SURFACE MOUNT SUPER FAST RECTIFIER

ES2A THRU ES2K

VOLTAGE RANGE 50 to 800 Volts
CURRENT 2.0 Ampere

RoHS COMPLIANT

Features

- Glass passivated chip
- Plastic package has underwrites laboratory flammability Classification 94V-0
- For surface mounted applications
- Low profile package
- Built-in strain relief, ideal for automated placement
- Glass Passivated chip junction
- High temperature soldering:250℃/10 second at terminals

DO-214AC (SMA)

Mechanical Data

- Case: JEDED DO-214AC molded plastic over glass passivated chip
- Terminals: Solder plated, Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.0024ounce, 0.068 gram

Maximum Ratings and Electrical Characteristics

- Ratings at 25℃ ambient temperature unless otherwise specified.
- Single phase, half wave, 60Hz, resistive or inductive load.
- For capacitive load derate current by 20%.

TYPE NUMBER	SYMBOLS	ES2A	ES2B	ES2C	ES2D	ES2E	ES2G	ES2J	ES2K	UNIT
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	50	100	150	200	300	400	600	800	Volts
Maximum RMS Voltage	V_{RMS}	35	70	105	140	210	280	420	560	Volts
Maximum DC Blocking Voltage	V_{DC}	50	100	150	200	300	400	600	800	Volts
Maximum Average Forward Rectified Current At T_A=100℃ (NOTE 1)	$I_{(AV)}$	2.0								Amps
Peak Forward Surge Current 8.3ms single half sine wave superimposed on rated load (JEDEC Method)	I_{FSM}	50								Amps
Maximum Instantaneous Forward Voltage at 2.0A	V_F	0.95				1.25		1.70	1.95	Volts
Maximum DC Reverse Current at rated DC blocking voltage at T_A = 25℃	I_R	5.0								μA
Maximum DC Reverse Current at rated DC blocking voltage at T_A = 125℃	I_R	100								μA
Maximuml Reverse Recovery Time (NOTE 3)	T_{RR}	35							50	nS
Typical Junction Capacitance (NOTE 2)	C_J	60				50				pF
Typical Thermal Resistance (NOTE 1)	$R_{\theta JA}$	70								℃/W
Typical Thermal Resistance (NOTE 1)	$R_{\theta JL}$	28								℃/W
Operating Junction Temperature	T_J	-55 to +150								℃
Storage Temperature Range	T_{STG}	-55 to +150								℃

Notes:

1. Thermal resistance from Junction to ambient and from junction to lead mounted on P.C.B.with0.3×0.3"(8.0 × 8.0mm) copper pad areas.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V
3. Test conditions IF =0.5A, IR =1.0A, IRR =0.25A

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Ratings and Characteristic Curves (T_A=25℃ unless otherwise noted)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

