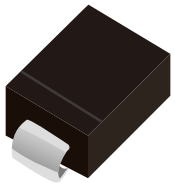
US2ABQ-US2MBQ

Surface Mount High Efficient Rectifier

FEATURES

- Ideal for automated placement
- Glass passivated Junction chip
- High forward surge current capability
- Meet AEC-Q101 Requirements



DO-214AA(SMB)

Schematic Symbol

APPLICATIONS

- For use in general purpose rectification of power supplies, inverters, converters, and freewheeling diodes for consumer and telecommunication

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS AND CHARACTERISTICS (T_A=25°C)

Parameter		Symbol	US2 ABQ	US 2BBQ	US 2DBQ	US 2FBQ	US 2GBQ	US 2JBQ	US 2KBQ	US 2MBQ	Unit
Marking			US2A	US2B	US2D	US2F	US2G	US2J	US2K	US2M	
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	50	100	200	300	400	600	800	1000	V
Maximum RMS Voltage		V_{RMS}	35	70	140	210	280	420	560	700	
Maximum DC Blocking Voltage		V_{DC}	50	100	200	300	400	600	800	1000	
Average Rectified Output Current @60Hz Sine Wave, Resistance Load, TL (Fig.1)		I_O	2.0								A
Forward Surge Current (Non-Repetitive) @60Hz Half-Sine Wave,1 Cycle, Tj=25°C		I_{FSM}	50								
Forward Surge Current (Non-Repetitive) @1ms, Square Wave, 1 Cycle, Tj=25°C			100								
Maximum Instantaneous Forward Voltage I_{FM}=2.0A		V_F	1.0			1.3		1.7			V
Maximum DC Reverse Current at Rated DC Blocking Voltage	T_J=25°C	I_R	5								μA
	T_J=125°C		100								
Typical Junction Capacitance Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C		C_J	32			17		12			pF
Current Squared Time @1ms≤t≤8.3ms Tj=25°C		I^2t	10.375								A^2s
Maximum reverse recovery time I_F=0.5A I_R=1.0A,I_{rr}=0.25A		t_{rr}	50					75			ns
Typical Thermal Resistance (1)		$R_{\theta J-A}$	70[1)]								°C/W
		$R_{\theta J-L}$	22[1)]								
		$R_{\theta J-C}$	18[1)]								
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 to +150								°C

Note:
(1) Thermal Resistance From Junction to Ambient and From Junction to Lead Mounted On P.C.B. With 0.3" X 0.3" (8.0 mm X 8.0 mm) Copper Pad Areas

