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FR1Q Thru FR1ZZ

Features

- For Surface Mount Applications
- Extremely Low Thermal Resistance
- High Temp Soldering: 250°C for 10 Seconds At Terminals
- Fast Recovery Times For High Efficiency
- Gull Wing Lead Bend To Prevent Arcing
- Perfect For Ballast, Television And Monitor Applications

Maximum Ratings

- Operating Temperature: -50°C to +150°C
- Storage Temperature: -50°C to +150°C
- Maximum Thermal Resistance; 15°C/W Junction To Lead

Microsemi Part Number	Device Marking	Maximum Recurrent Peak Reverse Voltage	Maximum RMS Voltage	Maximum DC Blocking Voltage
FR1Q	FR1Q	1200V	840V	1200V
FR1V	FR1V	1400V	980V	1400V
FR1Y	FR1Y	1600V	1120V	1600V
FR1Z	FR1Z	1800V	1260V	1800V
FR1ZZ	FR1ZZ	2000V	1400V	2000V

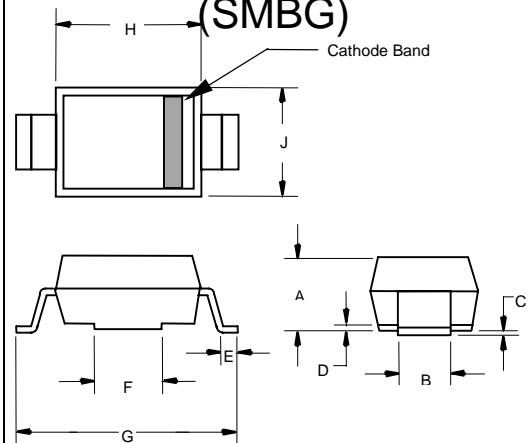
Electrical Characteristics @ 25°C Unless Otherwise Specified

Average Forward Current	$I_{F(AV)}$	1.0A	$T_J = 55^\circ\text{C}$
Peak Forward Surge Current	I_{FSM}	30A	8.3ms, half sine
Maximum Instantaneous Forward Voltage FR1Q-FR1Y FR1Z-FR1ZZ	V_F	1.35V 1.50V	$I_{FM} = 1.0\text{A};$ $T_J = 25^\circ\text{C}^*$
Maximum DC Reverse Current At Rated DC Blocking Voltage	I_R	5 μA 30 μA	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$
Maximum Reverse Recovery Time FR1Q-FR1Y FR1Z-FR1ZZ	T_{rr}	300ns 500ns	$I_F=0.5\text{A}, I_R=1.0\text{A},$ $I_{rr}=0.25\text{A}$
Typical Junction Capacitance	C_J	45pF	Measured at 1.0MHz, $V_R=4.0\text{V}$

*Pulse test: Pulse width 200 μsec , Duty cycle 2%

1 Amp Fast Recovery Silicon Rectifier 1200 to 2000 Volts

DO-215AA (SMBG)



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.075	.095	1.90	2.42	
B	.081	.087	2.06	2.21	
C	.004	.008	.10	.20	
D	---	.02	---	.51	
E	.015	.03	.38	.76	
F	.065	.084	1.65	2.13	
G	.235	.255	5.97	6.48	
H	.160	.180	4.06	4.57	
J	.130	.155	3.30	3.94	

SUGGESTED SOLDER PAD LAYOUT

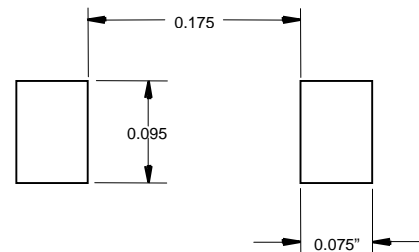
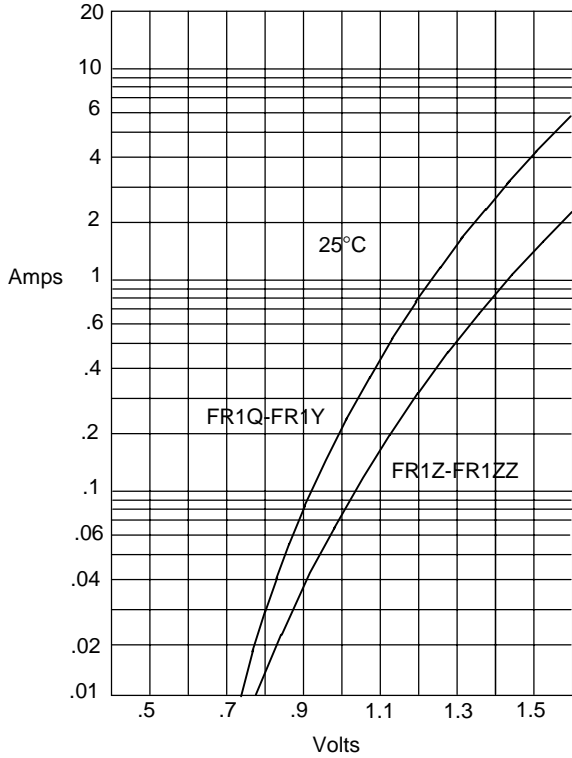
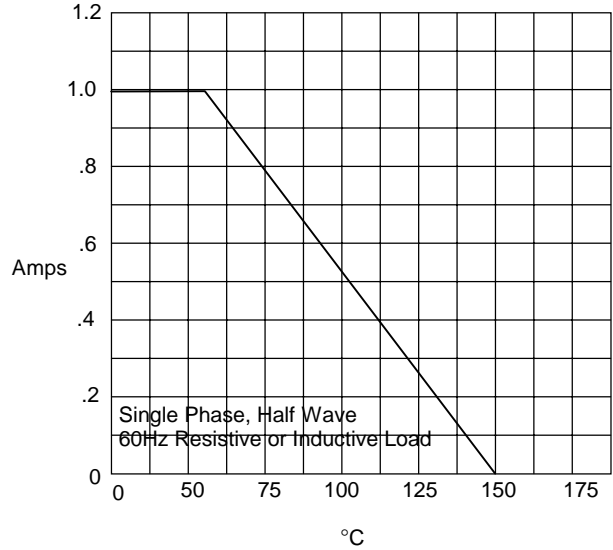


