



## 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 $T_A=100^\circ\text{C}$	$I_{(AV)}$	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	$T_A = 25^\circ\text{C}$	5.0							$\mu\text{A}$
	$T_A = 125^\circ\text{C}$	100							
Maximum Reverse Recovery Time <sup>(NOTE 3)</sup>	$T_{RR}$	50			75			nS	
Typical Junction Capacitance <sup>(NOTE 2)</sup>	$C_j$	50			30			pF	
Typical Thermal Resistance <sup>(NOTE 1)</sup>	$R_{\theta JA}$	70							$^\circ\text{C}/\text{W}$
	$R_{\theta JL}$	28							
Operating Junction Temperature	$T_j$	(-55 to +150)							$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	(-55 to +150)							$^\circ\text{C}$

## 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:  $I_f=0.5\text{A}$ ,  $I_r=1.0\text{A}$ ,  $I_{rr}=0.25\text{A}$ .



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

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

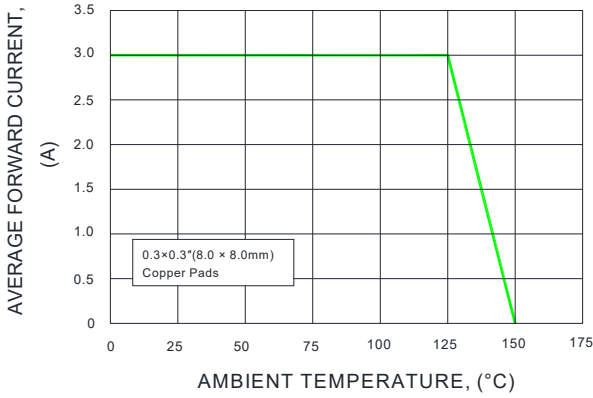


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

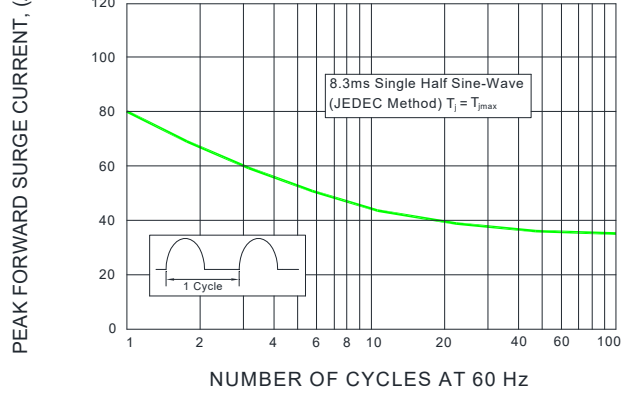


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

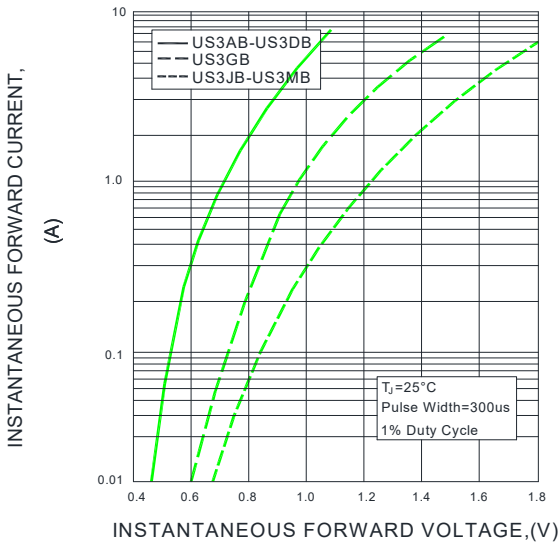


FIG.4-TYPICAL REVERSE CHARACTERISTICS

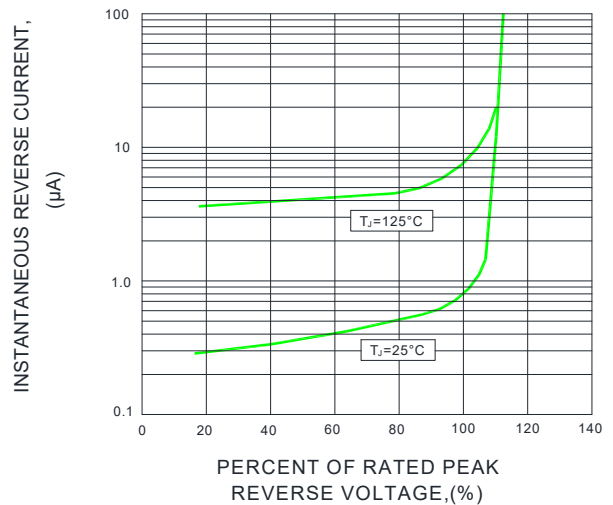


FIG.5-TYPICAL JUNCTION CAPACITANCE

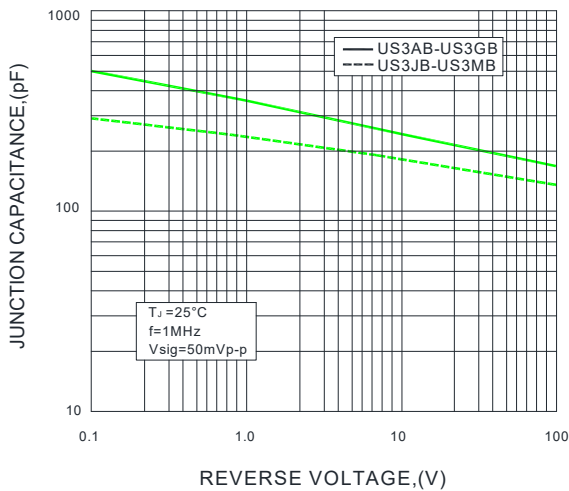
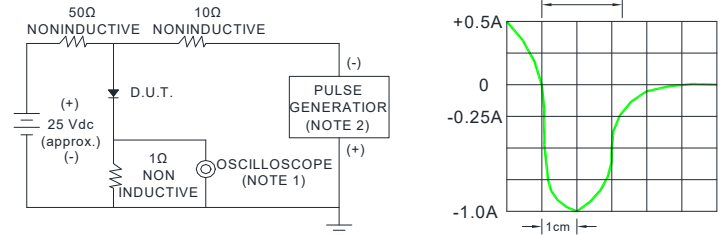


FIG.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



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

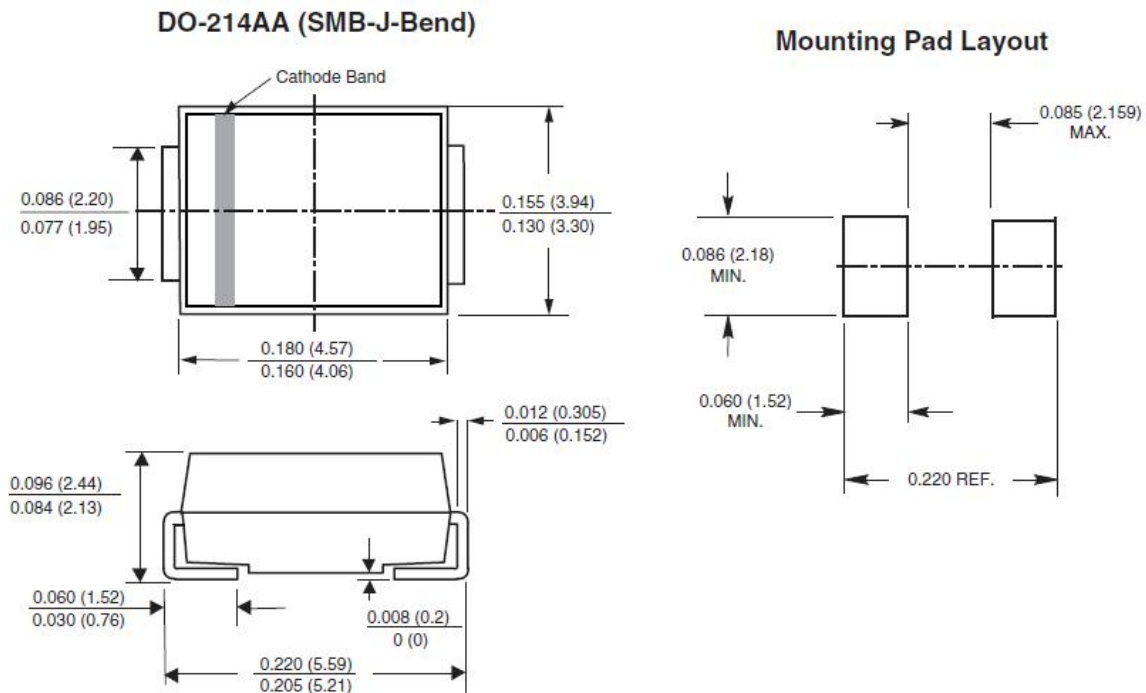
SET TIME BASE FOR 50/100ns/cm



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Package Outline Dimensions in inches (millimeters)

