



RoHS

Features

- Glass Passivated Die Construction
- For Surface Mounted Applications
- Fast Recovery Time For High Efficiency
- Built-in Strain Relief, Ideal For Automated Placement
- Surge Overload Rating to 30A Peak
- Low Forward Voltage Drop and High Current Capability

Mechanical Data

- JEDEC DO-214AC(SMAJ) package
- Moisture sensitivity: Level 1 per J-STD-020A
- Polarity: color band denotes cathode
- Plastic Material – UL Flammability Classification 94V-0

This FR1A thru FR1M fast recovery rectifier series employs epitaxial construction with oxide passivation and metal overlay contact. Suited for high voltage, high frequency rectification, or as free wheeling and protection diodes, in surface mount applications.

Maximum Ratings and Electrical Characteristics @ TA = 25 °C unless otherwise specified									
Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.									
Characteristic	Symbol	FR1A	FR1B	FR1D	FR1G	FR1J	FR1K	FR1M	Units
Maximum Repetitive Reverse Voltage	V _{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V _{R(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 @ T _r = 100 °C	I _O	1.0							A
Non-Repetitive Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I _{FSM}	30.0							A
Maximum Forward Voltage at 1.0A	V _{FM}	1.3							V
Maximum DC Reverse Current @TA = 25 °C at Rated DC Blocking Voltage @TA = 125 °C	I _{RM}	5 200							μA
Maximum reverse recovery time (Note 1)	t _{rr}	150				250	500		ns
Typical Junction Capacitance (Note 2)	C _J	15							pF
Typical Thermal Resistance (Note 3)	R _{μJT}	32							°C/W
Typical Thermal Resistance, Junction to Ambient	R _{μJA}	105							°C/W
Operating Temperature Range	T _j	-55 to +150							°C
Storage Temperature Range	T _{STG}	-55 to +150							°C

Notes: 1. Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A

2. Measured at 1MHz and Applied V_R=4.0V

3. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0 mm² 0.013 mm thick copper pad as heat sink.

