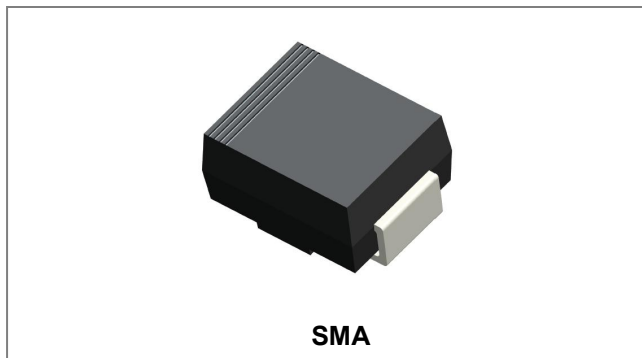


## ES1A-ES1M SURFACE MOUNT SUPER FAST RECTIFIER



### Features

- Glass Passivated Die Construction
- Ideally Suited for Automatic Assembly
- Low Forward Overload Drop, High Efficiency
- Low Power Loss
- Super-Fast Recovery Time
- Plastic Case Material has UL Flammability Classification Rating 94V-O
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Circuit Diagram



### Mechanical Data

- Case: Low Profile Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Marking: Type Number
- Weight: 0.06 grams(approx)

### Maximum Ratings and Electrical Characteristics @T<sub>A</sub>=25°C unless otherwise specified

Characteristic	Symbol	ES1A	ES1B	ES1C	ES1D	ES1E	ES1G	ES1J	ES1K	ES1M	Units
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	50	100	150	200	300	400	600	800	1000	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	34	70	105	140	210	280	420	560	700	
Average Rectified Output Current @T <sub>L</sub> =120°C	I <sub>o</sub>	1.0									A
Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	I <sub>FSM</sub>	30									A
Forward voltage @IF =1.0A	V <sub>F</sub>	0.95				1.3		1.7			V
Peak Reverse Current @T <sub>A</sub> = 25°C At Rated DC Blocking Voltage @T <sub>A</sub> = 100°C	I <sub>R</sub>	5 50									μA
Typical junction capacitance (Note 1)	C <sub>J</sub>	45.0									pF
Reverse Recovery Time (Note 2)	T <sub>rr</sub>	35								75	ns
Electro-Static Discharge	ESD	2000									V
Typical thermal resistance (Note 3)	R <sub>θJL</sub>	35									K/W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150									°C

