



US3AB THRU US3MB

VOLTAGE RANGE 50 to 1000 Volts
CURRENT 3.0 Ampere



Features

- Fast recovery glass passivated chip
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High temperature soldering: 260°C/10S at terminals
- Component in accordance to ROHS 2002/95/1 and WEEE 2002/96/EC



DO-214AA (SMB J-Bend)

Mechanical Data

- Case: JEDEC DO-214AA mold plastic Body over glass passivated chip
- Terminals: Solder plated, solderable per J-STD-002B and JESD22-B102D
- Polarity: Laser band denote cathode band
- 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		SYMBOLS	US 3AB	US 3BB	US 3DB	US 3GB	US 3JB	US 3KB	US 3MB	UNIT
Maximum Repetitive Peak Reverse Voltage		V _{RRM}	50	100	200	400	600	800	1000	Volts
Maximum RMS Voltage		V _{RMS}	35	70	140	280	420	560	700	Volts
Maximum DC Blocking Voltage		V _{DC}	50	100	200	400	600	800	1000	Volts
Maximum Average Forward Rectified Current At T _A =100°C		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 per at 3.0A		V _F	1.0			1.30	1.70			Volts
Maximum DC Reverse Current at rated DC Blocking Voltage	T _A = 25°C	I _R	5.0							μA
	T _A = 125°C		100							
Maximum Reverse Recovery Time ^(NOTE 3)		T _{RR}	50				75			nS
Typical Junction Capacitance ^(Note 2)		C _J	50				30			pF
Typical Thermal Resistance ^(Note 1)		R _{θJA}	70							°C/W
		R _{θJL}	28							
Operating Junction Temperature		T _J	(-55 to +150)							°C
Storage Temperature Range		T _{STG}	(-55 to +150)							°C

Notes:

1. Unit mounted on P.C.B. with 0.3×0.3"(8.0 × 8.0mm) copper pads.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V.
3. Reverse Recovery Test Conditions: $I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $I_{RR}=0.25\text{A}$.



SURFACE MOUNT HIGH EFFICIENCY 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