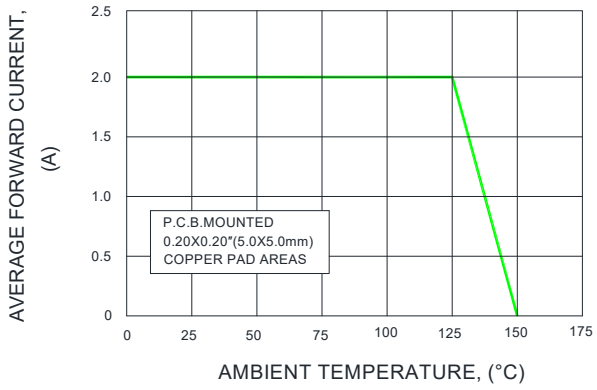


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

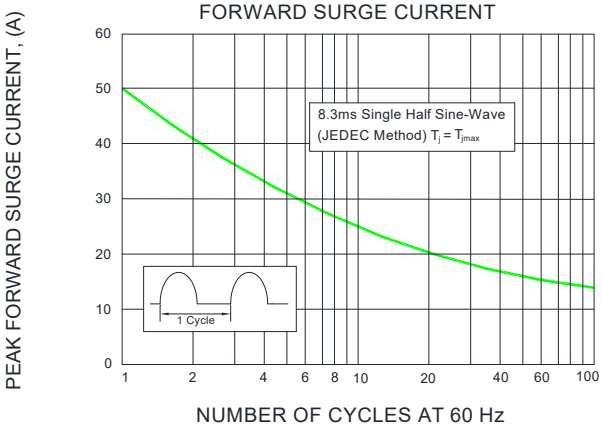


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

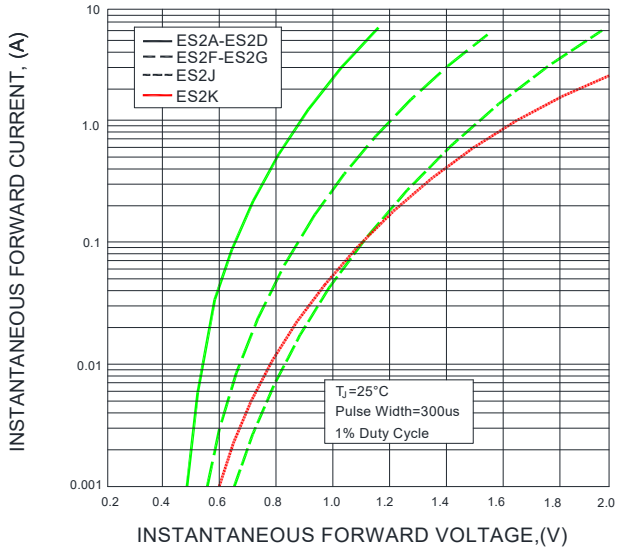


FIG.4-TYPICAL REVERSE CHARACTERISTICS

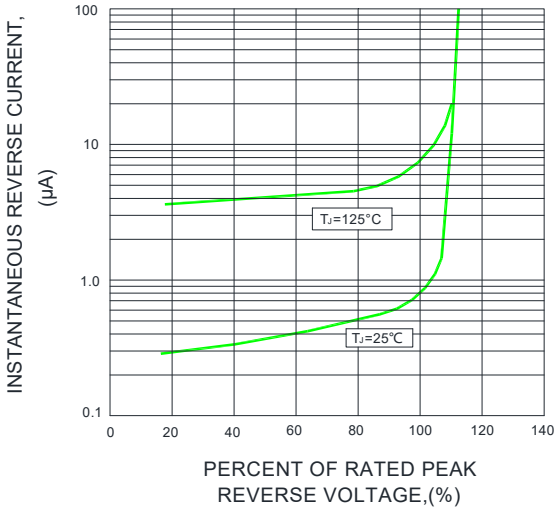
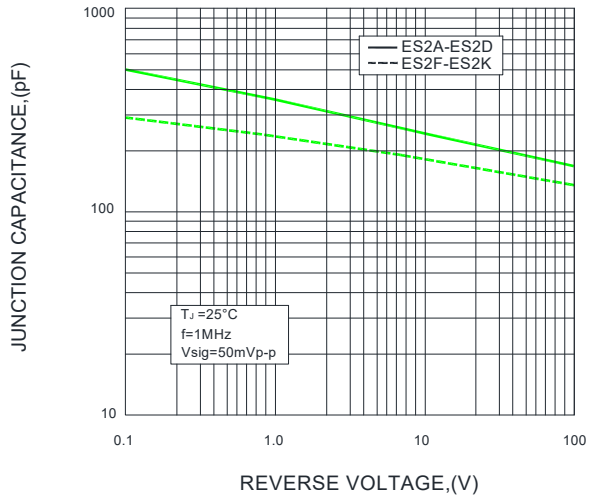
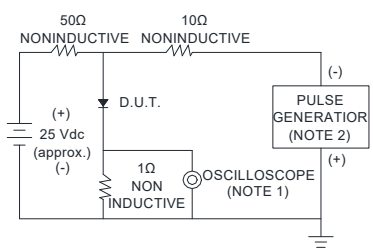
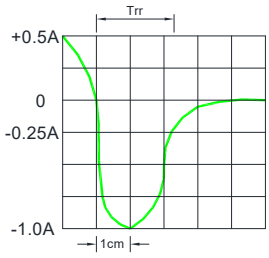


