

FEATURES

- | Low Power Loss, High Efficiency
- | Ideal For Automated Placement
- | Glass Passivated Junction Chip
- | Fast Switching For High Efficiency
- | Meet AEC-Q101 Requirements



DO-214AC(SMA)



Schematic Symbol

APPLICATIONS

- | For Use In High Frequency 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	RS1AQ	RS1BQ	RS1DQ	RS1GQ	RS1JQ	RS1KQ	RS1MQ	Unit
Marking		RS1AQ	RS1BQ	RS1DQ	RS1GQ	RS1JQ	RS1KQ	RS1MQ	
Repetitive Peak Reverse Voltage	V _{RRM}	50	100	200	400	600	800	1000	V
Reverse Voltage, Total RMS Value	V _{RMS}	35	70	140	280	420	560	700	
Maximum DC Blocking Voltage	V _{DC}	50	100	200	400	600	800	1000	
Average Rectified Output Current @60Hz Sine Wave, Resistance Load, TL (Fig.1)	I _O	1.0							A
Forward Surge Current (Non-Repetitive) @60Hz Half-Sine Wave, 1 Cycle, T _J =25°C	I _{FSM}	30							A
Forward Surge Current (Non-repetitive) @1ms, Square Wave, 1 Cycle, T _J =25°C		60							
Maximum Instantaneous Forward Voltage I _{FM} =1.0A	V _F	1.3							V
Reverse Current @ Rated V _r Per Diode ⁽²⁾	T _J =25°C	5							μA
	T _J =125°C	100							
Maximum Reverse Recovery Time I _F =0.5A, I _R =1.0A, I _{rr} =0.25A	T _{rr}	150				250	500		ns
Typical Junction Capacitance Measured at 1MHz And Applied Reverse Voltage Of 4.0 V.D.C	C _J	11				6			pF
Current Squared Time @1ms ≤ t ≤ 8.3ms T _J =25°C	I ² t	3.735							A ² s
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150							°C

THERMAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	RS1AQ	RS1BQ	RS1DQ	RS1GQ	RS1JQ	RS1KQ	RS1MQ	Unit
Typical Thermal Resistance	$R_{\theta\text{J-A}}^{(1)}$	75 ¹⁾							°C/W
	$R_{\theta\text{J-L}}^{(1)}$	35 ¹⁾							
	$R_{\theta\text{J-C}}^{(1)}$	20 ¹⁾							

