

## 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
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



**Micro SMA**



### APPLICATION

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  
Base P/N with suffix "G" on packing code - halogen-free, RoHS compliant

**Terminal:** Matte tin plated leads, solderable per JESD22-B102  
Meet JESD 201 class 1A whisker test

**Polarity:** Indicated by cathode band

**Weight:** 0.006g (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)				
PARAMETER	SYMBOL	ESH1JM		UNIT
Marking code		D7		
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	600		V
Maximum average forward rectified current	I <sub>F(AV)</sub>	1		A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	15		A
Maximum instantaneous forward voltage (Note 1) @ 1 A	V <sub>F</sub>	TYP.	MAX.	V
		1.25	1.5	
Maximum reverse current @ rated VR T <sub>J</sub> =25 °C T <sub>J</sub> =125 °C	I <sub>R</sub>	TYP.	MAX.	μA
		-	1	
		5	50	
Maximum reverse recovery time (Note 2)	T <sub>rr</sub>	25		ns
Typical junction capacitance (Note 3)	C <sub>j</sub>	3		pF
Typical thermal resistance (Note 4)	R <sub>θJM</sub>	40		°C/W
	R <sub>θJA</sub>	92		
Operating junction temperature range	T <sub>J</sub>	-55 to +150		°C
Storage temperature range	T <sub>STG</sub>	-55 to +150		°C

Note 1: Pulse test with PW=300 μsec, 1% duty cycle

Note 2: Reverse Recovery Test Conditions: I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, IRR=0.25A

Note 3: Measured at 1 MHz and Applied Reverse Voltage of 4.0 V DC

Note 4: Thermal resistance R<sub>θJA</sub> - from junction to ambient, R<sub>θJM</sub> - and junction to mount