CHARACTERISTIC CURVES

Fig. 1- Io-TL Curve

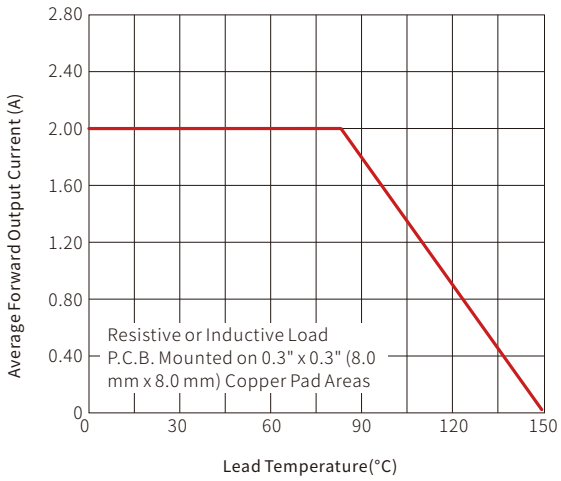


Fig. 2-Surge Forward Current Capability

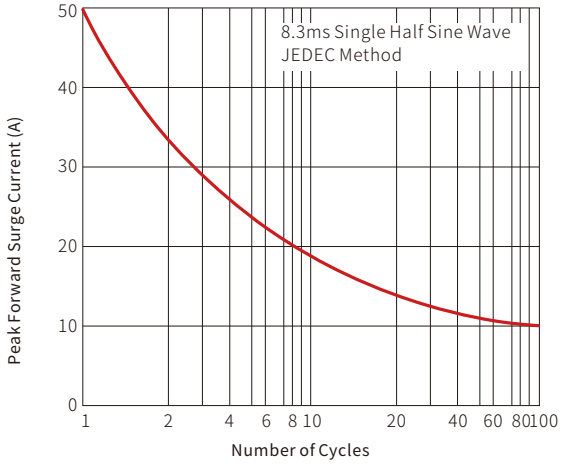


Fig. 3-Typical Forward Voltage

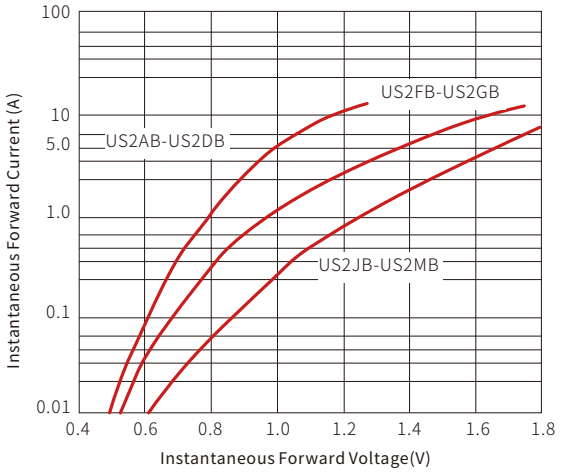


Fig. 4-Typical Reverse Characteristics

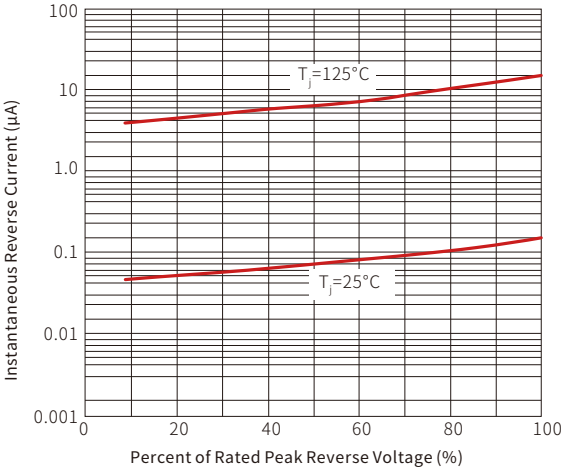
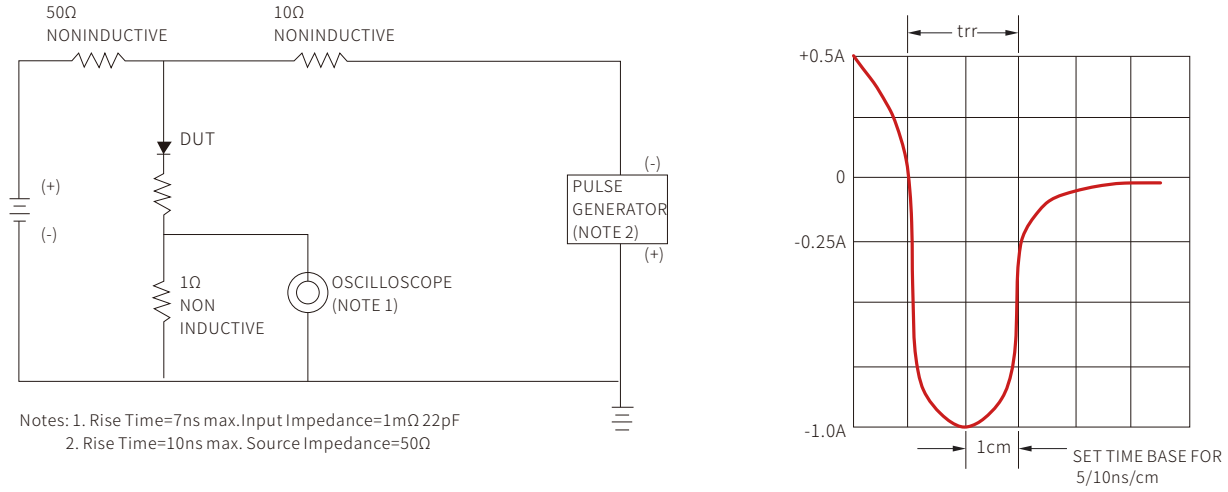


