



DESCRIPTION

The ES1AA ~ ES1JA are available in SMB Package

- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Super-Fast Recovery Time for High Efficiency
- Surge Overload Rating to 50-600A

MECHANICAL DATA

Case: SMA

Terminal: Solderable per MIL-STD-750, Method 2026

Approx. Weight: 0.055 grams

ORDERING INFORMATION

Package Type	Part Number
SMA	ES1AA
	ES1BA
	ES1CA
	ES1DA
	ES1EA
	ES1GA
	ES1JA
SPQ	5,000pcs/Reel
AiT provides all RoHS Compliant Products	

PIN DESCRIPTION



PIN#	DESCRIPTION
1	Cathode
2	Anode



ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$, unless otherwise specified. Ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Symbol	ES1AA	ES1BA	ES1CA	ES1DA	Units
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	50	100	150	200	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	V
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	V
Maximum Average Forward Rectified Current at $T_L = 125^\circ\text{C}$	$I_{F(AV)}$	1				A
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	30				A
Maximum Forward Voltage at 1 A	V_F	1				V
Maximum DC Reverse Current $T_A = 25^\circ\text{C}$ at Rated DC Blocking Voltage $T_A = 125^\circ\text{C}$	I_R	5 100				μA
Typical Junction Capacitance at $V_R = 4\text{V}$, $f = 1\text{MHz}$	C_j	15				pF
Maximum Reverse Recovery Time ⁽¹⁾	t_{rr}	35				ns
Typical Thermal Resistance ⁽²⁾	$R_{\theta JA}$	110				$^\circ\text{C/W}$
Storage Temperature Range	T_{stg}	-55 ~ +150				$^\circ\text{C}$
Junction Temperature	T_j	150				$^\circ\text{C}$

(1) Measured with $I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $I_{rr} = 0.25\text{ A}$

(2) P.C.B. mounted with 1.0" X 1.0" (2.54x2.54cm) copper pad areas.

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



Parameter	Symbol	ES1EA	ES1GA	ES1JA	Units
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	300	400	600	V
Maximum RMS voltage	V_{RMS}	210	280	420	V
Maximum DC Blocking Voltage	V_{DC}	300	400	600	V
Maximum Average Forward Rectified Current at $T_L = 100\text{ }^\circ\text{C}$	$I_{F(AV)}$	1			A
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load(JEDEC Method)	I_{FSM}	30			A
Maximum Forward Voltage at 1 A	V_F	1.25		1.70	V
Maximum DC Reverse Current $T_A = 25\text{ }^\circ\text{C}$ at Rated DC Blocking Voltage $T_A = 125\text{ }^\circ\text{C}$	I_R	5 100			μA
Typical Junction Capacitance at $V_R=4\text{V}$, $f=1\text{MHz}$	C_j	15			pF
Maximum Reverse Recovery Time (1)	t_{rr}	35			ns
Typical Thermal Resistance (2)	$R_{\theta JA}$	110			$^\circ\text{C/W}$
Storage Temperature Range	T_{stg}	-55 ~ +150			$^\circ\text{C}$
Junction Temperature	T_j	150			$^\circ\text{C}$

(1) Measured with $I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $I_{rr} = 0.25\text{ A}$

(2) P.C.B. mounted with 1.0" X 1.0" (2.54x2.54cm) copper pad areas.