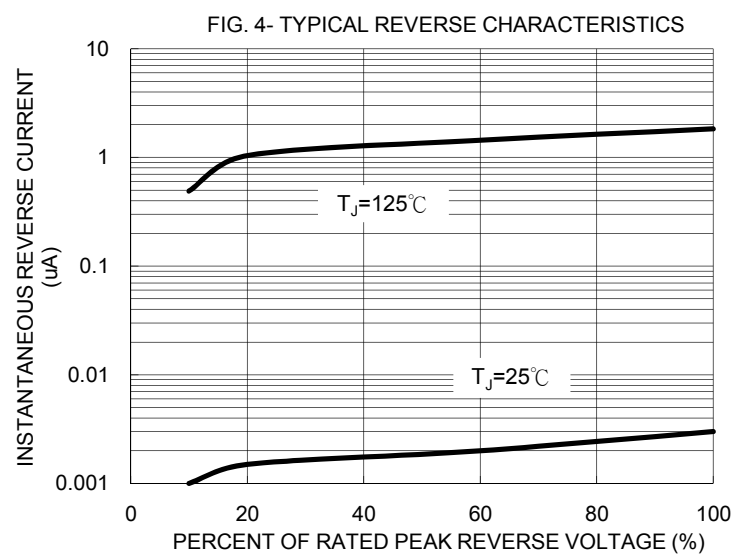
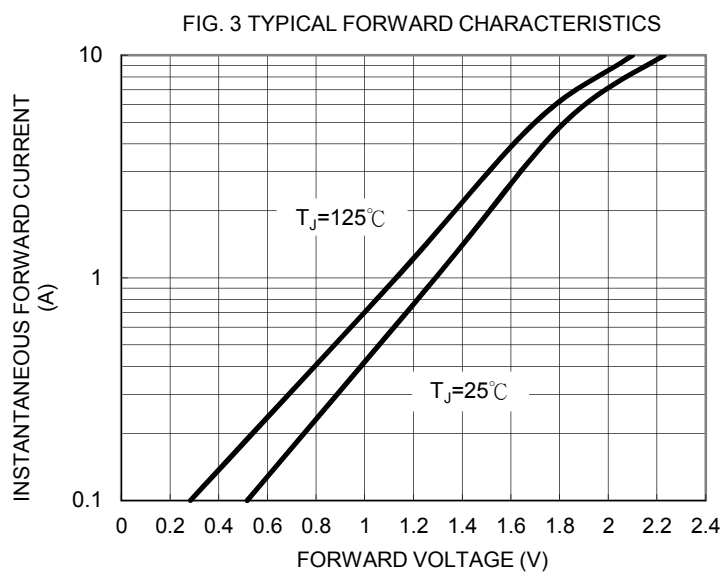
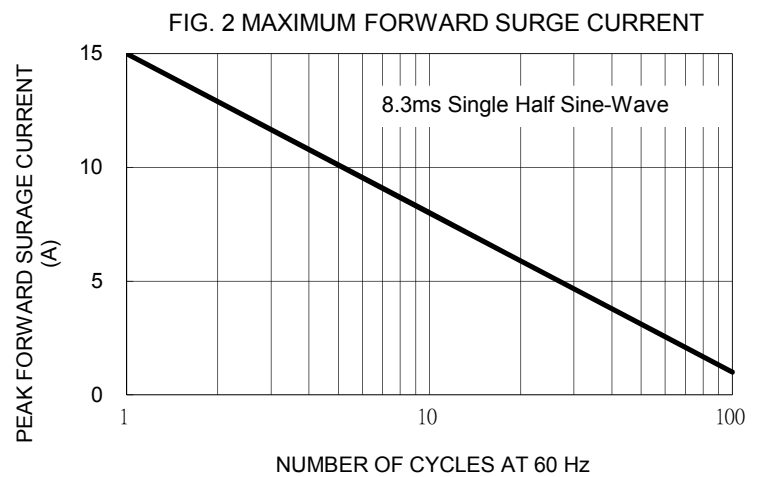
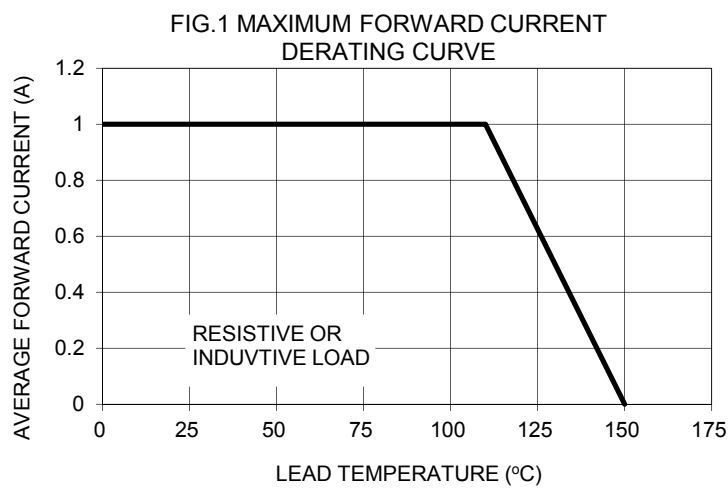
ORDERING INFORMATION				
PART NO.	PACKING CODE	GREEN COMPOUND CODE	PACKAGE	PACKING
ESH1JM	RS	Suffix "G"	Micro SMA	3000 / 7" Plastic reel

Note: For Micro SMA: Packing code (Whole series with green compound)