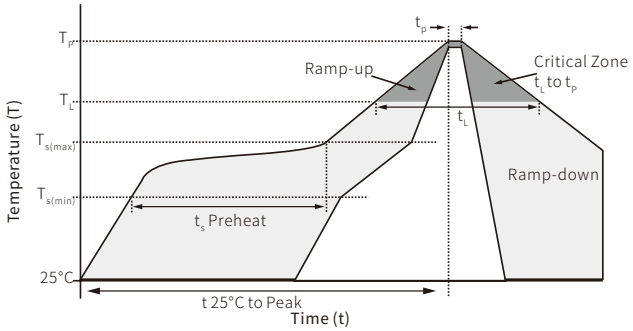
Fig. 5-Diagram of circuit and Testing waveform of reverse recovery time



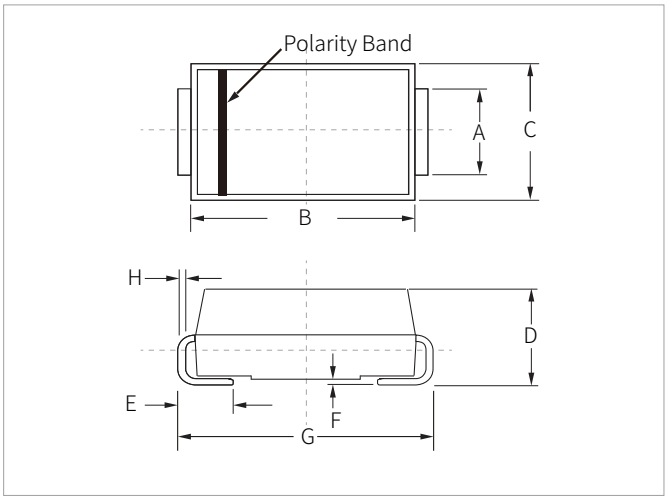
Notes: 1. Rise Time=7ns max.Input Impedance=1mΩ 22pF
2. Rise Time=10ns max. Source Impedance=50Ω

SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	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 (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260°C

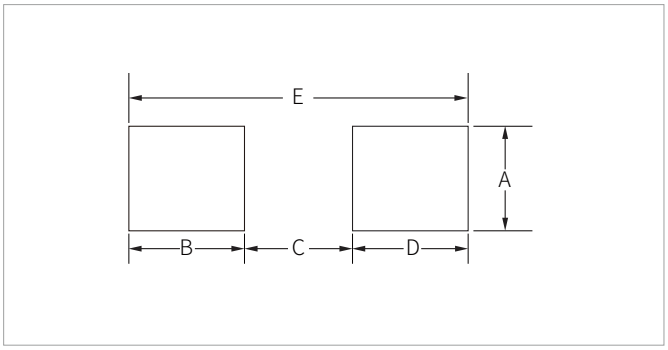


DO-214AA(SMB) PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.80	2.20	0.071	0.087
B	4.30	4.70	0.170	0.185
C	3.40	3.90	0.134	0.153
D	2.15	2.75	0.085	0.108
E	1.00	1.50	0.039	0.059
F	0.02	0.20	0.001	0.008
G	5.10	5.50	0.200	0.216
H	0.15	0.30	0.006	0.012

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.20	-	0.087	-
B	1.45	-	0.057	-
C	-	2.55	-	0.010
D	1.45	-	0.057	-
E	5.60REF		0.220REF	

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
US2ABQ-US2MBQ	DO-214AA(SMB)	3000PCS	13"

Headquarters
No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline
400-021-5756

Web
Https://www.semiware.com

Sales Center
Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service
Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support
Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions
Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

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Wechat

To find your local partner within Semiware' s global website: www.semiware.com