**Note:** 1. Measured at 1.0 MHZ and applied reverse voltage of 4.0 V<sub>DC</sub>

2. Measured with I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>rr</sub>=0.25A

3. Mounted on P.C. Board with 8.0mm<sup>2</sup> lead area

## Ratings and Characteristics Curves

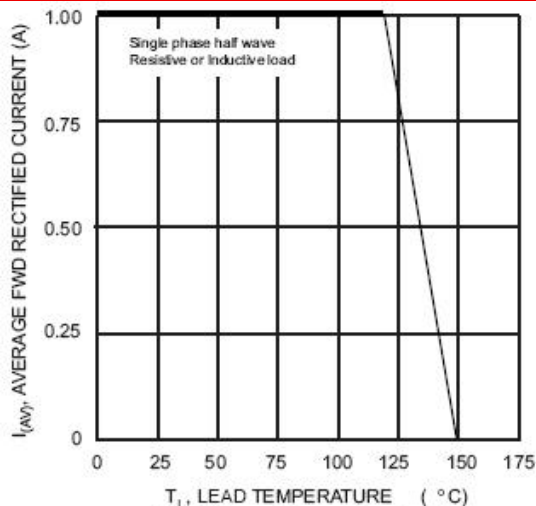


Fig. 1 Forward Current Derating Curve

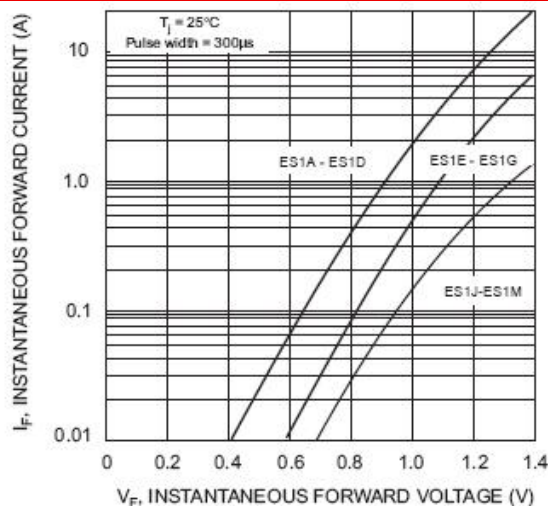


Fig. 2 Typical Forward Characteristics

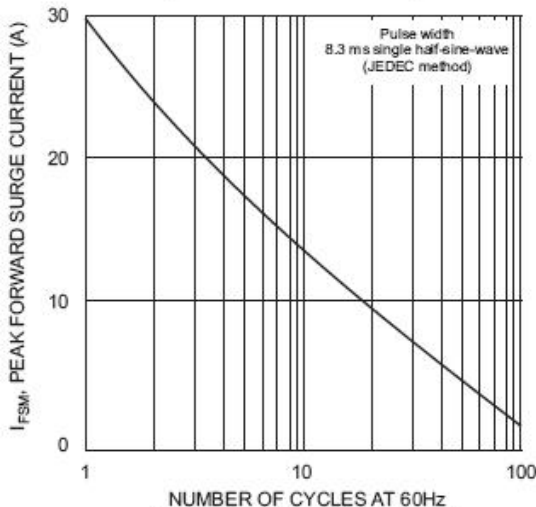


Fig. 3 Peak Forward Surge Current

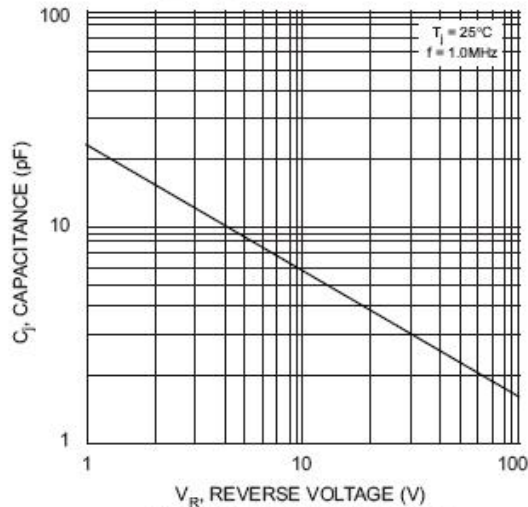
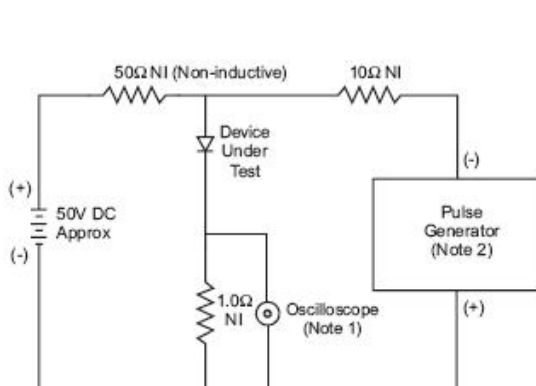
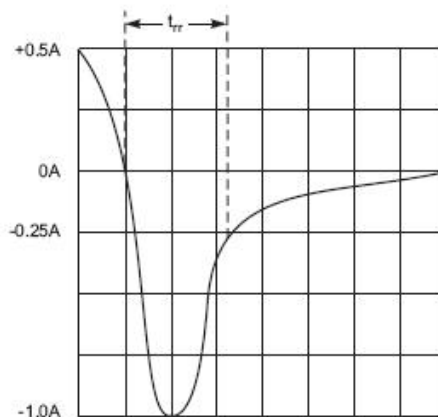


