

### Characteristics

$I_o$	1.0	A
$V_{RRM}$	50~600	V
$I_{FSM}$	30.0	A
$V_F$	0.95~1.70	V

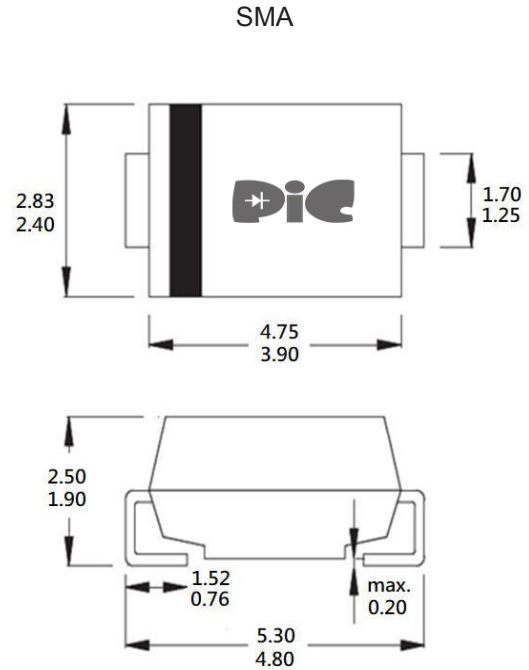
### Features

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- Super fast speed switching for high efficiency
- Glass Passivated Junction chip
- Low reverse leakage
- High forward surge current capability

### Mechanical Data

- Case: JEDEC SMA molded plastic body
- Terminals: Solder plated, solderable per MIL-STD-750 Method 2026
- Polarity: Color band denotes cathode end
- Mounting Position: Any

### Package Outline Dimensions



Unit : millimeters

### Maximum Ratings (TA=25°C unless otherwise noted)

	Symbol	ES1A	ES1B	ES1D	ES1G	ES1J	UNITS
Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	200	400	600	Volts
RMS Voltage	$V_{RMS}$	35	70	140	280	420	Volts
DC Blocking Voltage	$V_R$	50	100	200	400	600	Volts
Average Forward Current	$I_{F(AV)}$	1.0					Amps
Peak Forward Surge Current 8.3ms single half sine -wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	30					Amps
Forward Voltage at 1.0A	$V_F$	0.95			1.25	1.7	Volts
DC Reverse Current at Rated DC Blocking Voltage $T_J=25^\circ C$	$I_R$	5					$\mu A$
Typical Thermal Resistance (NOTE 1)	$R_{\theta JA}$	60					$^\circ C/W$
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150					$^\circ C$
Reverse Recovery Time ( NOTE 2)	$T_{rr}$	35					n S

#### Notes:

- (1) P.C.B. mounted with 0.2x0.2"(5.0x5.0mm) copper pad areas
- (2) Reverse recovery time test condition:  $I_F=0.5A$   $I_R=1.0A$   $I_{rr}=0.25A$

