1A, 200V - 600V Surface Mount Ultrafast Rectifiers

FEATURES

- Very low profile - typical height of 0.68mm
- Reduce switching and conduction loss
- Ideal for automated placement
- Ultrafast recovery times for high frequency
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

Micro SMA

Pb-Free

RoHS COMPLIANT

HALOGEN FREE

APPLICATION

ESH1DM to ESH1JM is ideal device for the compact space PCB design.
Specially as boost diode in power factor correction circuitry.
The device is also intended for use as a free wheeling diode in power supplies
For chargers, LED lighting, and other power switching applications.

MECHANICAL DATA

Case: Micro SMA
Molding compound: UL flammability classification rating 94V-0
Moisture sensitivity level: level 1, per J-STD-020
Part no. with suffix "H" means AEC-Q101 qualified
Packing code with suffix "G" means green compound (halogen-free)
Terminal: Matte tin plated leads, solderable per JESD22-B102
Meet JESD 201 class 2 whisker test
Polarity: Indicated by cathode band
Weight: 6mg (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)					
PARAMETER	SYMBOL	ESH1DM	ESH1GM	ESH1JM	UNIT
Marking code		D3	D5	D7	
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Maximum average forward rectified current	$I_{F(AV)}$	1			A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	15			A
Maximum instantaneous forward voltage (Note 1) @ 1 A	V_F	TYP		MAX	V
		1.25		1.5	
Maximum reverse current @ rated VR	I_R	TYP		MAX	μA
T_J=25 °C		-		1	
T_J=125 °C		5		50	
Maximum reverse recovery time (Note 2)	trr	25			ns
Typical junction capacitance (Note 3)	C_J	3			pF
Typical thermal resistance (Note 4)	$R_{\theta JM}$ $R_{\theta JA}$	40 92			°C/W
Operating junction temperature range	T_J	-55 to +150			°C
Storage temperature range	T_{STG}	-55 to +150			°C

Note 1: Pulse test with PW=300μs, 1% duty cycle
Note 2: Test conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A
Note 3: Measured at 1 MHz and applied reverse voltage of 4.0 V
Note 4: Thermal resistance $R_{\theta JA}$ - from junction to ambient, $R_{\theta JM}$ - and junction to mount

ORDERING INFORMATION					
PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
ESH1xM (Note 1, 2)	H	RS	G	Micro SMA	3,000 / 7" Plastic reel

Note 1: "x" defines voltage from 200V (ESH1DM) to 600V (ESH1JM)

Note 2: Whole series with green compound

EXAMPLE					
EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
ESH1JMHRSG	ESH1JM	H	RS	G	Automotive grade Green compound

RATINGS AND CHARACTERISTICS CURVES

(T_A=25°C unless otherwise noted)

