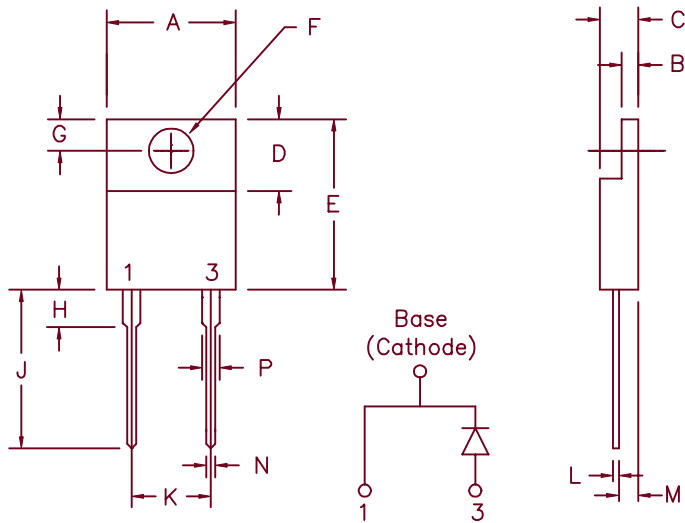


# 10 Amp Schottky Barrier Rectifiers MS1003 — MS1004



| Dim. | Inches  |         | Millimeter |         | Notes |
|------|---------|---------|------------|---------|-------|
|      | Minimum | Maximum | Minimum    | Maximum |       |
| A    | .390    | .415    | 9.91       | 10.54   |       |
| B    | .045    | .055    | 1.14       | 1.40    |       |
| C    | .180    | .190    | 4.57       | 4.83    |       |
| D    | .245    | .260    | 6.22       | 6.60    |       |
| E    | .550    | .650    | 13.97      | 16.51   |       |
| F    | .139    | .155    | 3.53       | 3.94    | Dia.  |
| G    | .100    | .120    | 2.54       | 3.05    |       |
| H    | ---     | .250    | ---        | 6.35    |       |
| J    | .500    | .580    | 12.70      | 14.73   |       |
| K    | .190    | .210    | 4.83       | 5.33    |       |
| L    | .014    | .025    | 0.35       | 0.63    |       |
| M    | .080    | .115    | 2.03       | 2.92    |       |
| N    | .028    | .038    | 0.71       | 0.96    |       |
| P    | .045    | .055    | 1.14       | 1.40    |       |

Similar to TO-220AC

| Microsemi Catalog Number | Industry Part Number      | Repetitive Peak Reverse Voltage | Transient Peak Reverse Voltage |
|--------------------------|---------------------------|---------------------------------|--------------------------------|
| MS1003                   | MBR730<br>MBR1030         | 30V                             | 30V                            |
| MS1004                   | 6TQ035, 6TQ040<br>10TQ040 | 40V                             | 40V                            |

- Schottky barrier rectifier
- Guard ring protection
- Low power loss, high efficiency
- $V_{RRM}$  30 to 40 Volts
- Reverse energy tested

## Electrical Characteristics

|                              |                            |  |
|------------------------------|----------------------------|--|
| Average Forward Current      | $I_F(AV)$ 10 Amps          | $T_C = 158^\circ\text{C}$ , Square wave, $R_{\theta JC} = 2.5^\circ\text{C/W}$ |
| Maximum Surge Current        | $I_{FSM}$ 225 Amps         | 8.3ms, half sine, $T_J = 175^\circ\text{C}$                                    |
| Max. Peak Forward Voltage    | $V_{FM}$ .48 Volts         | $I_{FM} = 10\text{A}$ , $T_J = 175^\circ\text{C}^*$                            |
| Max. Peak Forward Voltage    | $V_{FM}$ .65 Volts         | $I_{FM} = 10\text{A}$ , $T_J = 25^\circ\text{C}^*$                             |
| Max. Peak Reverse Current    | $I_{RM}$ 10 mA             | $V_{RRM}$ , $T_J = 125^\circ\text{C}^*$  |
| Max. Peak Reverse Current    | $I_{RM}$ 250 $\mu\text{A}$ | $V_{RRM}$ , $T_J = 25^\circ\text{C}$   |
| Typical Junction Capacitance | $C_J$ 660 pF               | $V_R = 5.0\text{V}$ , $T_J = 25^\circ\text{C}$                                 |

\*Pulse test: Pulse width 300  $\mu\text{sec}$ . Duty cycle 2%

## Thermal and Mechanical Characteristics

|                               |                 |   |
|-------------------------------|-----------------|---|
| Storage temp range            | $T_{STG}$       | $-55^\circ\text{C}$ to $+175^\circ\text{C}$ |
| Operating junction temp range | $T_J$           | $-55^\circ\text{C}$ to $+175^\circ\text{C}$ |
| Max thermal resistance        | $R_{\theta JC}$ | $2.5^\circ\text{C/W}$ Junction to case      |
| Mounting torque               |                 | 8-12 inch pounds 6-32 screw                 |
| Weight                        |                 | .08 ounces (2.3 grams) typical              |

