



ES3A THRU ES3K

VOLTAGE RANGE 50 to 800 Volts
CURRENT 3.0 Ampere



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°C/10 second at terminals



DO-214AB (SMC)

Mechanical Data

- Case: JEDED DO-214AA molded plastic over glass passivated chip
- Terminals: Solder plated, Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.003ounce, 0.093 gram

Maximum Ratings and Electrical Characteristics

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

TYPE NUMBER		SYMBOL S	ES 3A	ES 3B	ES 3C	ES 3D	ES 3E	ES 3G	ES 3J	ES 3K	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°C ^(NOTE 1)		I _(AV)	3.0								Amps
Peak Forward Surge Current 8.3ms single half sine wave superimposed on rated load (JEDEC Method)		I _{FSM}	80								Amps
Maximum Instantaneous Forward Voltage at 3.0A		V _F	0.95				1.25		1.70		Volts
Maximum DC Reverse Current at rated DC blocking voltage at	T _A = 25°C	I _R	5.0								μA
	T _A = 125°C		100								
Maximum Reverse Recovery Time ^(NOTE 3)		T _{RR}	35								nS
Typical Junction Capacitance ^(NOTE 2)		C _J	60				45				pF
Typical Thermal Resistance ^(NOTE 1)		R _{θJA}	75								°C/W
		R _{θJL}	30								
Operating Junction Temperature		T _J	(-55 to +150)								°C
Storage Temperature Range		T _{STG}	(-55 to +150)								°C

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



SURFACE MOUNT SUPER FAST RECTIFIER

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Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

