

US3x
Features

- The plastic package carries UL Flammability Classification 94V-0
- For surface mounted applications
- Low reverse leakage
- Built-in strain relief, ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed:260°C/10 seconds at terminals


Mechanical Characteristics

- Case: SMB(DO-214AA) package molded plastic body over passivated chip
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Mounting Position: Any
- Weight: 0.0034 ounce, 0.095 grams

Absolute Maximum Ratings and Electrical Parameters (TA=25°C unless otherwise specified)

PARAMETER	SYMBOL	US3A	US3B	US3D	US3G	US3J	US3K	US3M	UNIT	
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V	
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V	
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V	
Maximum average forward rectified current	I_{AV}	3							A	
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	100							A	
Maximum instantaneous forward voltage at 3A	V_F	1		1.4		1.7		V		
Maximum DC reverse current at rated DC blocking voltage	$T_A=25^\circ\text{C}$	I_R							5	uA
	$T_A=100^\circ\text{C}$	I_{RT}							50	uA
Maximum reverse recovery time ^(NOTE 1)	t_{rr}	50				75			ns	
Typical junction capacitance ^(NOTE 2)	C_J	45							pF	
Typical Thermal Resistance Junction to Ambient ^(NOTE3)	$R_{\theta JA}$	65							°C/W	
Typical Thermal Resistance Junction to Lead ^(NOTE3)	$R_{\theta JL}$	20							°C/W	
Operating Temperature Range	T_J	-55 to 150							°C	
Storage Temperature Range	T_{STG}	-55 to 150							°C	

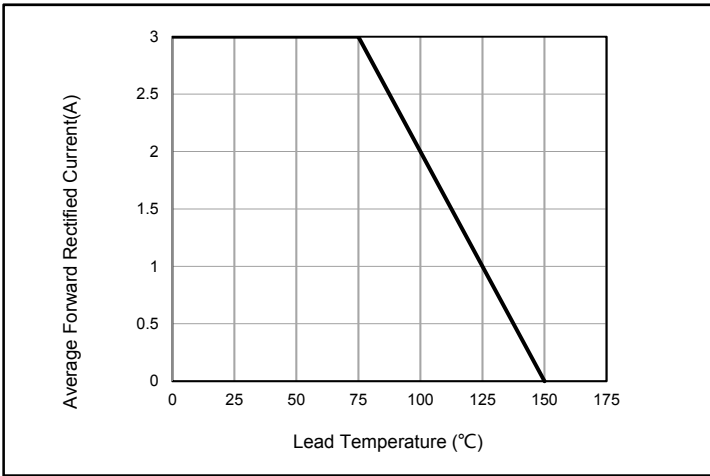
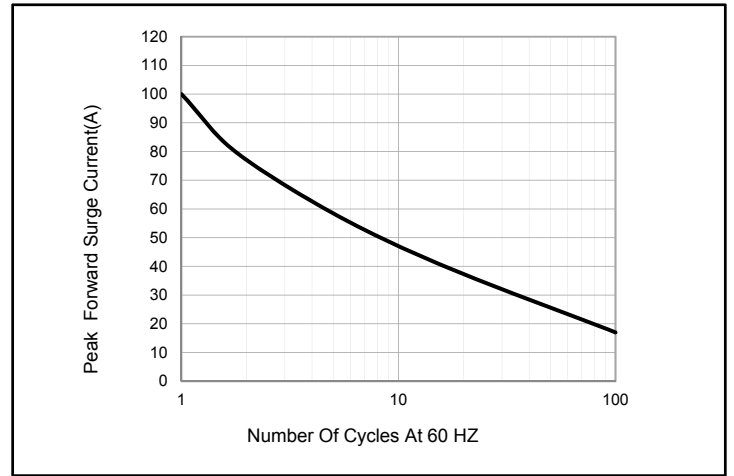
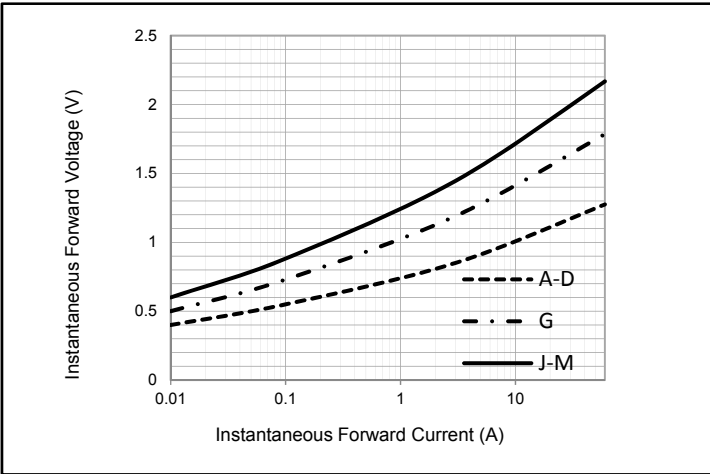
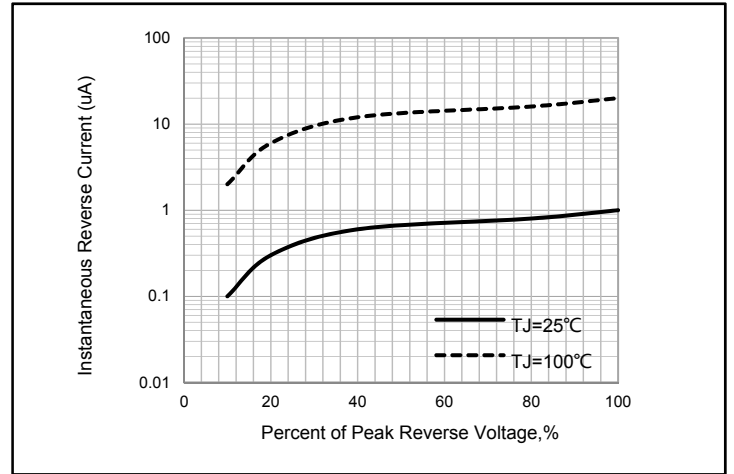
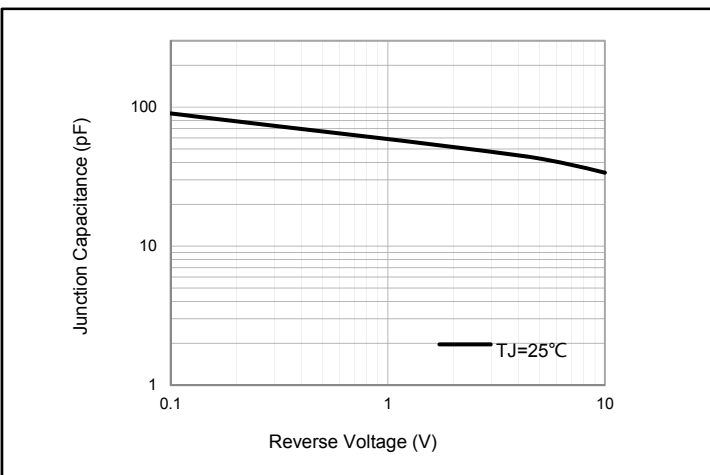
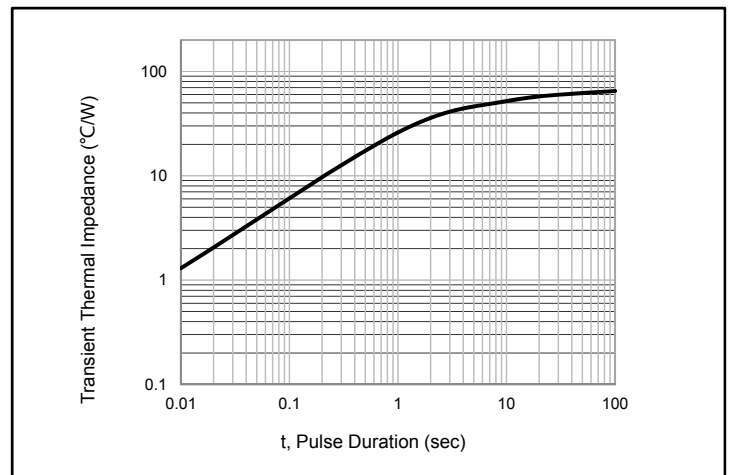
Note1: Reverse recovery condition IF=0.5A,IR=1.0A,Irr=0.25A