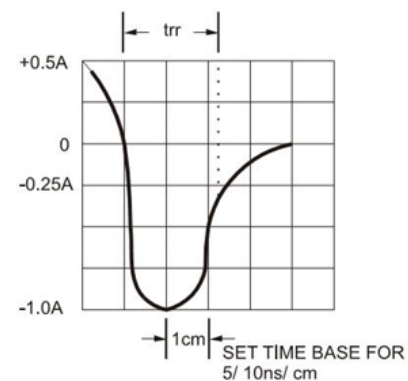
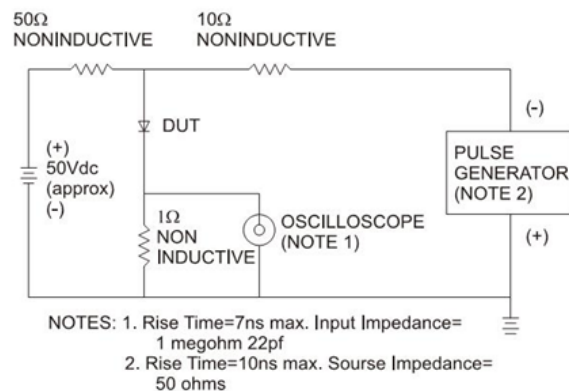
EXAMPLE				
PREFERRED P/N	PART NO.	PACKING CODE	GREEN COMPOUND CODE	DESCRIPTION
ESH1JM RSG	ESH1JM	RS	G	Green compound

**RATINGS AND CHARACTERISTICS CURVES**

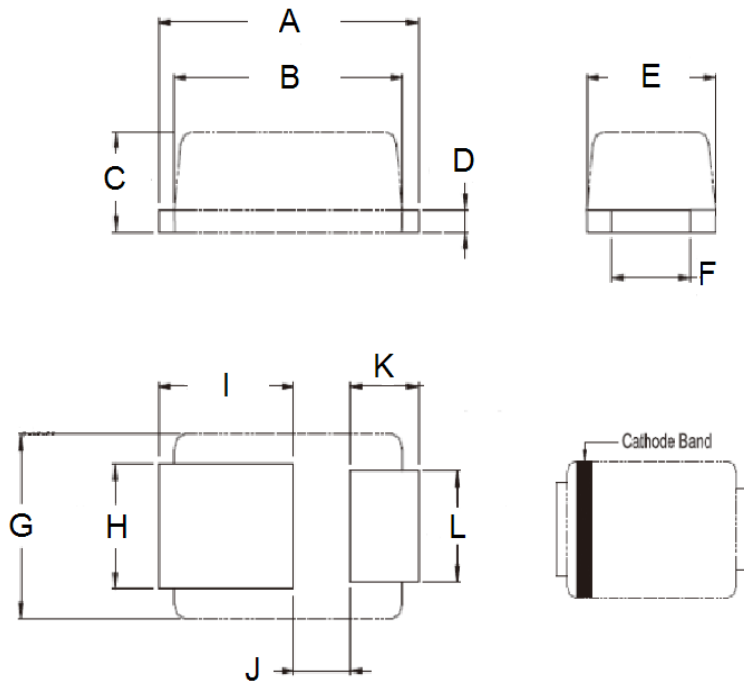
(TA=25°C unless otherwise noted)



**FIG.5- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM**

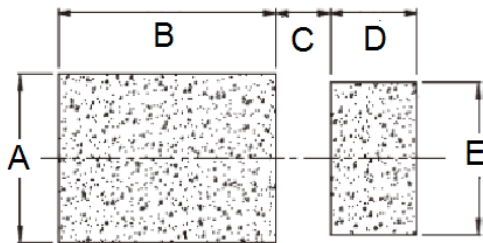


PACKAGE OUTLINE DIMENSIONS



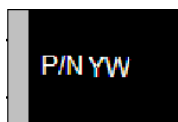
DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.30	2.70	0.091	0.106
B	2.10	2.30	0.083	0.091
C	0.63	0.73	0.025	0.029
D	0.10	0.20	0.004	0.008
E	1.15	1.35	0.045	0.053
F	0.65	0.85	0.026	0.034
G	1.15	1.35	0.045	0.053
H	0.75	0.95	0.030	0.037
I	1.10	1.50	0.043	0.059
J	0.55	0.75	0.022	0.030
K	0.55	0.75	0.022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

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)
A	1.1
B	2.0
C	0.5
D	0.8
E	1.0

MARKING DIAGRAM



P/N = Marking code  
YW = Date Code