### Rating and Characteristics Curves

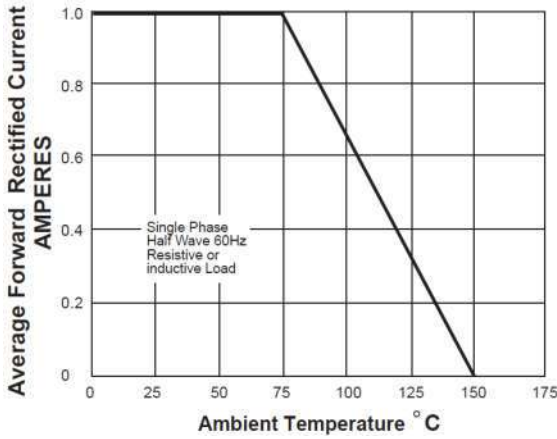


Fig. 1 Forward Current Derating Curve

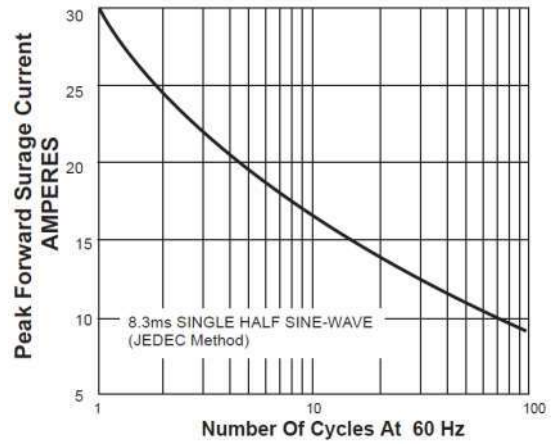


Fig. 2 Typical Junction Capacitance

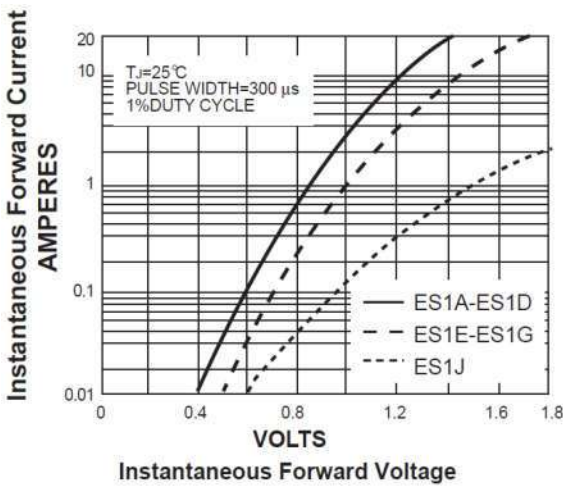


Fig.3 Typical Reverse Characteristics

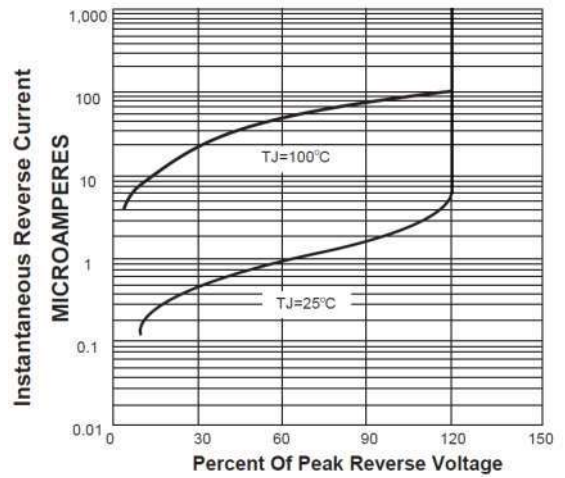


Fig. 4 Typical Forward Characteristics