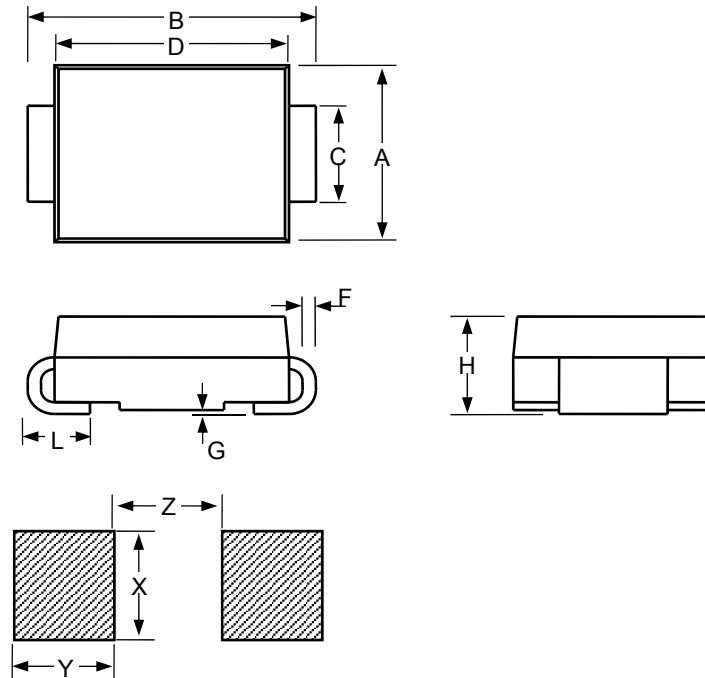
Note2: Measured at 1MHz and applied reverse voltage of 4.0V DC.