# MS1003 — MS1004

Figure 1  
Typical Forward Characteristics

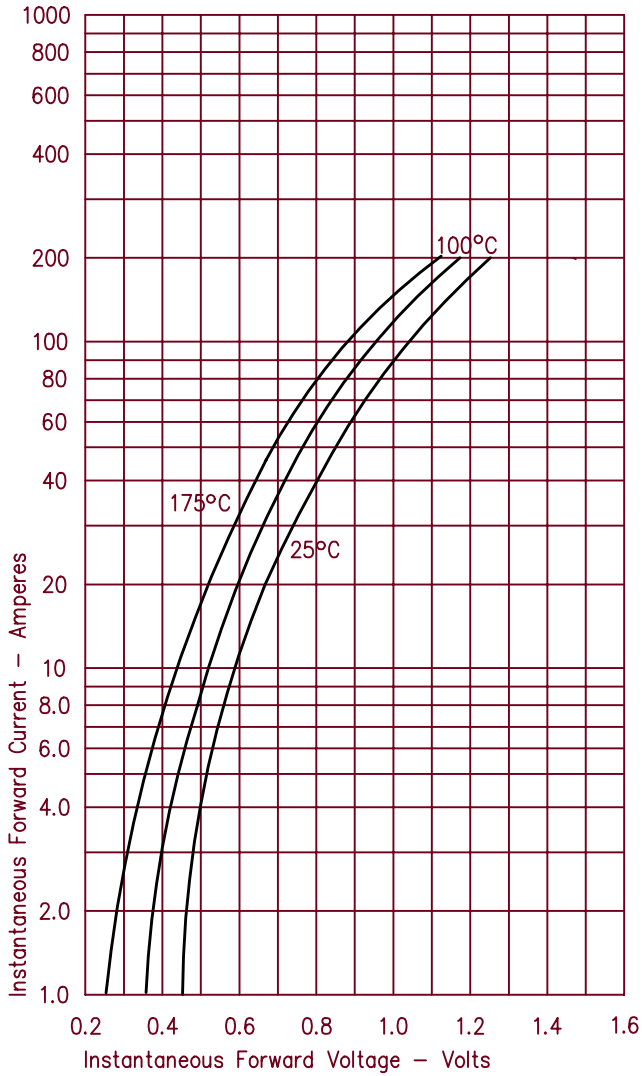


Figure 3  
Typical Junction Capacitance

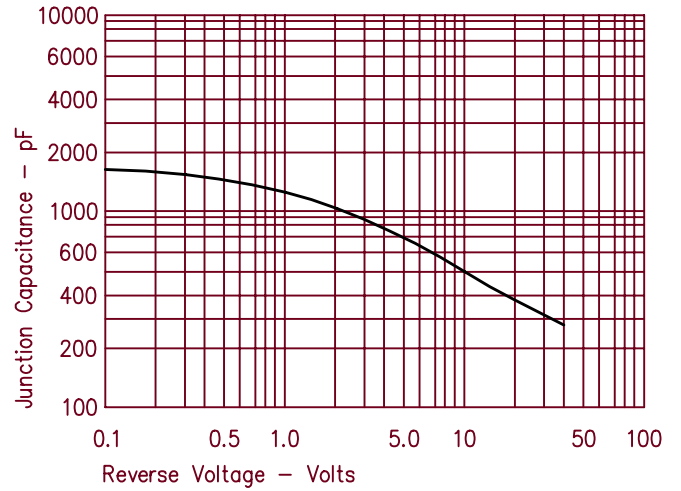


Figure 4  
Forward Current Derating

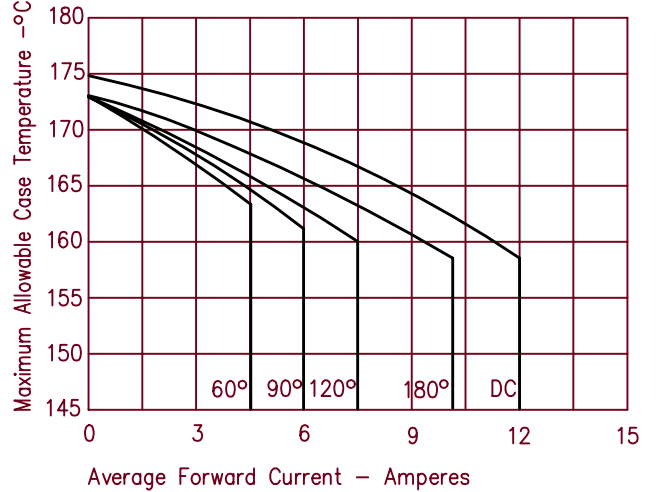


Figure 2  
Typical Reverse Characteristics

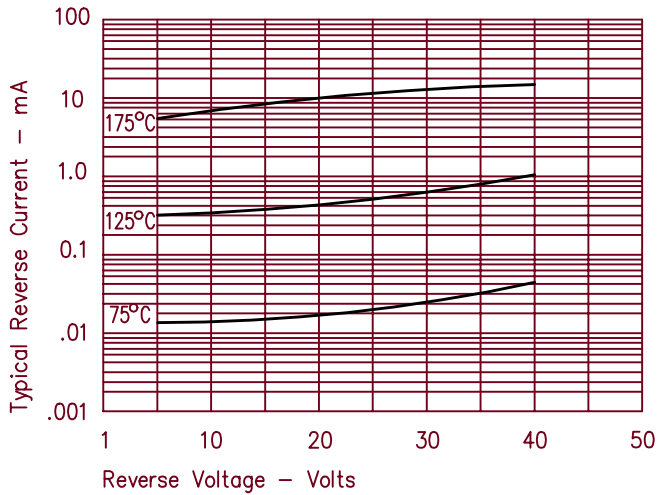


Figure 5  
Maximum Forward Power Dissipation