Figure 1
Typical Forward Characteristics



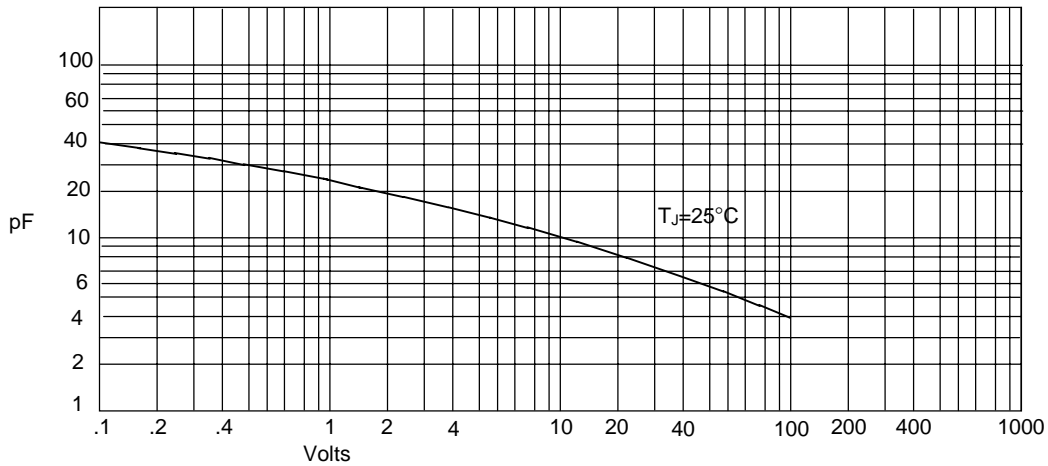
Instantaneous Forward Current - Amperes *versus* Instantaneous Forward Voltage - Volts

Figure 2
Forward Derating Curve



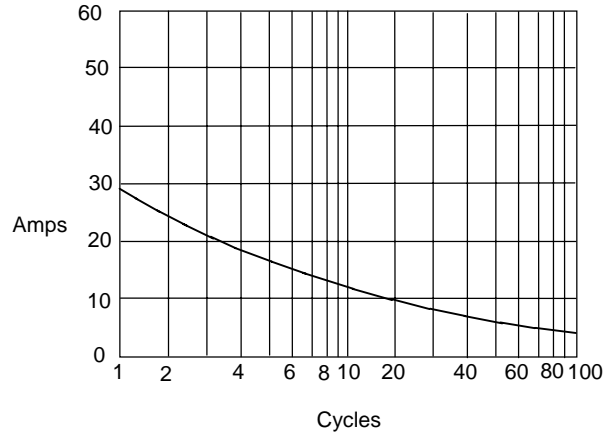
Average Forward Rectified Current - Amperes *versus* Ambient Temperature - °C

Figure 3
Junction Capacitance



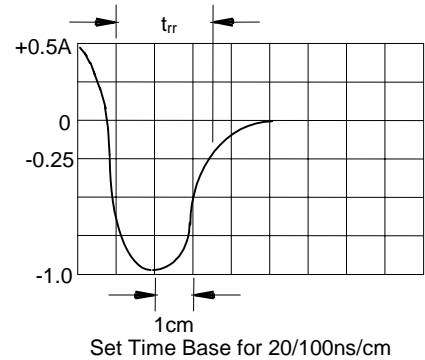
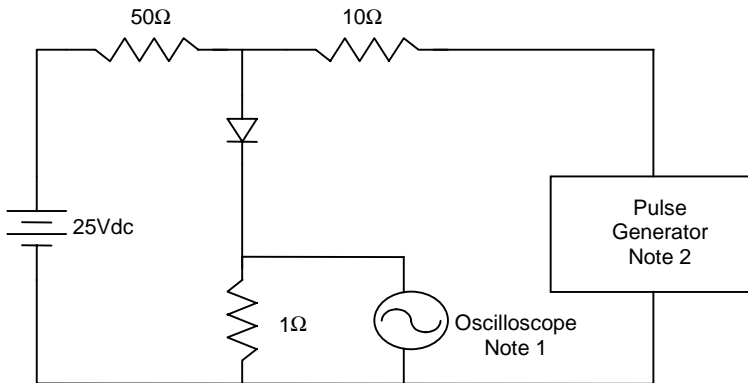
Junction Capacitance - pF *versus* Reverse Voltage - Volts

Figure 4
Peak Forward Surge Current



Peak Forward Surge Current - Amperes versus
Number Of Cycles At 60Hz - Cycles

Figure 5
Reverse Recovery Time Characteristic And Test Circuit Diagram



- Notes:
1. Rise Time = 7ns max.
Input impedance = 1 megohm, 22pF
 2. Rise Time = 10ns max.
Source impedance = 50 ohms
 3. Resistors are non-inductive