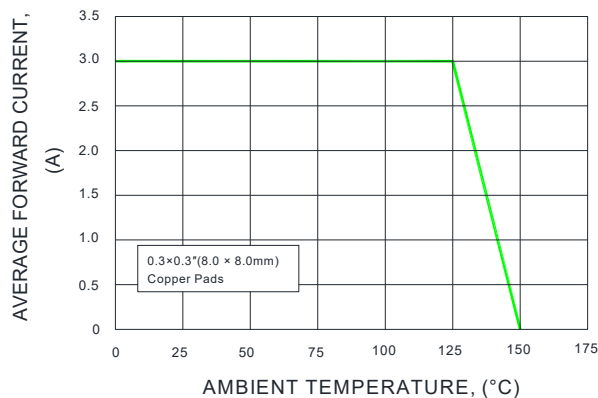


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

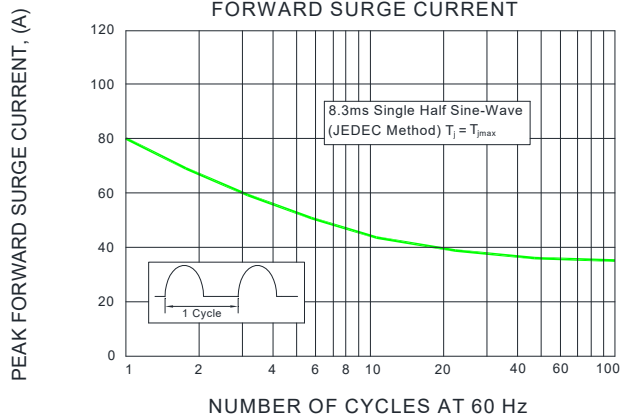


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

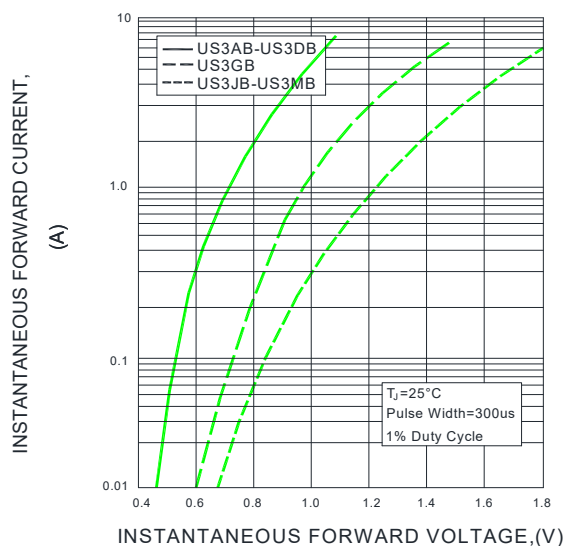


FIG.4-TYPICAL REVERSE CHARACTERISTICS

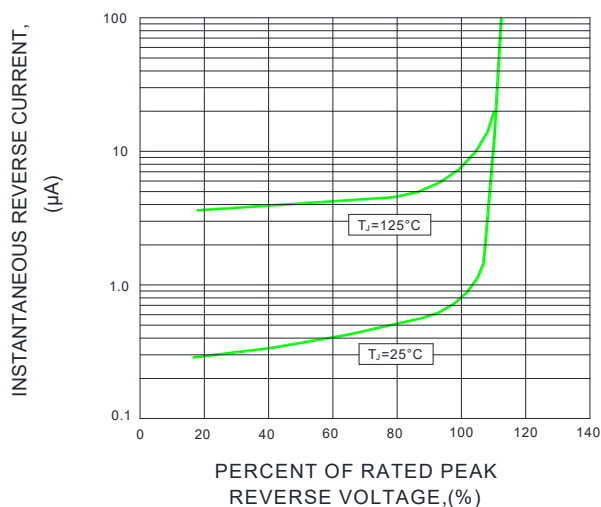


FIG.5-TYPICAL JUNCTION CAPACITANCE

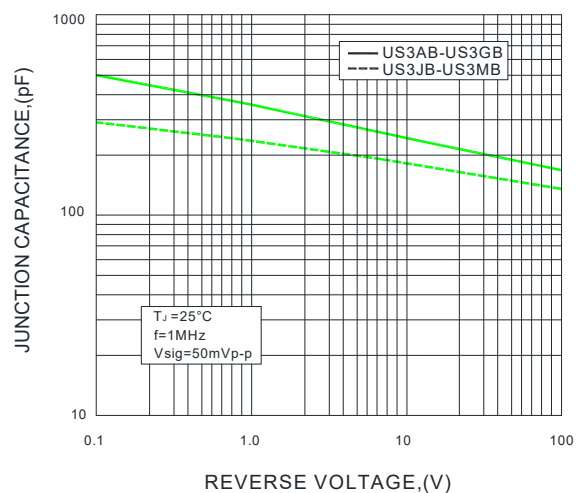
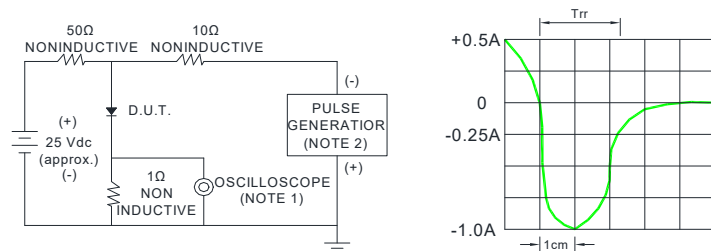


FIG.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



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

SET TIME BASE FOR 50/100ns/cm

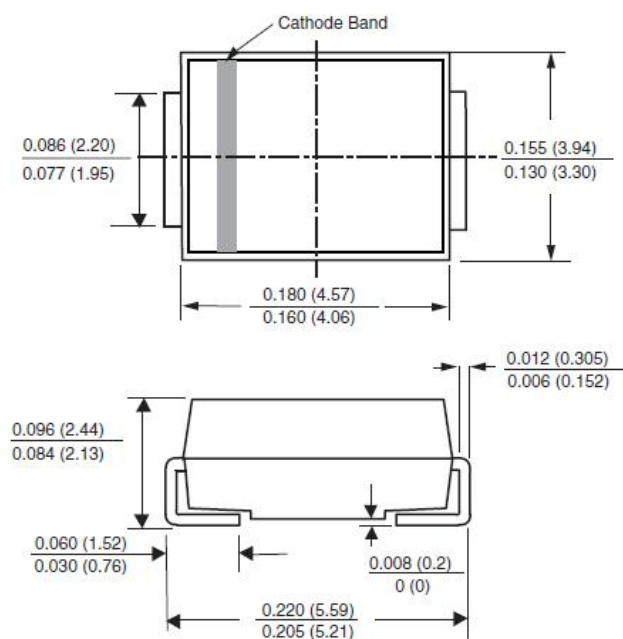


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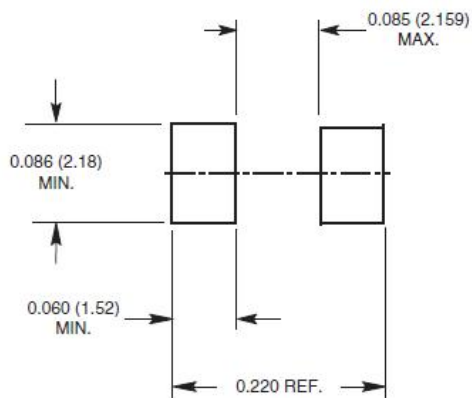
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Package Outline Dimensions in inches (millimeters)