FIG.1 MAXIMUM FORWARD CURRENT DERATING CURVE

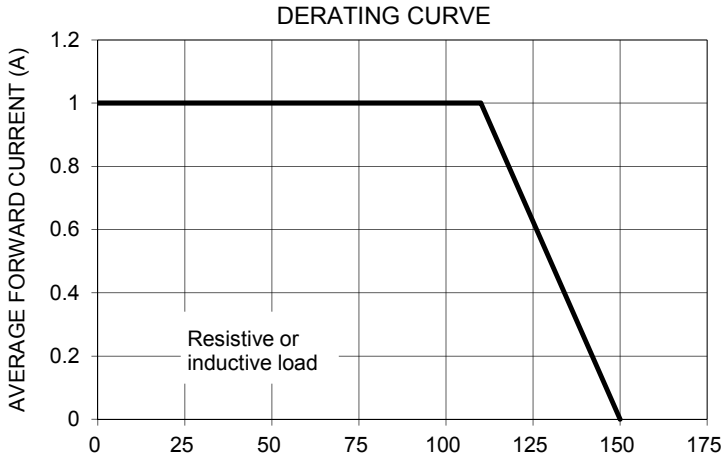


FIG. 2 MAXIMUM FORWARD SURGE CURRENT

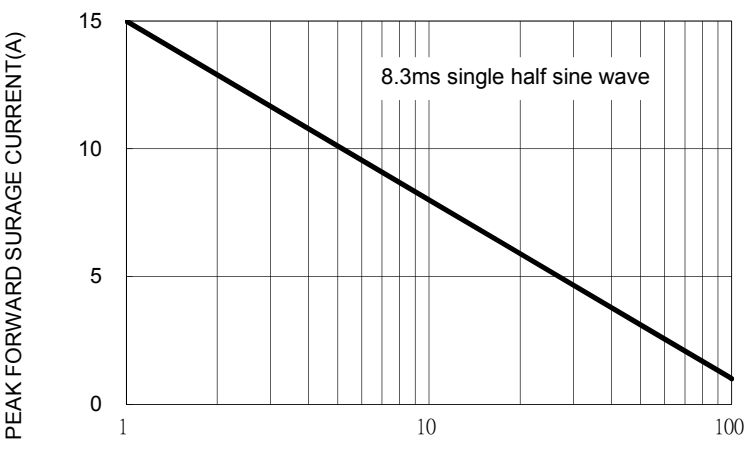


FIG. 3 TYPICAL FORWARD CHARACTERISTICS

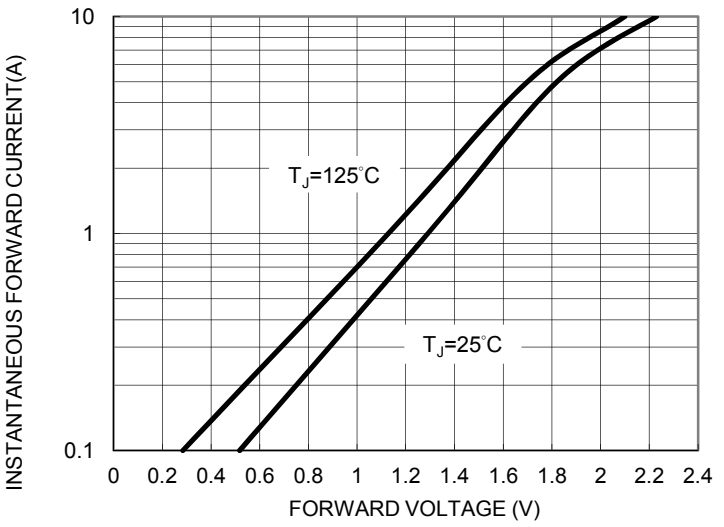
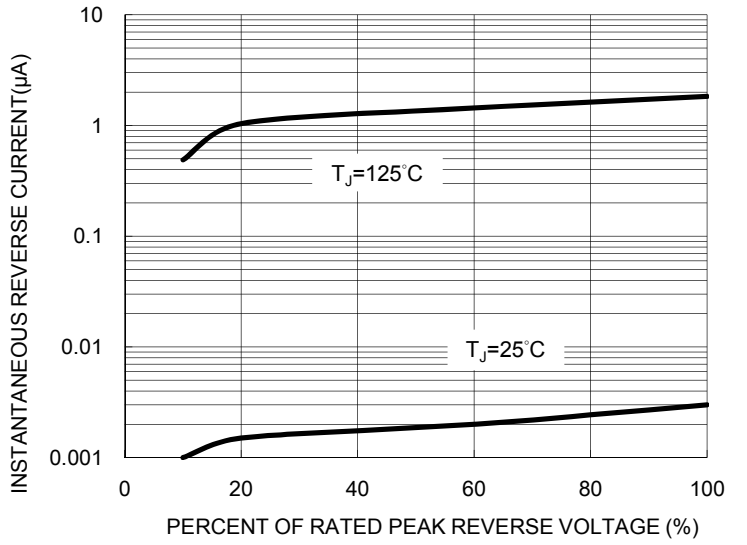
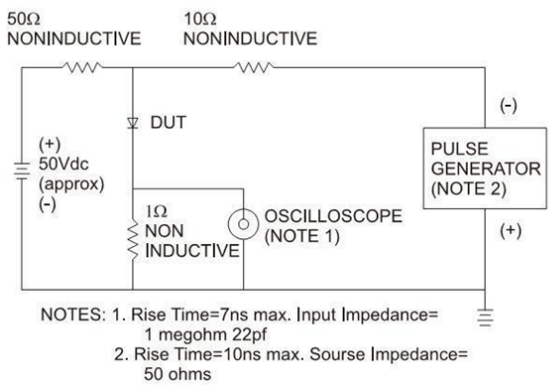
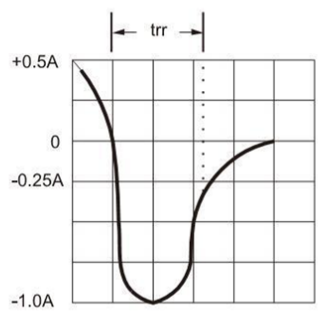


FIG. 4 TYPICAL REVERSE CHARACTERISTICS



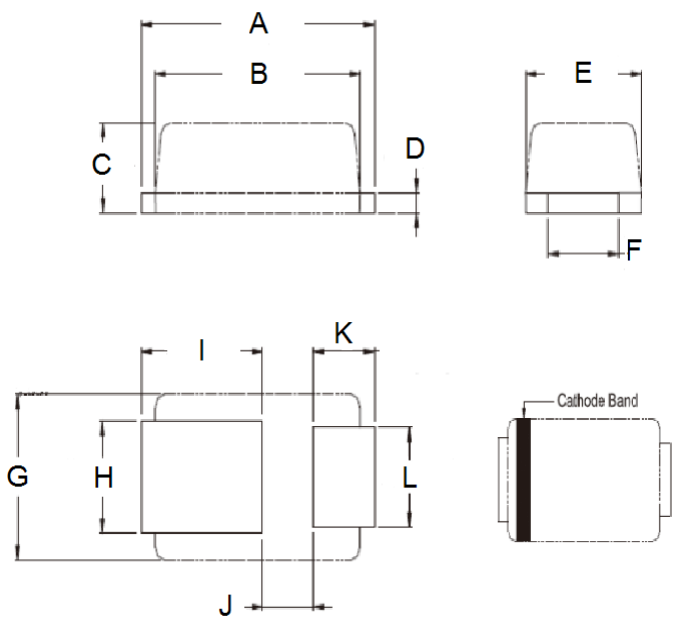
REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM





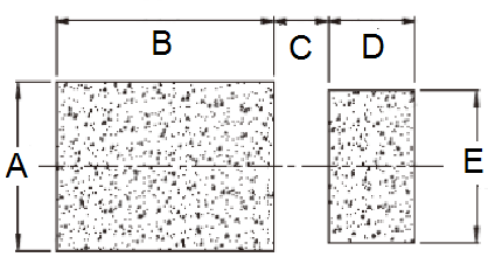
PACKAGE OUTLINE DIMENSIONS

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	1.15	1.35	0.045	0.053
H	0.75	0.95	0.030	0.037
I	1.10	1.50	0.043	0.059
J	0.55	0.75	0.022	0.030
K	0.55	0.75	0.022	0.030
L	0.65	0.85	0.026	0.034

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.1	0.043
B	2.0	0.079
C	0.5	0.020
D	0.8	0.031
E	1.0	0.039

MARKING DIAGRAM

P/N = Marking code

YW = Date Code

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