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ELECTRICAL CHARACTERISTICS

Fig 1. Maximum Average Forward Current Rating

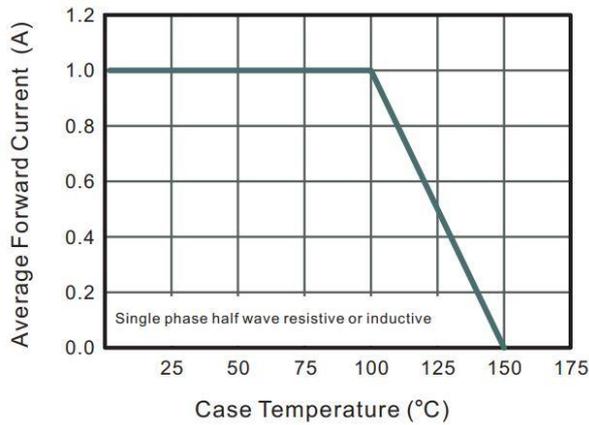


Fig 2. Typical Reverse Characteristics

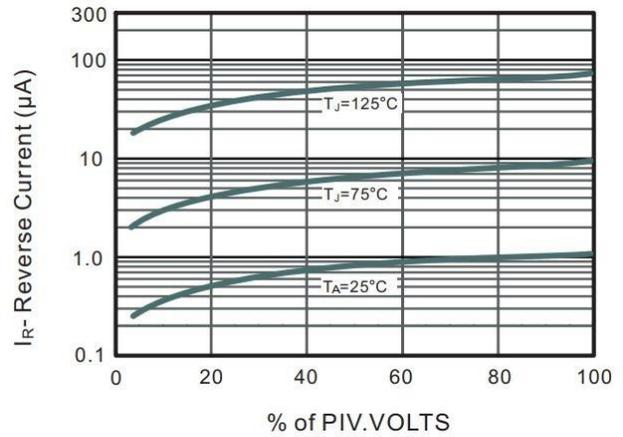


Fig 3. Typical Forward Characteristics

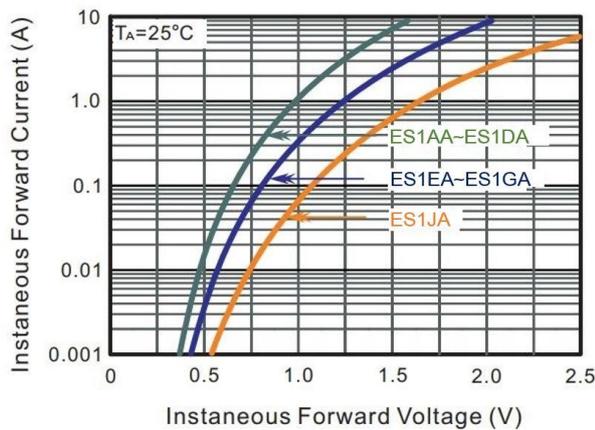


Fig 4. Typical Junction Capacitance

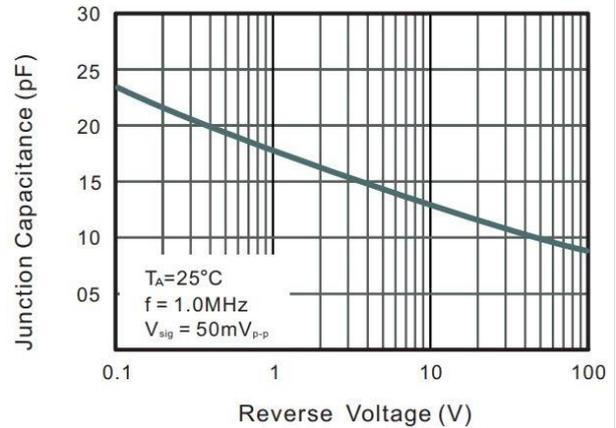


Fig 5. Maximum Non-Repetitive Peak Forward Surge Current

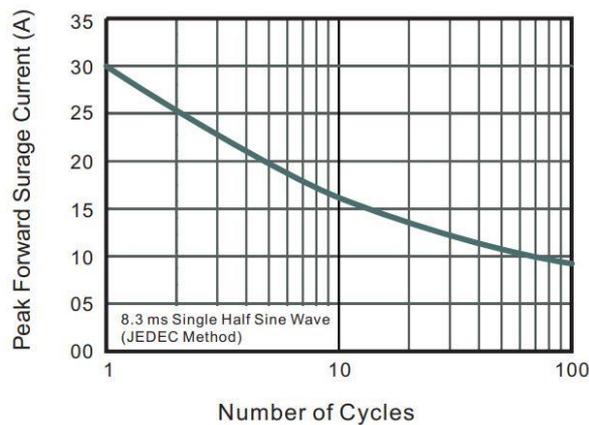
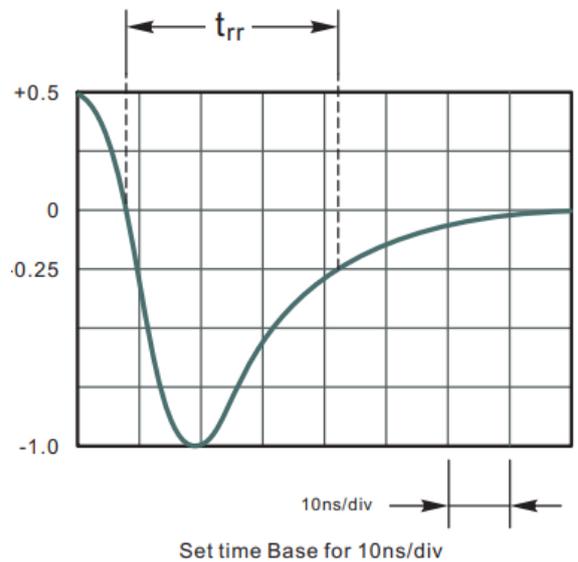
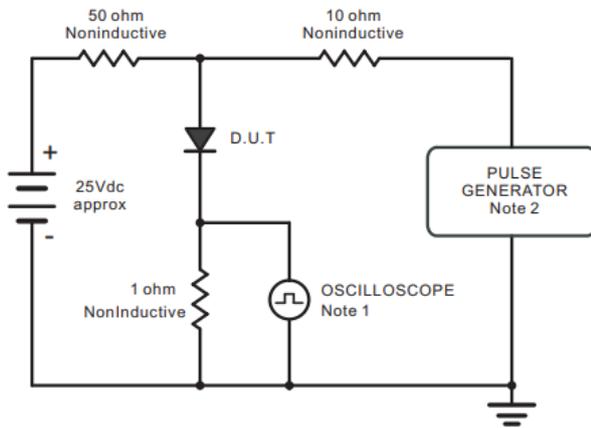