FIG.5-TYPICAL JUNCTION CAPACITANCE



F1G.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC





SET TIME BASE FOR 50/100ns/cm

NOTES : 1.Rise Time=7ns max. Input Impedance= 1 magohm. 22pF
2.Rise time=10ns max. Source Impedance= 50 ohms

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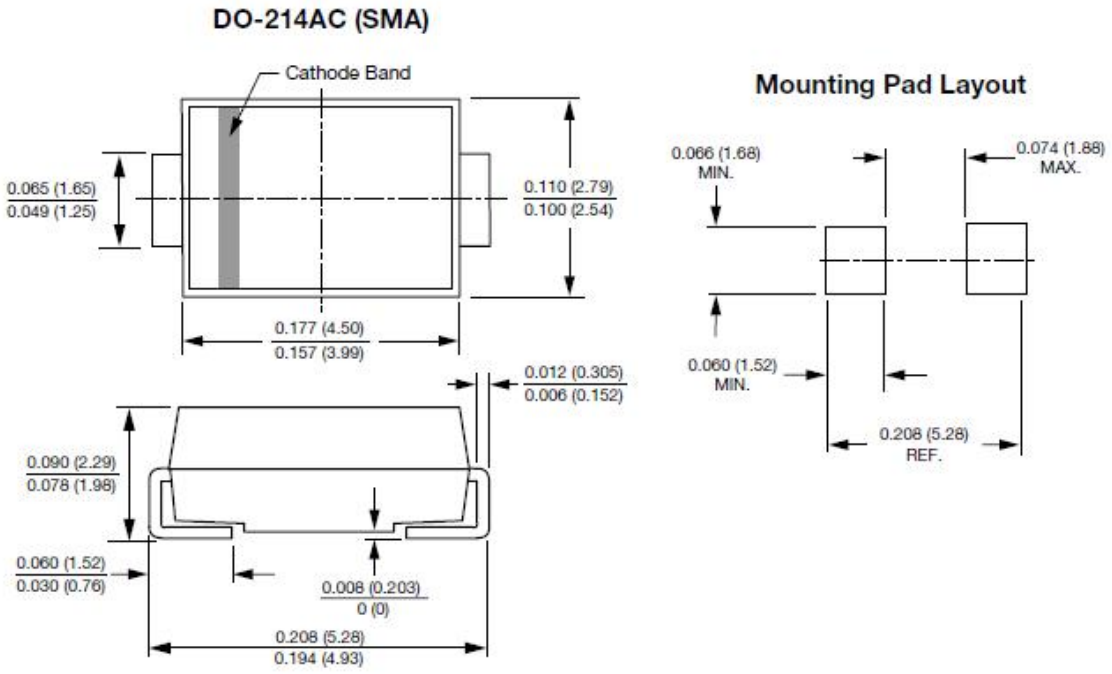
Package Outline Dimensions in inches (millimeters)