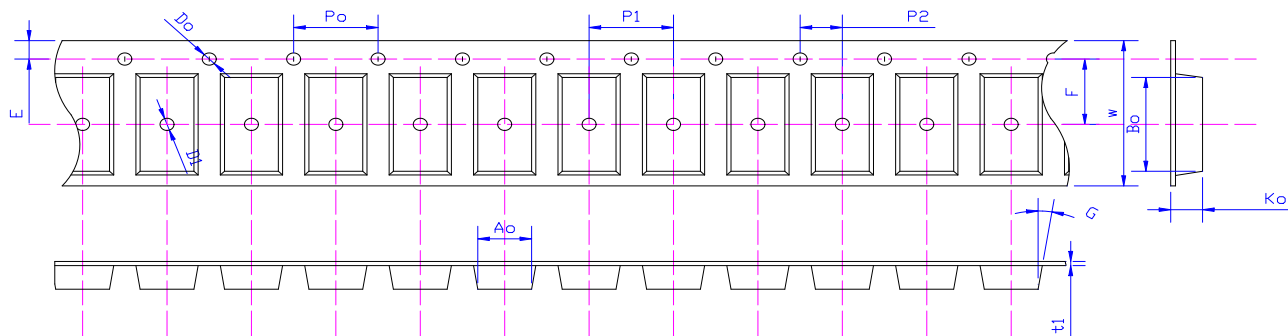




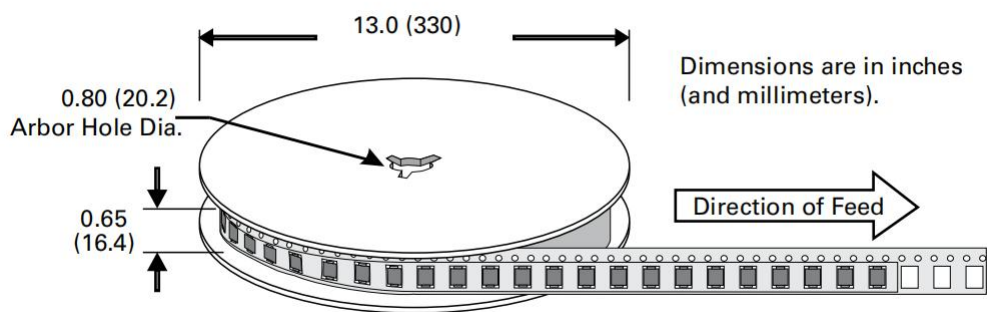
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Package Reel Information



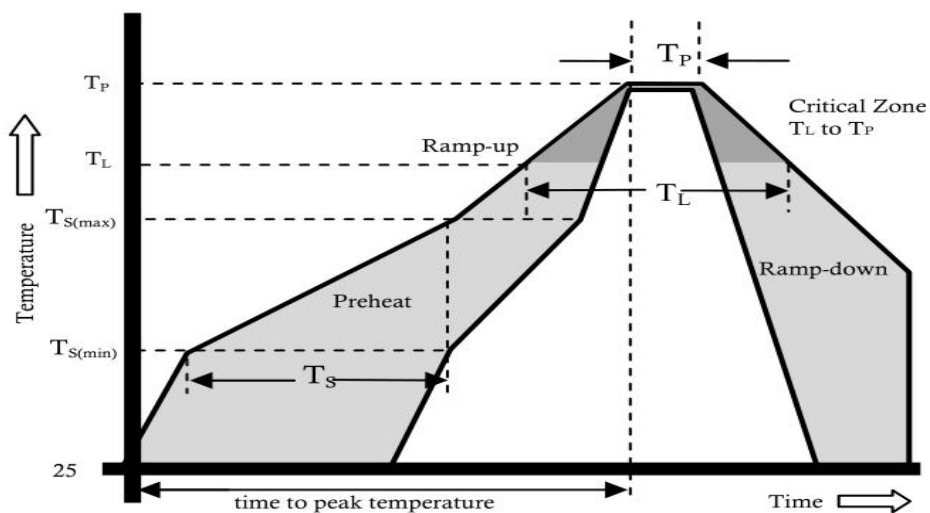
Specifications	Ao	Bo	Ko	Po	W	t1
SMB	3.77±0.10	5.70±0.10	2.67±0.10	4.00±0.1	12.0±0.05	0.23±0.02



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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