

# FR1A THRU FR1M

## SURFACE MOUNT FAST RECOVERY RECTIFIER

Reverse Voltage - 50 to 1000 V

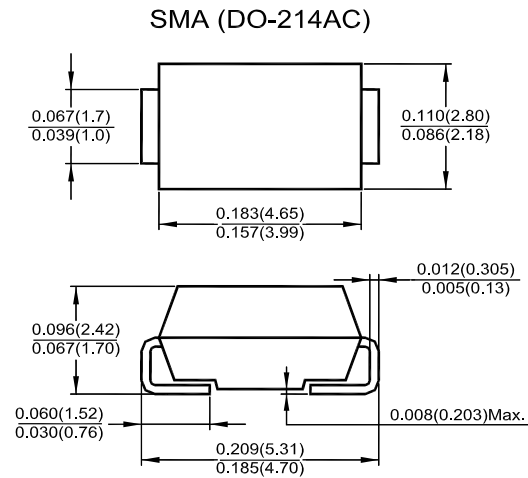
Forward Current - 1 A

### Features

- For surface mounted applications
- Low profile package
- Built-in strain relief
- Easy pick and place
- Fast Recovery times for high efficiency
- Plastic package has UL Flammability Classification 94V-0

### Mechanical Data

- Case: Molded plastic, SMA (DO-214AC)
- Terminals: Solder plated, solderable per MIL-STD-750, method 2026 guaranteed
- Polarity: color band denotes cathode end



Dimensions in inches and (millimeters)

### Maximum Ratings and Electrical Characteristics

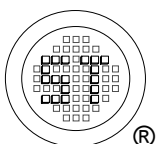
Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Symbols	FR1A	FR1B	FR1D	FR1G	FR1J	FR1K	FR1M	Units
Maximum Recurrent 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 Current $T_L = 90\text{ }^\circ\text{C}$	$I_{F(AV)}$	1							A
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC method)	$I_{FSM}$	30							A
Maximum Forward Voltage at $I_F = 1\text{ A}$	$V_F$	1.3							V
Maximum Reverse Current at $T_a = 25\text{ }^\circ\text{C}$ Rated DC Blocking Voltage $T_a = 125\text{ }^\circ\text{C}$	$I_R$	5 150							$\mu\text{A}$
Maximum Reverse Recovery Time <sup>1)</sup>	$t_{rr}$	150			250		500		ns
Typical Junction Capacitance <sup>2)</sup>	$C_J$	12							pF
Typical Thermal Resistance <sup>3)</sup>	$R_{\theta JL}$	32							$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_S$	- 55 to + 150							$^\circ\text{C}$

<sup>1)</sup> Reverse recovery test conditions:  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $I_{rr} = 0.25\text{ A}$

<sup>2)</sup> Measured at 1 MHz and applied reverse voltage of 4 V

<sup>3)</sup> Thermal resistance from junction to lead mounted on P.C.B. with 0.3 X 0.3" (8 X 8 mm) copper pad areas



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001:2004  
Certificate No. 7116



ISO 9001:2000  
Certificate No. 0506098

# FR1A THRU FR1M

## RATING AND CHARACTERISTIC CURVES

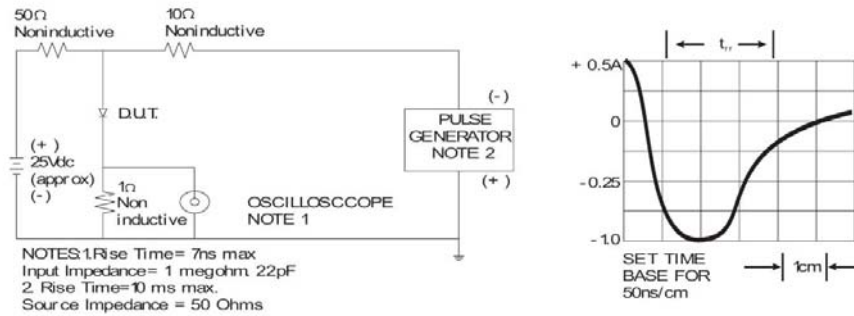


Fig. 1-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

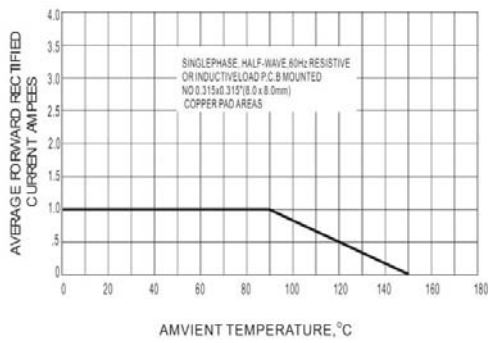


Fig. 2-MAXIMU AVERAGE FORWARD CURRENT RATING

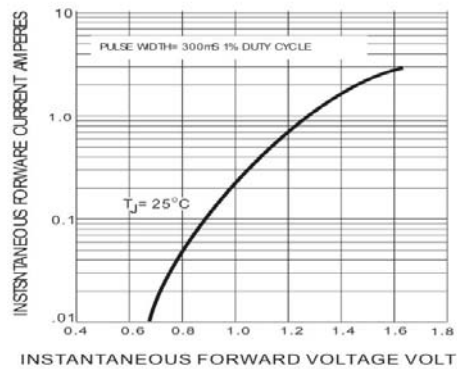


Fig. 3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

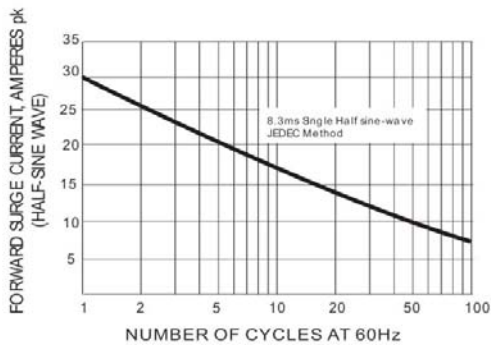


Fig.4-MAXIMUM NON-REPEITIVE SURGE CURRENT

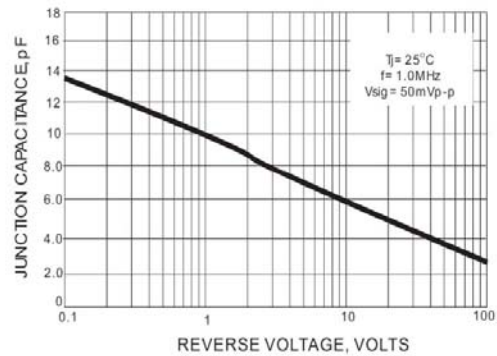
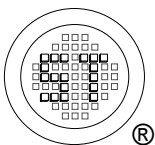


Fig.5- TYPICAL JUNCTION CAPACITANCE



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001:2004  
Certificate No. 7116



ISO 9001:2000  
Certificate No. 0506098