Fig. 4 Typical Junction Capacitance

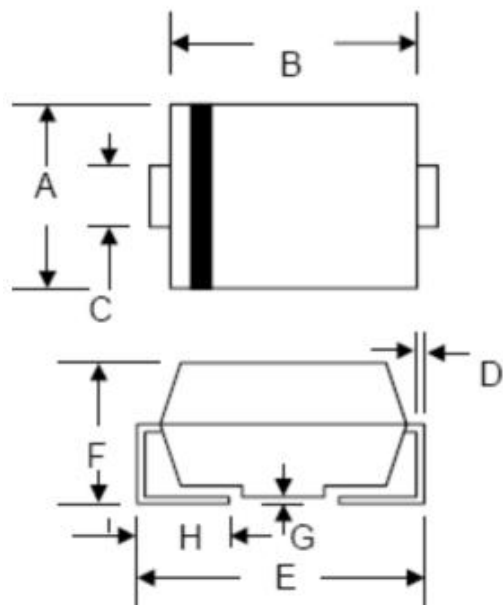


- Notes:  
 1. Rise Time = 7.0ns max. Input Impedance = 1.0M $\Omega$ , 22pF.  
 2. Rise Time = 10ns max. Input Impedance = 50 $\Omega$ .

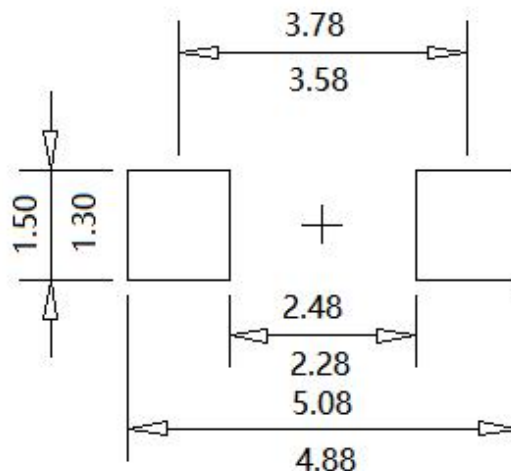


Set time base for 5/10ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

**Mechanical Dimensions SMA**


SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.40	2.84	0.094	0.112
B	3.99	4.75	0.157	0.187
C	1.05	1.70	0.041	0.067
D	0.15	0.51	0.006	0.020
E	4.80	5.66	0.189	0.223
F	1.90	2.95	0.075	0.116
G	0.05	0.203	0.002	0.008
H	0.76	1.52	0.030	0.600

**Suggested PCB printfoot layout SMA (MM)**

**Ordering Information**

Device	Package	Shipping
ES1A-ES1M	SMA (Pb-Free)	5000pcs / reel

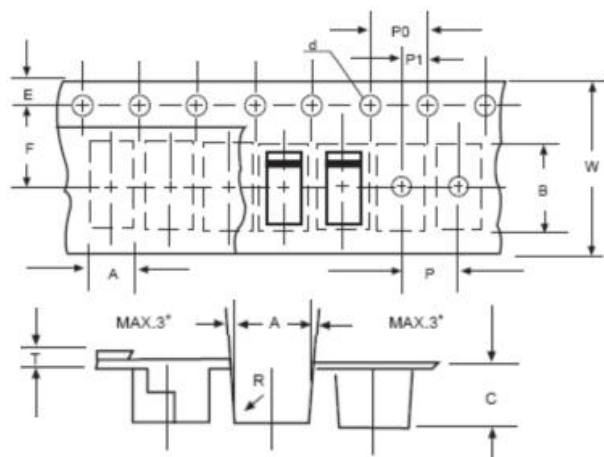
For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Marking Diagram**


Where XXXXX is YYWWL

ES = Device Type  
 1 = Forward Current (1A)  
 A = Reverse Voltage (50V)  
 YY = Year  
 WW = Week  
 L = Lot Number

**Cautions:** Molding resin  
 Epoxy resin UL:94V-0

**Carrier Tape Specification SMA**


SYMBOL	Millimeters	
	Min.	Max.
A	2.97	3.17
B	5.70	5.90
C	2.32	2.52
d	1.40	1.60
E	1.40	1.60
F	5.60	5.70
P	3.90	4.10
P0	3.90	4.10
P1	1.90	2.10
T	0.25	0.35
W	11.80	12.20

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