Note: (1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

CHARACTERISTIC CURVES

Fig. 1-Io - TL Curve

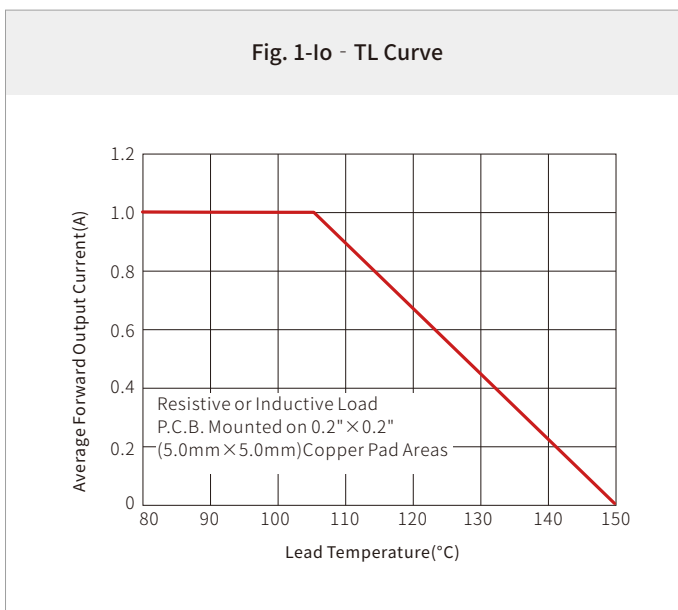


Fig. 2-Surge Forward Current Capability

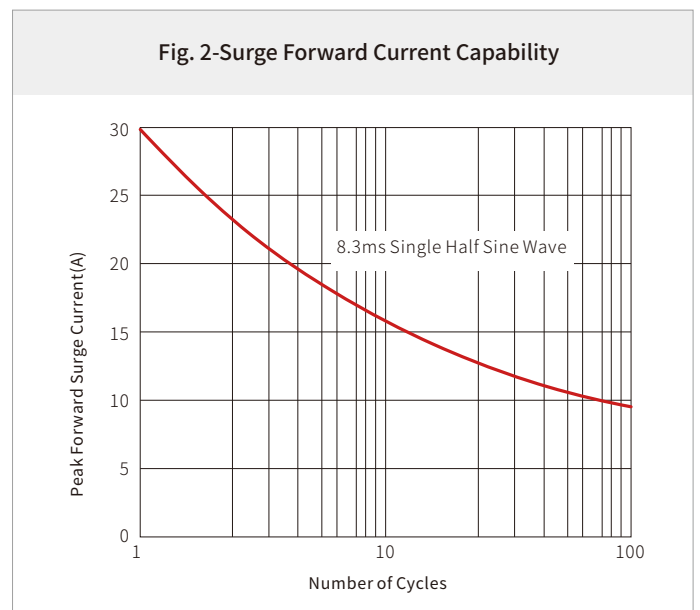
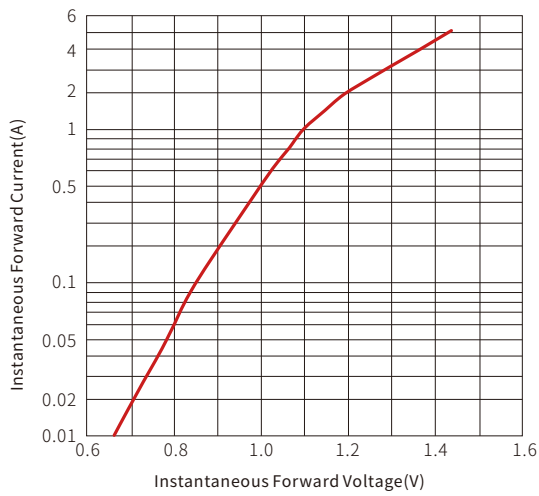
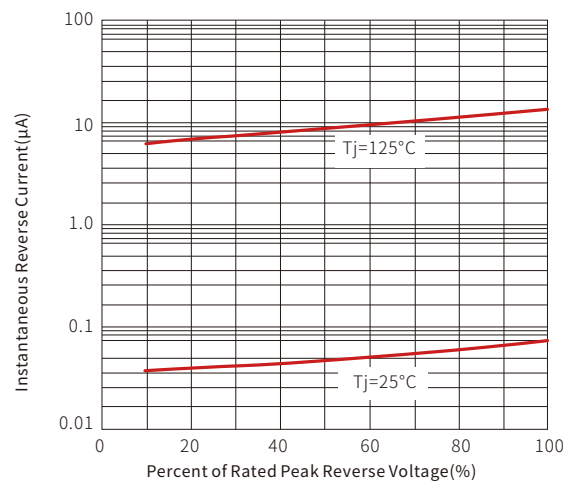
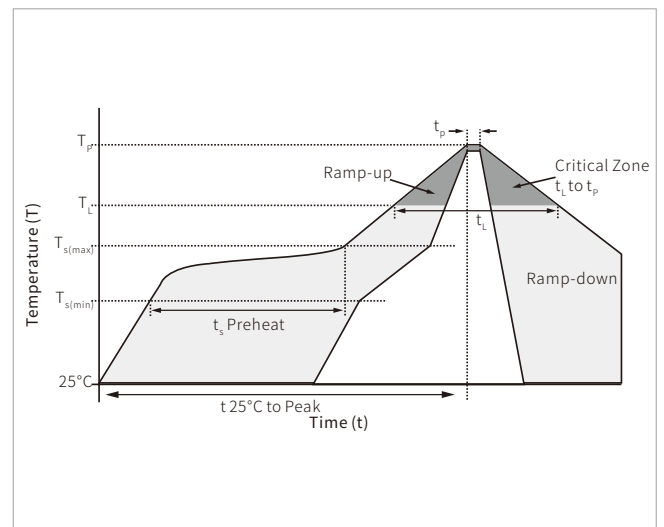


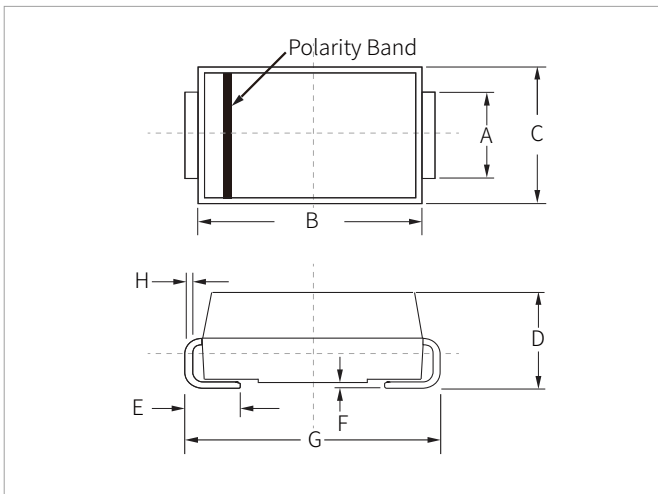
Fig. 3-Typical Forward Voltage

Fig. 4-Typical Reverse Characteristics


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

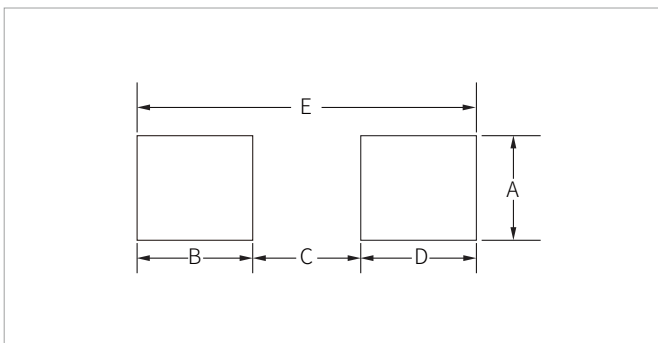


DO-214AC(SMA) PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.20	1.60	0.047	0.063
B	4.20	4.60	0.165	0.181
C	2.40	2.80	0.094	0.110
D	2.00	2.40	0.079	0.094
E	0.76	1.52	0.030	0.060
F	0.02	0.20	0.001	0.008
G	4.85	5.25	0.191	0.207
H	0.15	0.30	0.006	0.012

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.63	-	0.064	-
B	1.45	-	0.057	-
C	-	2.80	-	0.090
D	1.45	-	0.057	-
E	5.28REF		0.208REF	

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
RS1AQ-RS1MQ	DO-214AC(SMA)	5000PCS	13"

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