

**NOT RECOMMENDED FOR NEW DESIGNS
USE FR1A-LTP~FR1M-LTP**



Micro Commercial Components



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**FR1A
THRU
FR1M**

Features

- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Easy Pick And Place
- High Temp Soldering: 260°C for 10 Seconds At Terminals
- Superfast Recovery Times For High Efficiency
- Halogen free available upon request by adding suffix "-HF"

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

| MCC Catalog Number | Device Marking | Maximum Recurrent Peak Reverse Voltage | Maximum RMS Voltage | Maximum DC Blocking Voltage |
|--------------------|----------------|--|---------------------|-----------------------------|
| FR1A | FR1A | 50V | 35V | 50V |
| FR1B | FR1B | 100V | 70V | 100V |
| FR1D | FR1D | 200V | 140V | 200V |
| FR1G | FR1G | 400V | 280V | 400V |
| FR1J | FR1J | 600V | 420V | 600V |
| FR1K | FR1K | 800V | 560V | 800V |
| FR1M | FR1M | 1000V | 700V | 1000V |

Electrical Characteristics @ 25°C Unless Otherwise Specified

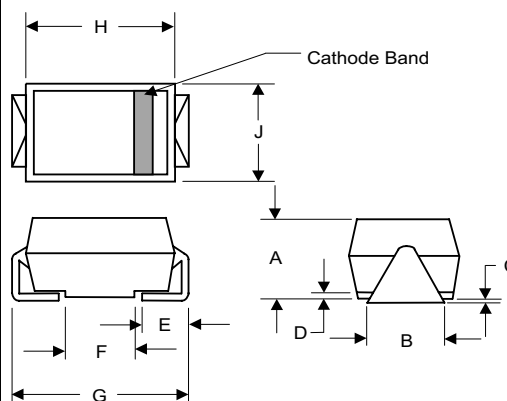
| | | | |
|---|-------------|--------------------------------------|---|
| Average Forward current | $I_{F(AV)}$ | 1.0A | $T_a = 90^\circ\text{C}$ |
| Peak Forward Surge Current | I_{FSM} | 30A | 8.3ms, half sine |
| Maximum Instantaneous Forward Voltage | V_F | 1.30V | $I_{FM} = 1.0\text{A}; T_J = 25^\circ\text{C}^*$ |
| Maximum DC Reverse Current At Rated DC Blocking Voltage | I_R | 5 μA 200 μA | $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ |
| Maximum Reverse Recovery Time | T_{rr} | 150ns 250ns 500ns | $I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$ |
| Typical Junction Capacitance | C_J | 12pF | Measured at 1.0MHz, $V_R = 4.0\text{V}$ |

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

Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.

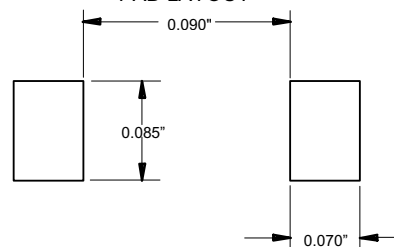
**1 Amp Fast Recovery
Silicon Rectifier
50 to 1000 Volts**

**DO-214AA
(HSMB) (Round Lead)**



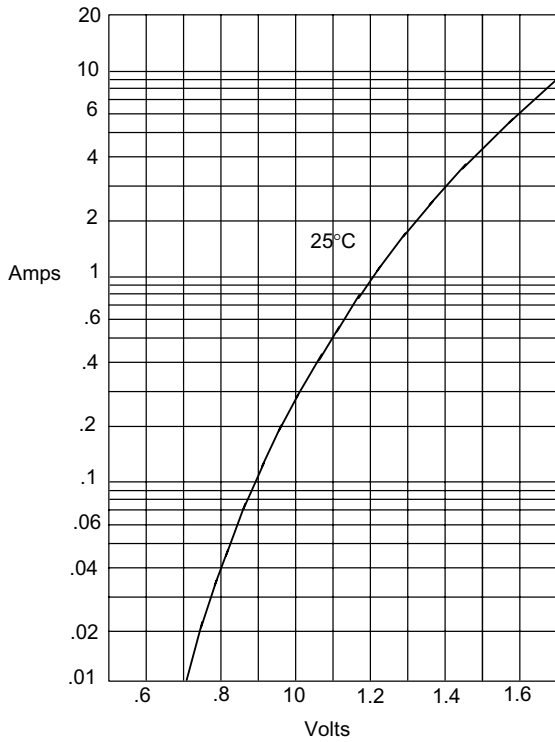
| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|------|------|------|------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | .078 | .116 | 1.98 | 2.95 | |
| B | .075 | .089 | 1.90 | 2.25 | |
| C | .002 | .008 | .05 | .20 | |
| D | --- | .02 | --- | .51 | |
| E | .035 | .055 | .90 | 1.40 | |
| F | .065 | .091 | 1.65 | 2.32 | |
| G | .205 | .224 | 5.21 | 5.69 | |
| H | .160 | .180 | 4.06 | 4.57 | |
| J | .130 | .155 | 3.30 | 3.94 | |