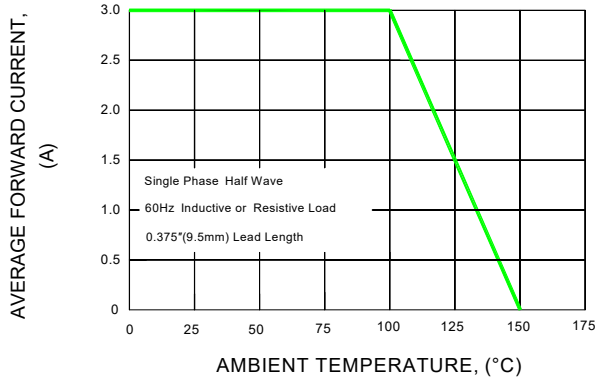


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

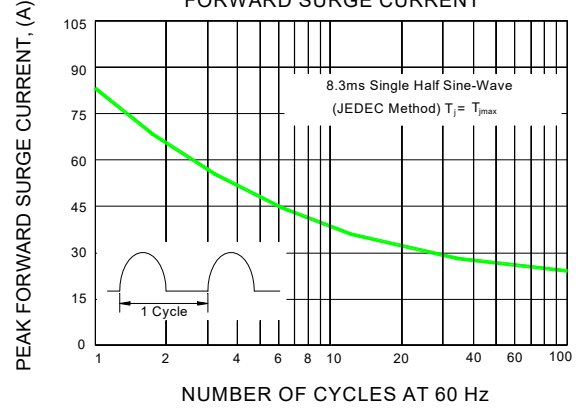


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

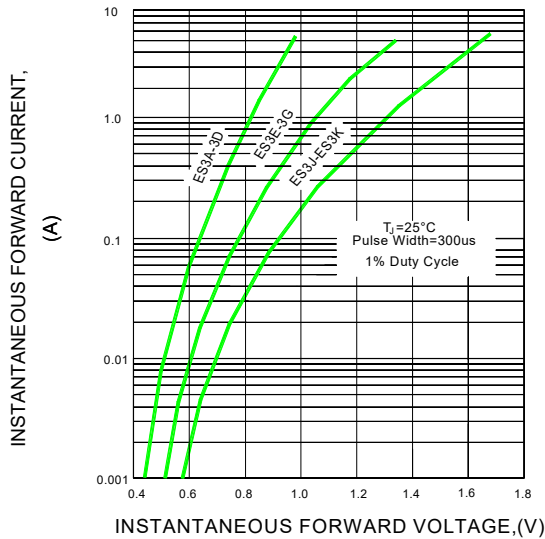


FIG.4-TYPICAL REVERSE CHARACTERISTICS

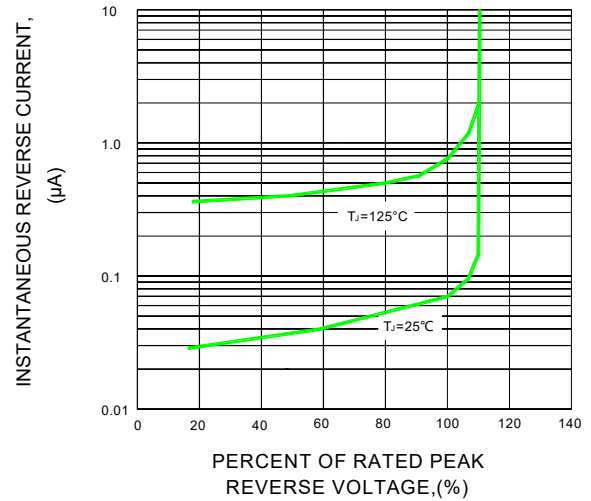


FIG.5-TYPICAL JUNCTION CAPACITANCE

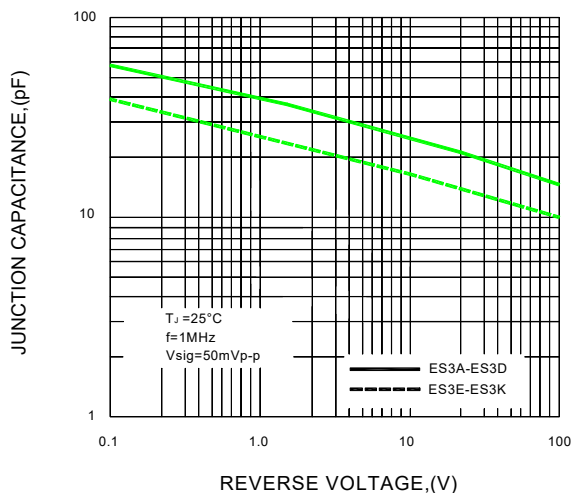
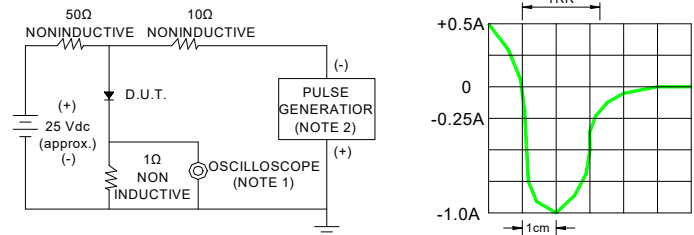


FIG.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



NOTES : 1. Rise Time=7ns max. Input Impedance= 1 megohm. 22pF
2. Rise time=10ns max. Source Impedance= 50 ohms
SET TIME BASE FOR 50/100ns/cm



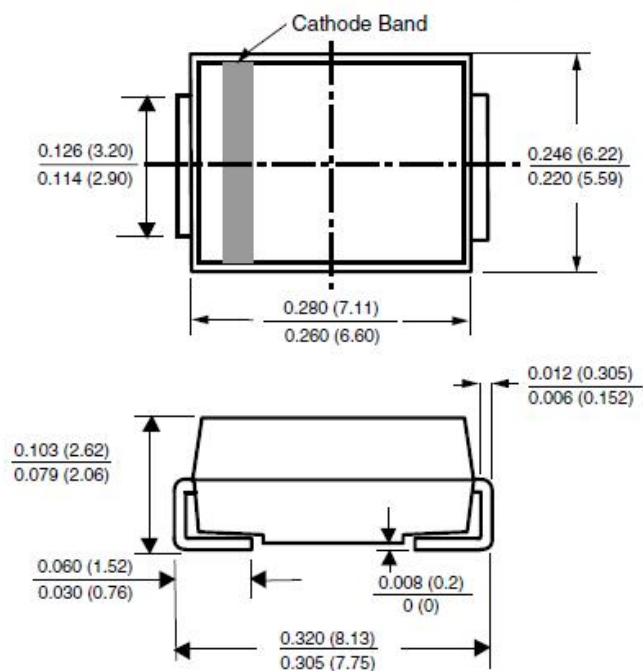
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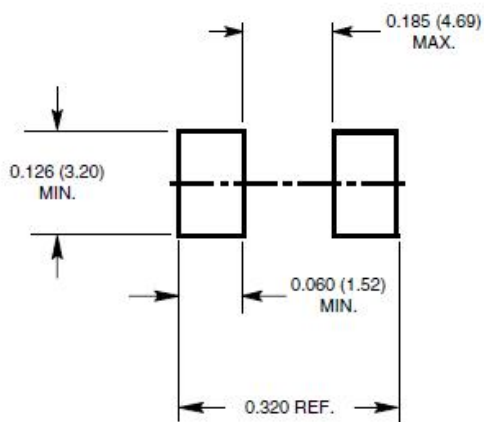
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Package Outline Dimensions in inches (millimeters)