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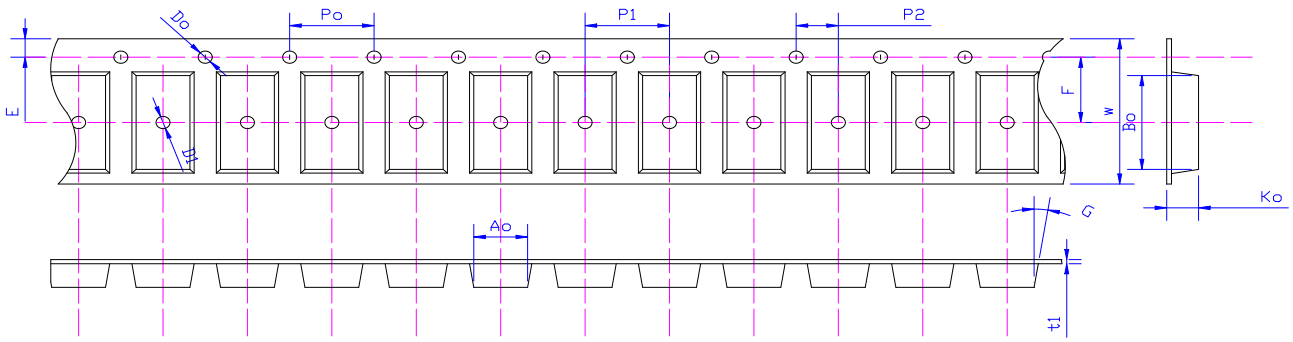
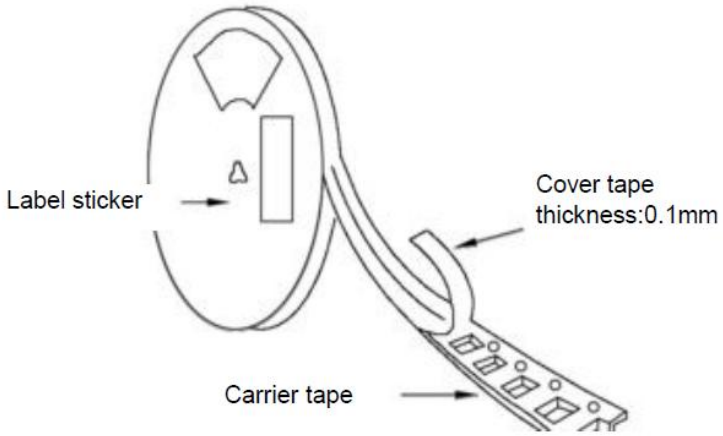
Package Reel Information



Specifications	Ao	Bo	Ko	Po	W	t1
SMA	2.55±0.10	5.10±0.10	2.36±0.10	4.00±0.1	12.0±0.05	0.23±0.02



DEVICE TYPE	Tape Width	13"Reel			07"Reel			
		Q'TY/REEL(pcs)	BOX/CARTOON	Q'TY/CARTON (pcs)	Q'TY/REEL(pcs)	REEL/BOX	BOX/CARTOON	Q'TY/CARTON (pcs)
SMA	12mm	5000	8	80000	1500	2	16	48000

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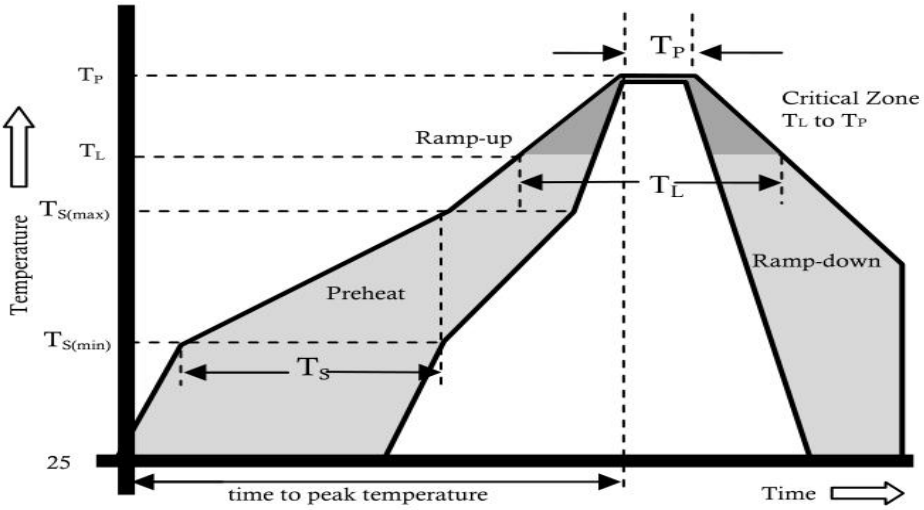
Reflow Profile



Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60-180 secs.
Average ramp up rate(Liquidus Temp(T_L) to peak)		3°C/sec. Max.
T_S(max) to T_L - Ramp-up Rate		3°C/sec. Max.
Reflow	Temperature (T_L)(Liquidus)	+217°C
	Temperature (T_L)	60-150 secs.
Peak Temp (T_P)		+(260+0/-5)°C
Time within 5°C of actual Peak Temp (T_P)		25 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp (T_P)		8 min. Max.
Do not exceed		+260°C

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