Fig 6. Reverse Recovery Time Characteristic & Test Circuit Diagram

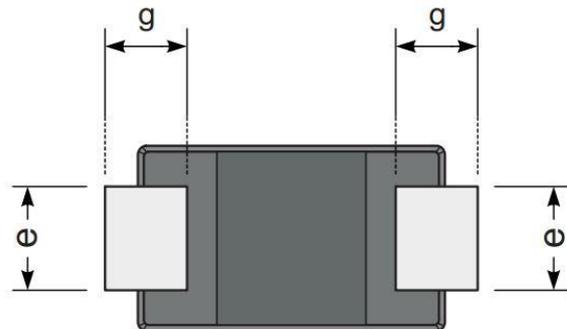
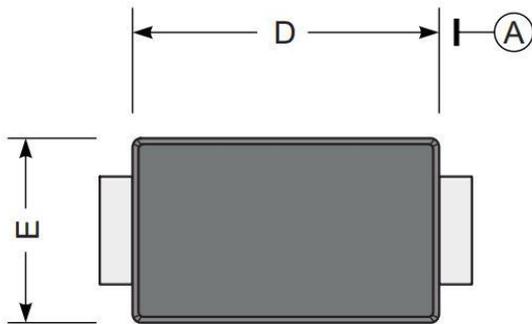
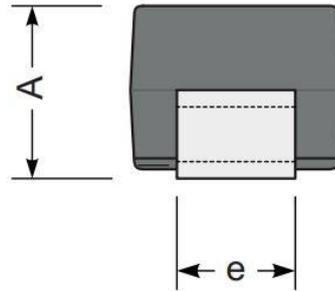
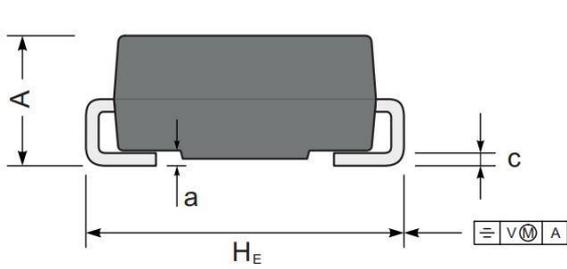


- Note : 1. Rise Time = 7ns, max.
Input Impedance = 1megohm, 22pF.
2. Rise Time = 10ns, max
Source Impedance = 50 ohms.

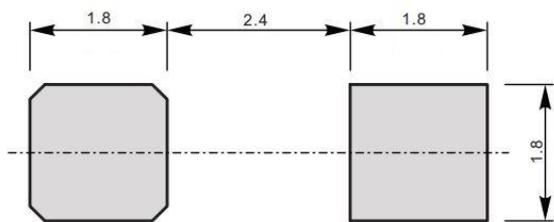


PACKAGE INFORMATION

Dimension in SMA (Unit: mm)



RECOMMENDED SOLDERING FOOTPRINT



Unit : mm

Symbol	Min	Max
A	1.90	2.20
D	4.00	4.50
E	2.30	2.70
HE	4.70	5.20
c	0.15	0.31
e	1.30	1.60
g	0.90	1.50
a	0.30	



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