Typical Characteristics

Figure 1: Typical Forward Characteristics

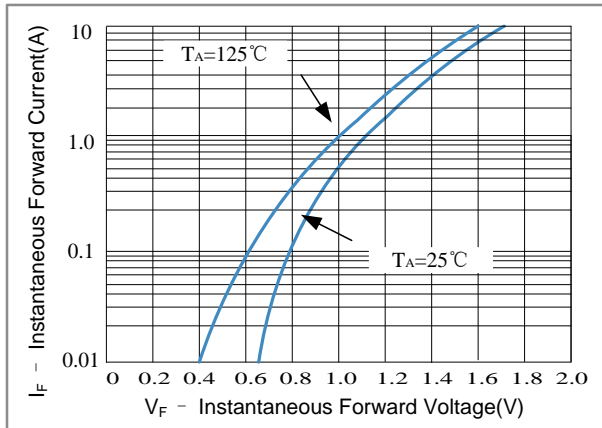


Figure 2: Forward Current Derating Curve

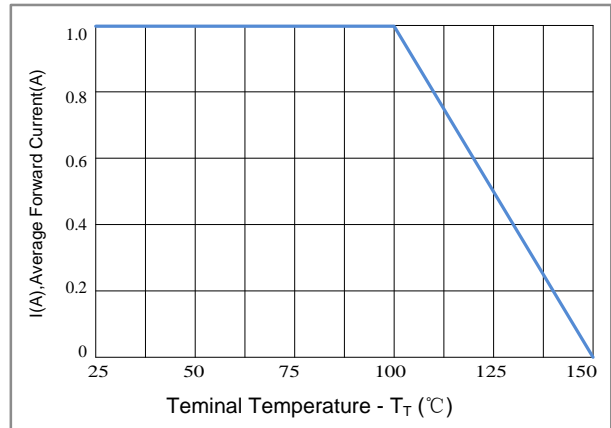


Figure 3: Typical Junction Capacitance

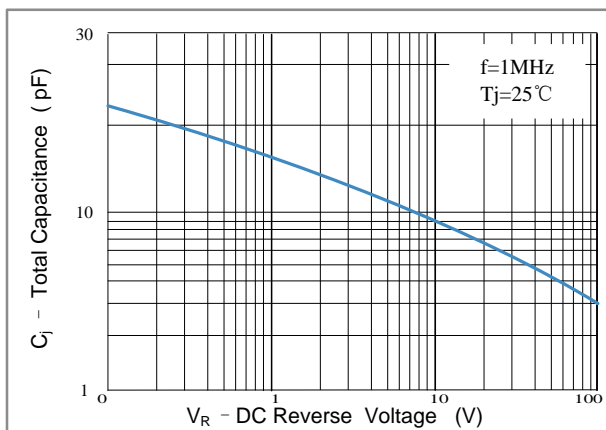


Figure 4: Max Non-Repetitive Peak Fwd Surge Current

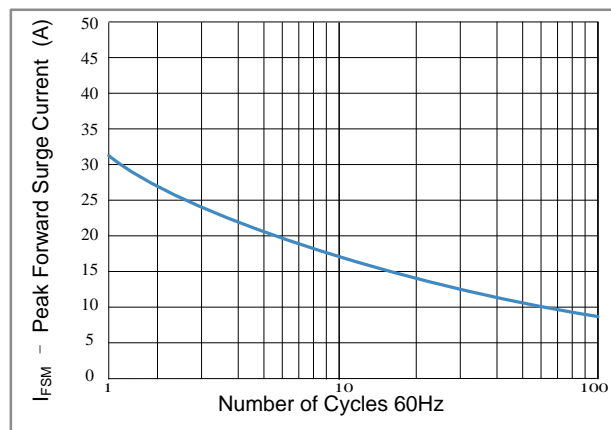
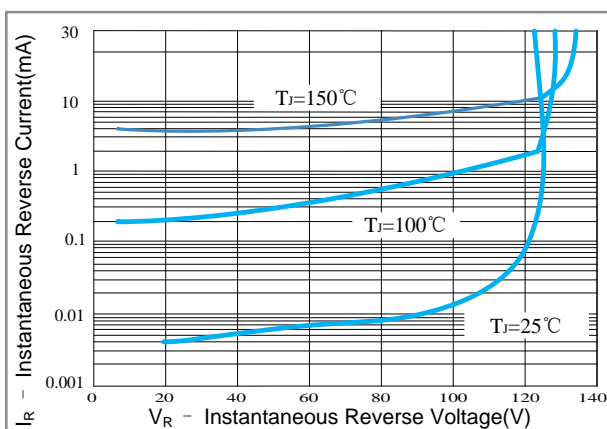
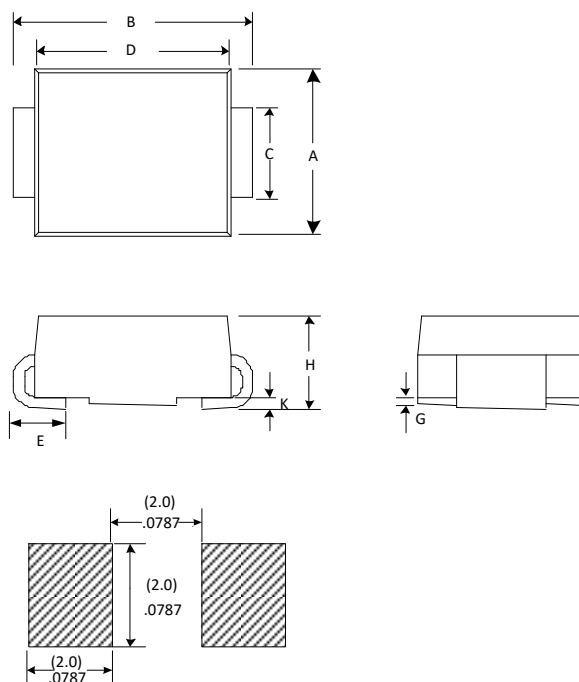


Figure 5: Typical Reverse Characteristics



Outline Drawing – SMAJ(DO-214AC)



Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.098	0.114	2.50	2.90
B	0.188	0.208	4.80	5.28
C	0.055	0.062	1.40	1.60
D	0.157	0.181	4.00	4.60
E	0.030	0.060	0.76	1.52
F	0.078	0.096	2.00	2.44
H	0.080	0.104	2.051	2.643

Packing information

Package Type	Packing Option	Packing Quantity	Industry Standard
DO-214AC	Tape&Reel-12mm/13"tape	3000 PCS	EIA STD-481

Marking information

Order code	FR1A	FR1B	FR1D	FR1G	FR1J	FR1K	FR1M
Marking	FR1A	FR1B	FR1D	FR1G	FR1J	FR1K	FR1M