DO-214AB (SMC J-Bend)



Mounting Pad Layout



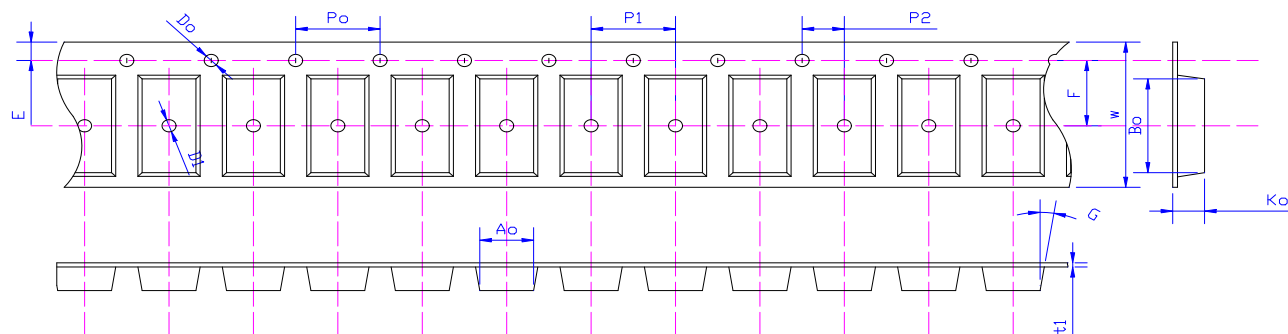


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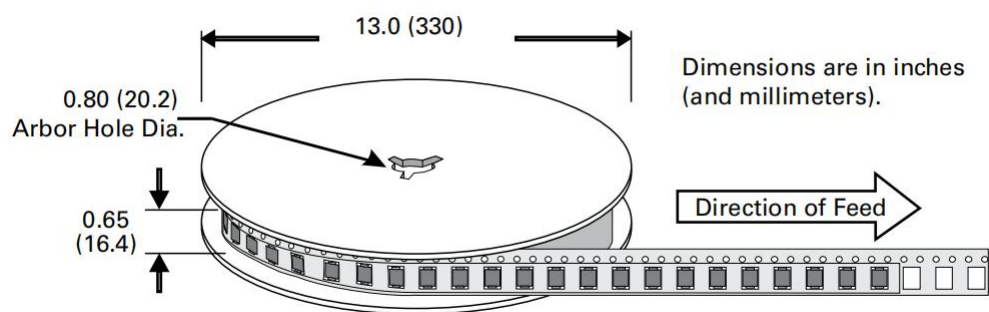
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Package Reel Information



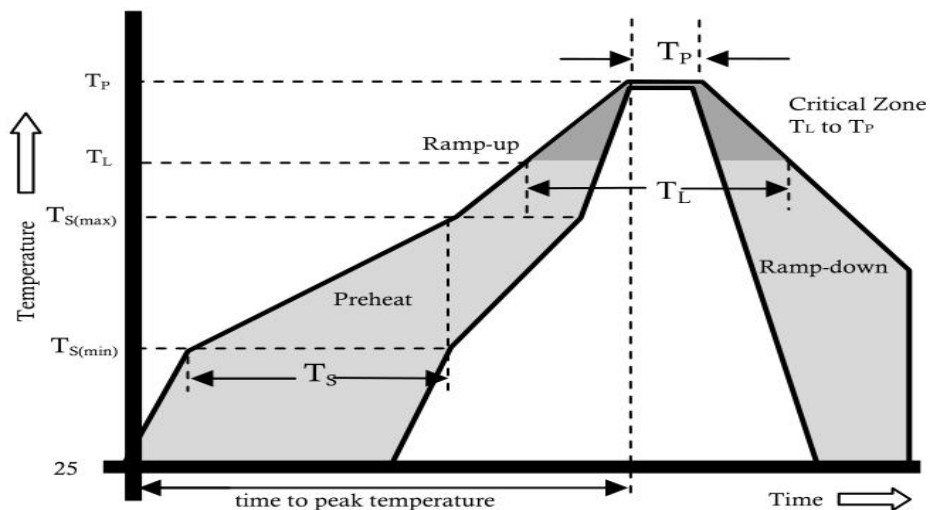
Specifications	Ao	Bo	Ko	Po	W	t1
SMC	6.05±0.10	8.31±0.10	2.54±0.10	4.00±0.1	16.0±0.30	0.30±0.02



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)
SMC	16mm	3000	8	48000	800	3	8	19200



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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