Technical Data
Data Sheet N0159, Rev. F

ES1A-ES1M SURFACE MOUNT SUPER FAST RECTIFIER

SMA

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_A=25°C unless otherwise specified

Characteristic	Symbol	ES1A	ES1B	ES1C	ES1D	ES1E	ES1G	ES1J	ES1K	ES1M	Units
Peak Repetitive Reverse Voltage	V_{RRM}	50	100	150	200	300	400	600	800	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	34	70	105	140	210	280	420	560	700	
Average Rectified Output Current @T_L =120°C	Io	1.0									A
Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30									A
Forward voltage @IF =1.0A	V_F	0.95				1.3		1.7			V
Peak Reverse Current @T_A = 25°C At Rated DC Blocking Voltage @T_A = 100°C	I_R	5 50									μA
Typical junction capacitance (Note 1)	C_J	45.0									pF
Reverse Recovery Time (Note 2)	Trr	35								75	ns
Electro-Static Discharge	ESD	2000									V
Typical thermal resistance (Note 3)	$R_{\theta JL}$	35									K/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to +150									°C

Note: 1. Measured at 1.0 MHZ and applied reverse voltage of 4.0 V_{DC}
2. Measured with I_F=0.5A, I_R=1.0A, I_{rr}=0.25A
3. Mounted on P.C. Board with 8.0mm^2 lead area