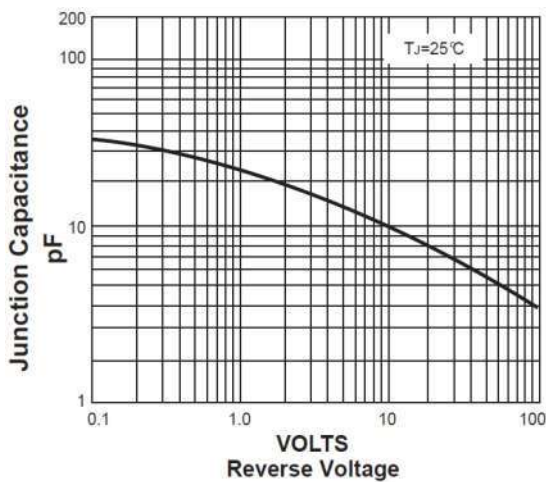


Fig.5 Typical Reverse Characteristics

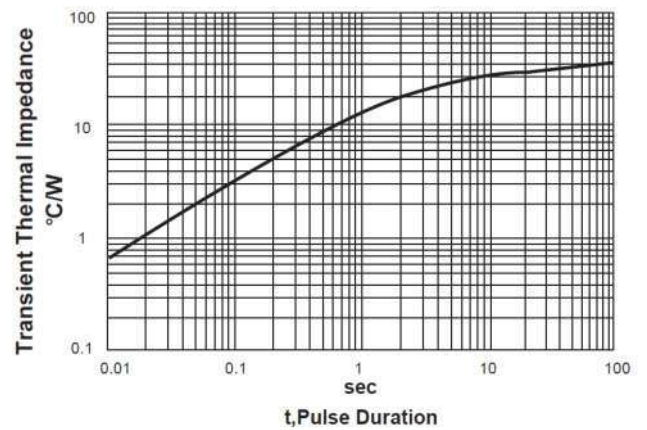
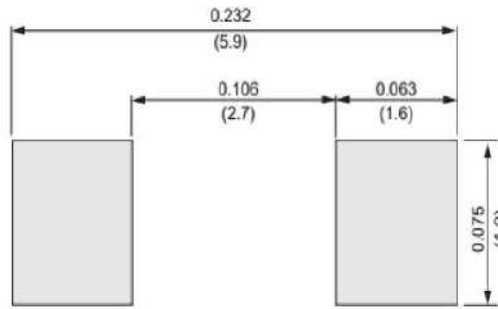


Fig. 6 Typical Transient Thermal Impedance

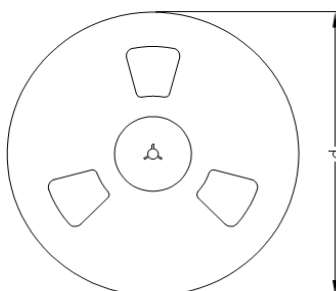
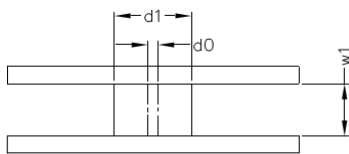
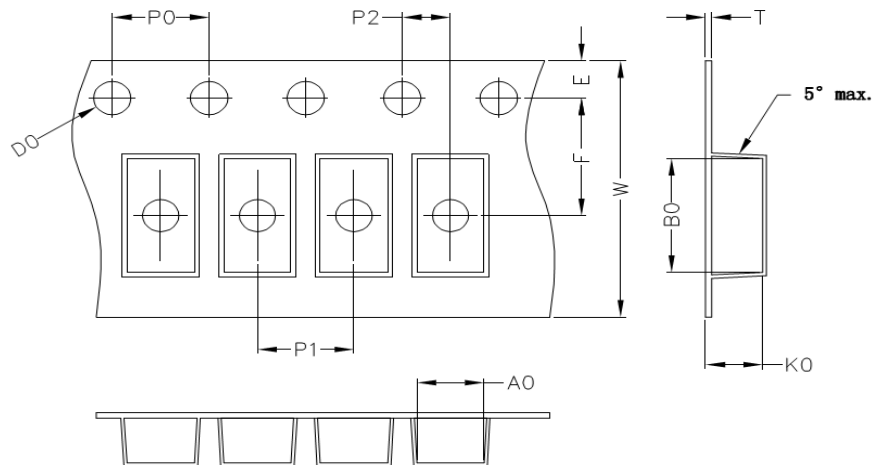
### Pad Layout



