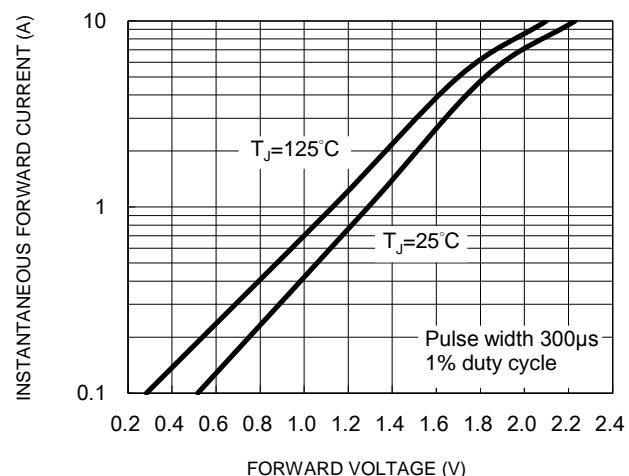
**Fig.2 Maximum Non-Repetitive Forward Surge Current**



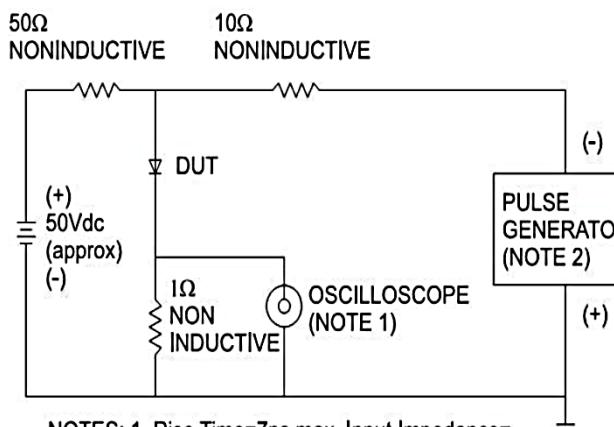
**Fig.3 Typical Reverse Characteristics**



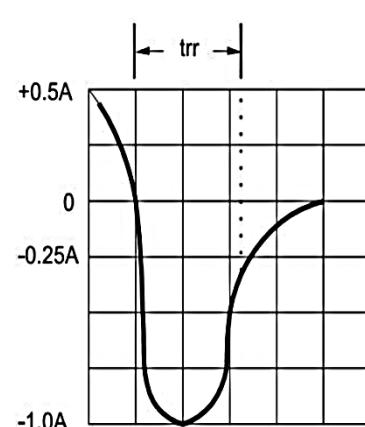
**Fig.4 Typical Forward Characteristics**



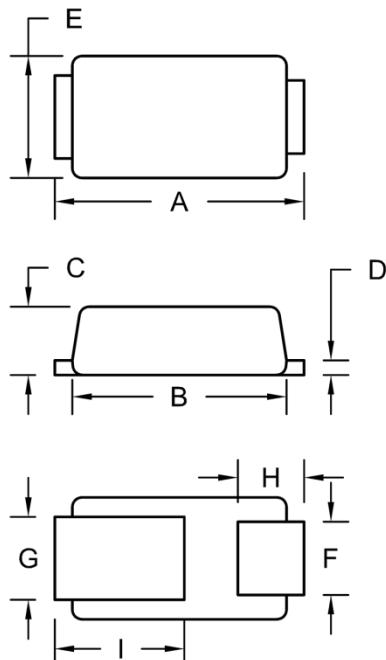
**Fig.5 Reverse Recovery Time Characteristic and Test Circuit Diagram**



NOTES: 1. Rise Time=7ns max. Input Impedance= 1 megohm 22pF  
 2. Rise Time=10ns max. Source Impedance= 50 ohms

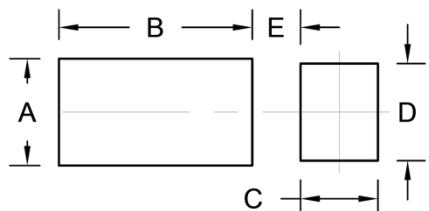


## PACKAGE OUTLINE DIMENSIONS

**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 = Data Code

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