DO-214AA (SMB-J-Bend)



Mounting Pad Layout

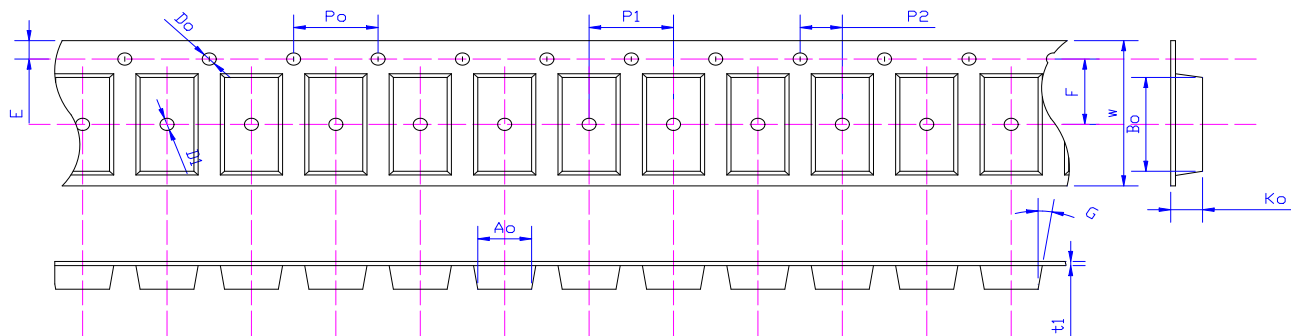




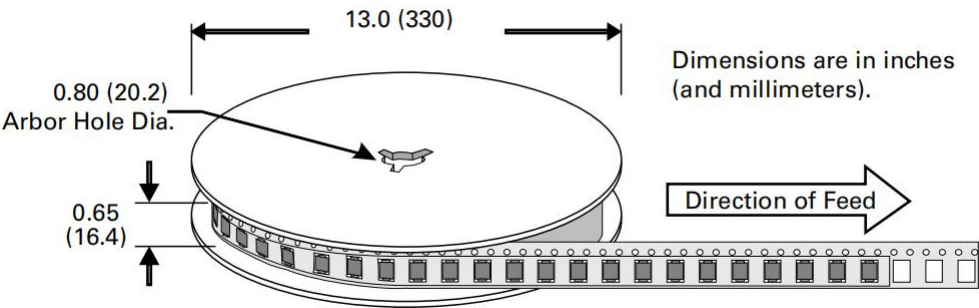
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Package Reel Information



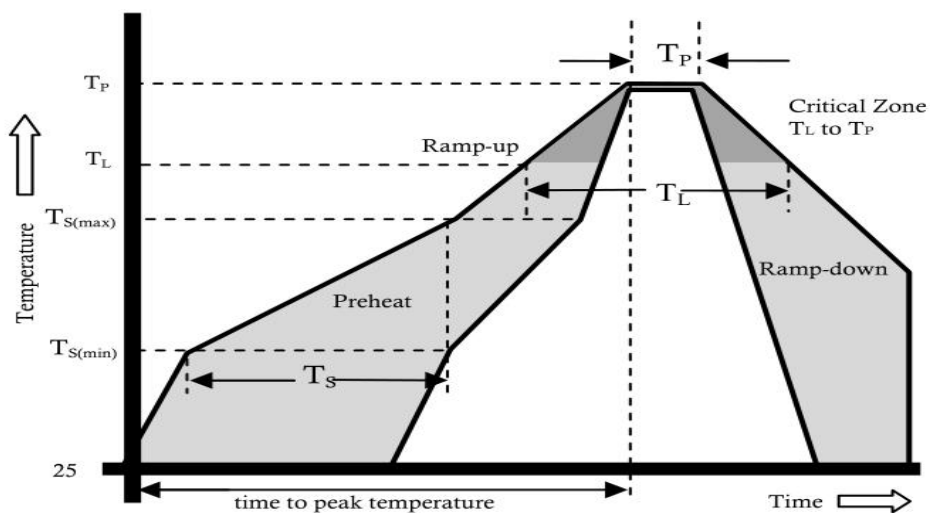
Specifications	Ao	Bo	Ko	Po	W	t1
SMB	3.77±0.10	5.70±0.10	2.67±0.10	4.00±0.1	12.0±0.05	0.23±0.02



DEVICE TYPE	Tape Width	13"Reel			07"Reel			
		Q'TY/REEL(pcs)	BOX/CARTOO N	Q'TY/CARTON (pcs)	Q'TY/REEL(pcs)	REEL/BOX	BOX/CARTOO N	Q'TY/CARTON (pcs)
SMB	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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