**SUGGESTED SOLDER
PAD LAYOUT**



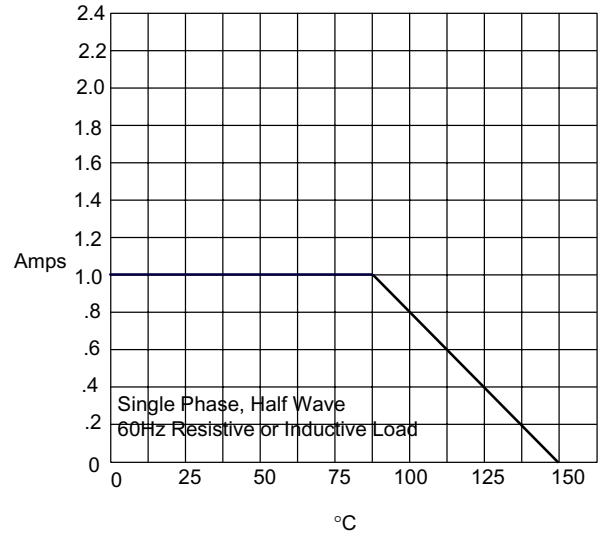
FR1A thru FR1M

Figure 1
Typical Forward Characteristics



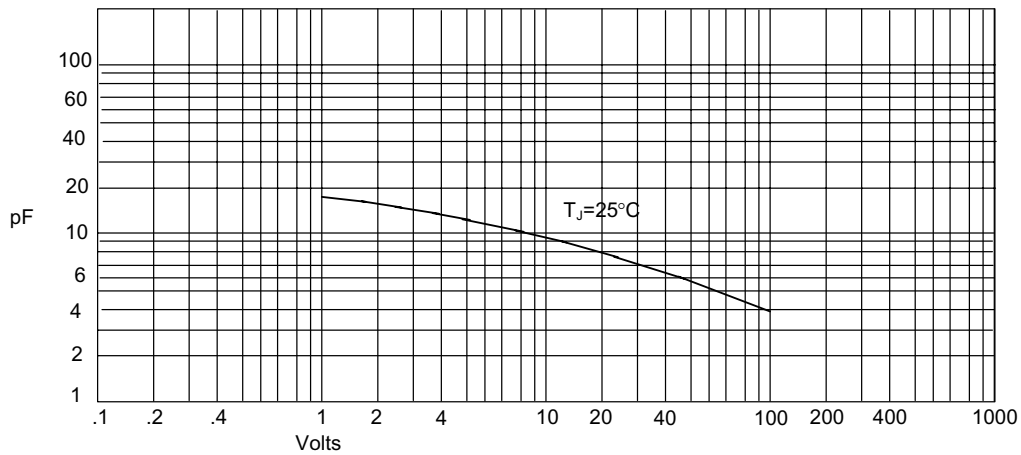
Instantaneous Forward Current - Amperes versus
Instantaneous Forward Voltage - Volts

Figure 2
Forward Derating Curve



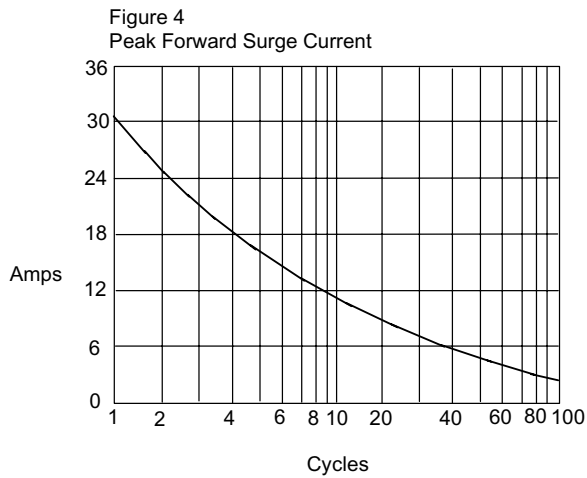
Average Forward Rectified Current - Amperes versus
Ambient Temperature - °C

Figure 3
Junction Capacitance



Junction Capacitance - pF versus
Reverse Voltage - Volts

FR1A thru FR1M



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

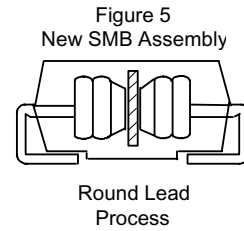
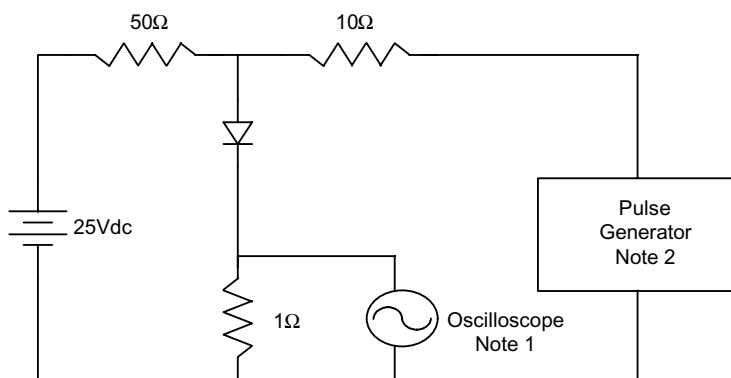
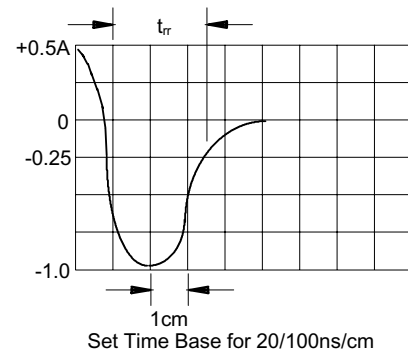


Figure 6
Reverse Recovery Time Characteristic And Test Circuit Diagram



- 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





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Ordering Information :

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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