Unit:mm

### Packaging Specifications

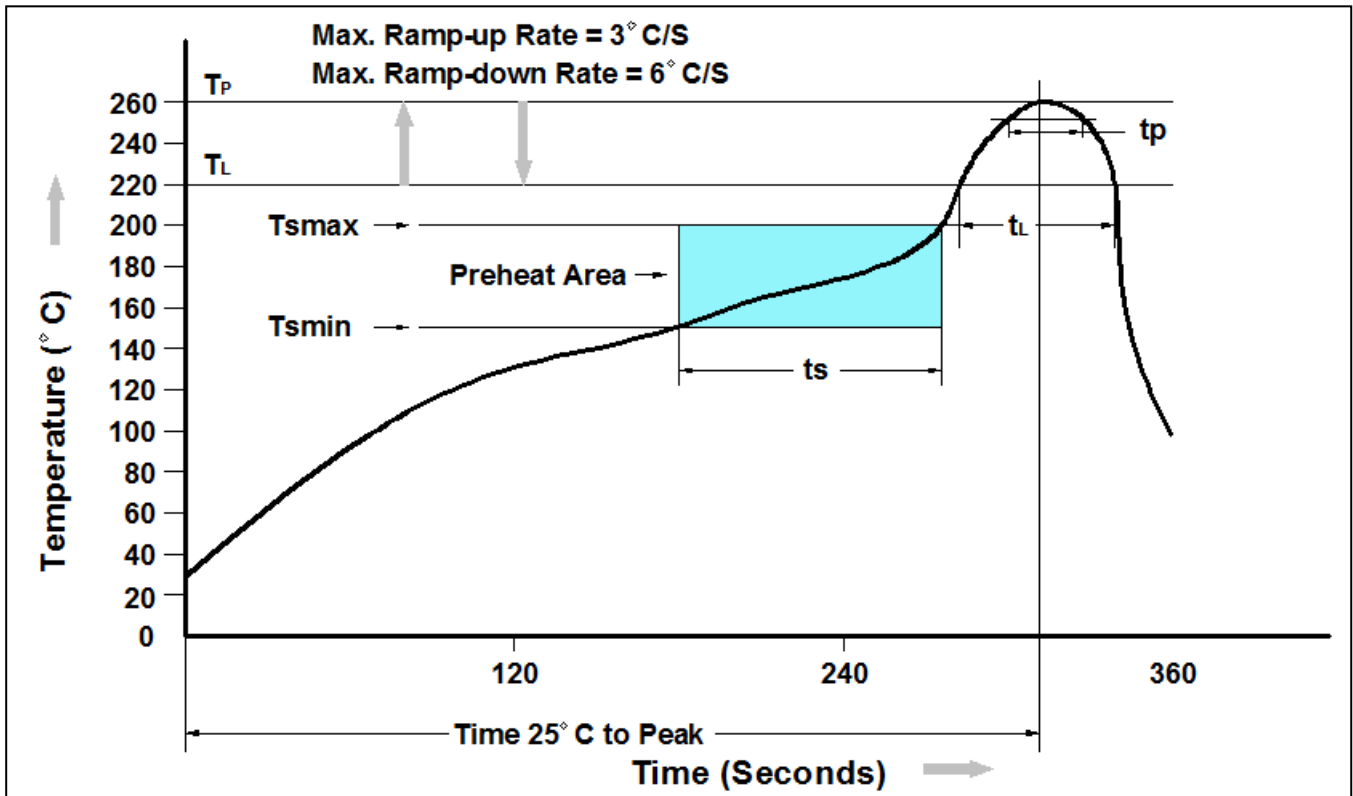
Package	A0 (mm)	B0 (mm)	K0 (mm)	D0 (mm)	E (mm)	F (mm)	P0 (mm)	P1 (mm)	P2 (mm)	T (mm)	W (mm)
SMA	2.8±0.1	5.33±0.1	2.36±0.1	1.55±0.1	1.75±0.1	5.50±0.1	4.0±0.1	4.0±0.01	2±0.1	0.25±0.1	9.4±0.1
SMB	3.8±0.1	5.40±0.1	2.45±0.1	1.55±0.1	1.75±0.1	5.50±0.1	4.0±0.1	8.0±0.01	2±0.1	0.25±0.1	9.4±0.1
SMC	6.05±0.1	8.31±0.1	2.54±0.1	1.55±0.1	1.75±0.1	7.50±0.1	4.0±0.1	8.0±0.05	2±0.1	0.25±0.1	12±0.1



Package	D1 (mm)	D0 (mm)	W1 (mm)	D (mm)
SMA	75	13.5	13.5	330
SMB	75	13.5	13.5	330
SMC	75	13.5	17.0	330

NOTE : The tolerance of reel is ±2mm

### Recommend IR Reflow Soldering Thermal Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T <sub>smin</sub> )	150°C
Temperature Max. (T <sub>smax</sub> )	200°C
Time (t <sub>s</sub> ) from (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 seconds
Average Ramp-up Rate (t <sub>L</sub> to t <sub>P</sub> )	3°C/second max.
Liquidous Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (t <sub>P</sub> ) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

### Ordering Information

Part Number	Description	Quantity
ES1A~ES1J	SMA Reel	5000 pcs

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