Note3: PCB. mounted with 7×7mm copper pad areas

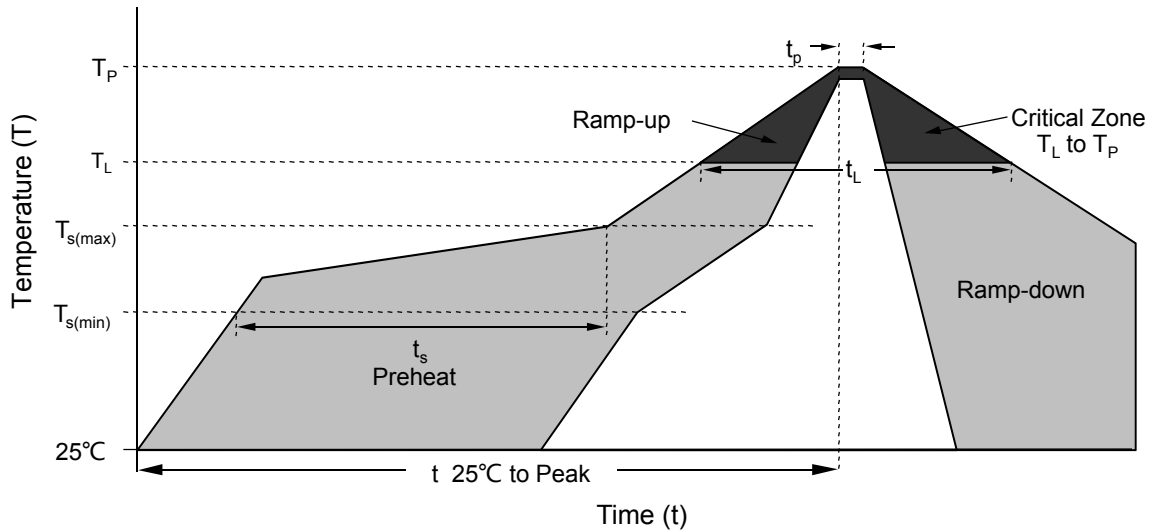
Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SMB	Tape/Reel,13" reel	3000	EIA-481-1
	Tape/Reel,7" reel	500	EIA-481-1

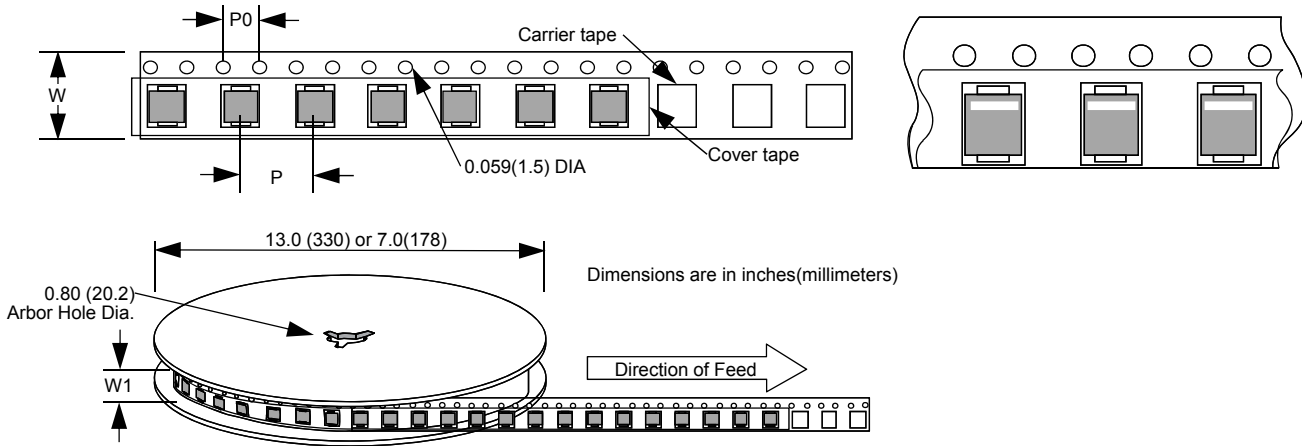

Fig. 1 - Forward Current Derating Curve

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 - Typical Transient Thermal Impedance



SMB						
Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.134	0.144	0.155	3.4	3.67	3.94
B	0.205	0.213	0.22	5.21	5.4	5.59
C	0.075	0.079	0.083	1.9	2	2.1
D	0.169		0.185	4.3		4.7
L	0.03		0.06	0.76		1.52
F	0.006		0.012	0.152		0.305
G	-		0.008	-		0.203
H	0.085	0.091	0.096	2.15	2.3	2.45
X		0.11			2.8	
Y		0.079			2	
Z		0.079			2	



Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 – 150 secs
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C

Tape and Reel Specification


Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
P		0.315			8	
P0		0.157			4	
W		0.472			12	
W1		0.492			12.5	

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