Ratings and Characteristics Curves

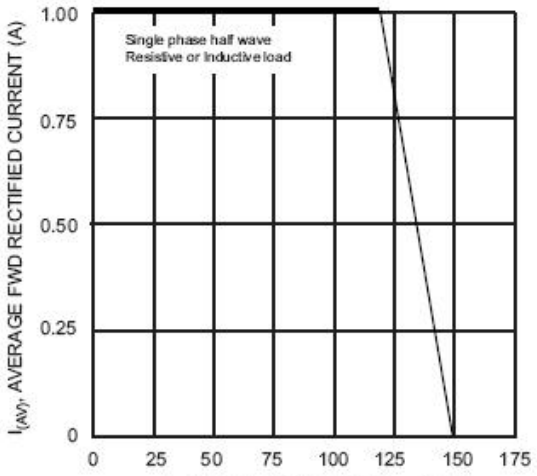


Fig. 1 Forward Current Derating Curve

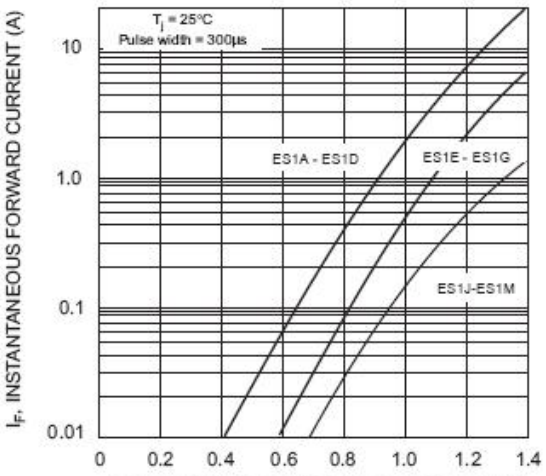


Fig. 2 Typical Forward Characteristics

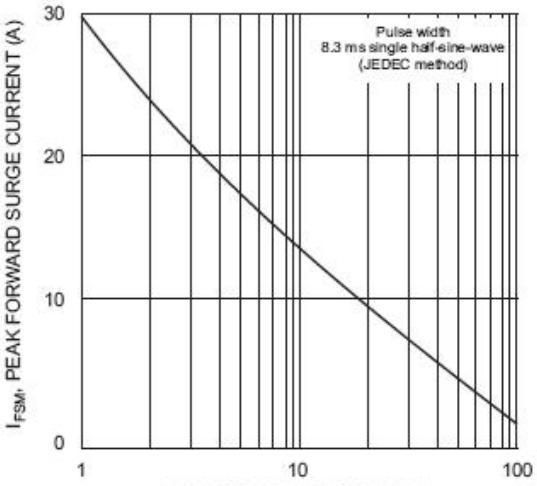


Fig. 3 Pea Forward Surge Current

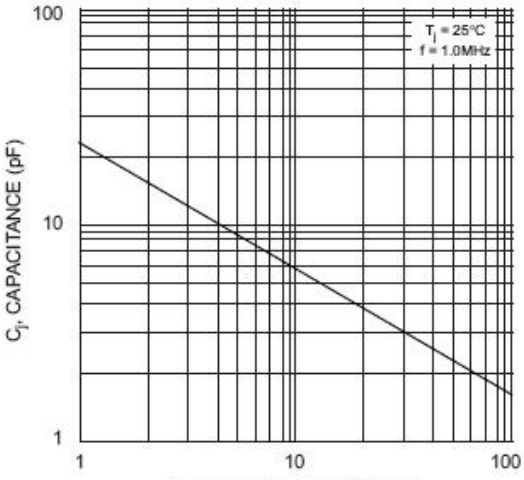
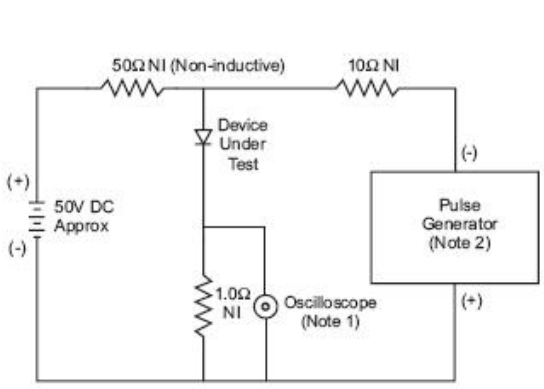


Fig. 4 Typical Junction Capacitance



Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
2. Rise Time = 10ns max. Input Impedance = 50Ω.

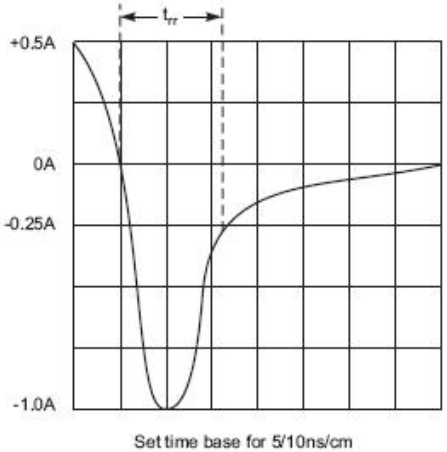


Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

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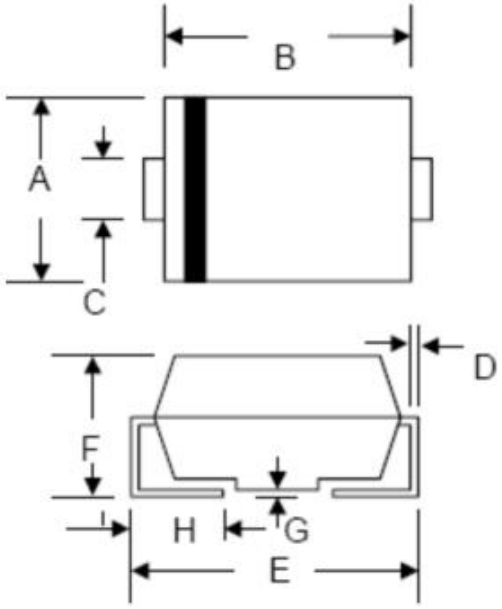
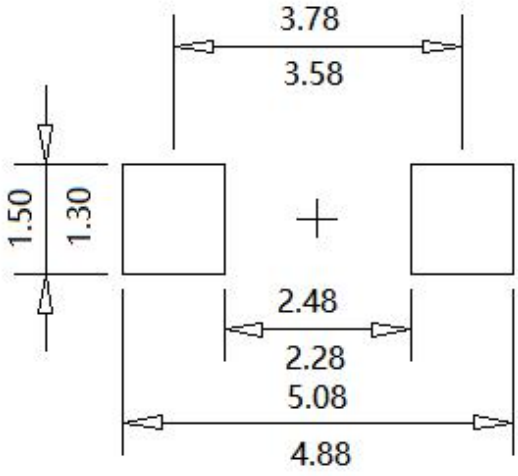
RoHS

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)

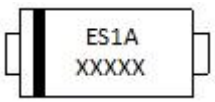


Ordering Information

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

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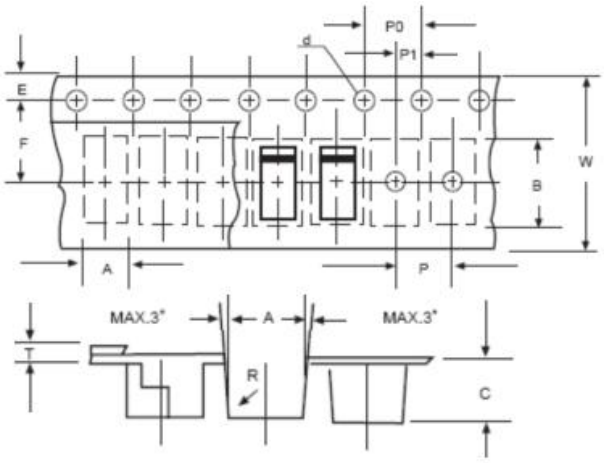
RoHS

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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