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|---|----------------|
|  | E502650 |
|---|----------------|

Features

- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Glass Passivated Chip Junction
- Moisture Sensitivity Level 1
- Surface Mount Package
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note 1)("P" Suffix Designates RoHS Compliant. See Ordering Information)

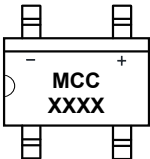
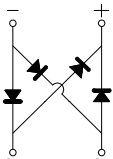
Maximum Ratings @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Value | | | | | | | Unit |
|--|--------------------|--|-------|-------|-------|-------|-------|--------|------------------|
| | | MB 05S | MB 1S | MB 2S | MB 4S | MB 6S | MB 8S | MB 10S | |
| Peak Repetitive Reverse Voltage | V _{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Working Peak Reverse Voltage | V _{RWM} | | | | | | | | |
| DC Blocking Voltage | V _R | | | | | | | | |
| RMS Reverse Voltage | V _{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Average Rectified Forward Current @ See Fig.1 | I _{F(AV)} | 0.5 ^(Note 2) 0.8 ^(Note 3) | | | | | | | A |
| Non-Repetitive Peak Surge Current @ 8.3ms Half Sine Wave | I _{FSM} | 35 | | | | | | | A |
| Non-Repetitive Peak Surge Current @ 1ms Square Wave | | 60 | | | | | | | |
| Current Squared Time @1ms≤t≤8.3ms | I ² t | 5 | | | | | | | A ² s |

Marking Code

| Part Number | Marking Code |
|-------------|--------------|
| MB05S | MB05S |
| MB1S | MB1S |
| MB2S | MB2S |
| MB4S | MB4S |
| MB6S | MB6S |
| MB8S | MB8S |
| MB10S | MB10S |

Internal Structure

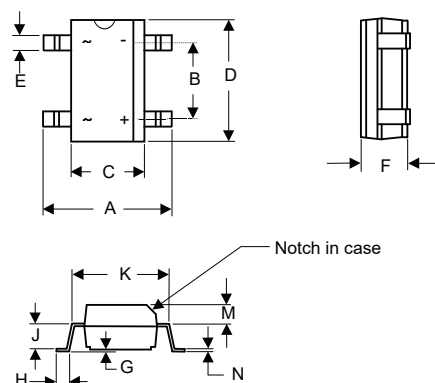
| Simplified Outline | Graphic Symbol |
|--|---|
|  <p>XXXX = Marking Code</p> |  |

Note:

- 1.High temperature solder exemption applied, see EU directive annex 7a.
- 2.On glass epoxy P.C.B. mounted on 0.05 x 0.05"(1.3 x 1.3mm)pads
- 3.On aluminum substrate P.C.B. with an area of 0.8" x 0.8"(20 x 20mm) mounted on 0.05 x 0.05"(1.3x 1.3mm) solder pad

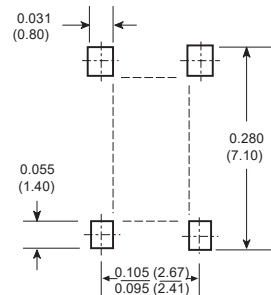
0.5 Amp Single Phase Bridge Rectifier 50 to 1000 Volts

MBS-1



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.252 | 0.276 | 6.40 | 7.00 | |
| B | 0.095 | 0.106 | 2.41 | 2.70 | |
| C | 0.142 | 0.165 | 3.60 | 4.20 | |
| D | 0.179 | 0.195 | 4.55 | 4.95 | |
| E | 0.019 | 0.031 | 0.50 | 0.80 | |
| F | 0.090 | 0.106 | 2.30 | 2.70 | |
| G | 0.002 | 0.008 | 0.05 | 0.20 | |
| H | 0.027 | 0.043 | 0.70 | 1.10 | |
| J | 0.058 | 0.062 | 1.47 | 1.57 | |
| K | 0.195 | 0.205 | 4.95 | 5.21 | |
| M | 0.039 | 0.049 | 0.99 | 1.24 | |
| N | 0.006 | 0.016 | 0.15 | 0.41 | |

Suggested Solder Pad Layout



Thermal characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---------------|---|------------|-----|-----|-----|------|
| T_J | Operating Junction Temperature Range | | -55 | | 150 | °C |
| T_{stg} | Storage Temperature Range | | -55 | | 150 | °C |
| $R_{th(J-L)}$ | Thermal Resistance from Junction to Lead | Note 1 | | 20 | | °C/W |
| $R_{th(J-A)}$ | Thermal Resistance from Junction to Ambient | Note 1 | | 80 | | °C/W |
| $R_{th(J-A)}$ | Thermal Resistance from Junction to Ambient | Note 2 | | 70 | | °C/W |

Note:

1. On glass epoxy P.C.B. mounted on 0.05 x 0.05" (1.3 x 1.3mm) pads.

2. On aluminum substrate P.C.B. with an area of 0.8" x 0.8" (20 x 20mm) mounted on 0.05 x 0.05" (1.3 x 1.3mm) solder pad.

Electrical Characteristics @ 25°C Unless Otherwise Specified(Per Diode)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|----------------------|--------|---|-----|-----|----------|---------|
| Forward Voltage | V_F | $I_F=0.4A; T_J=25^{\circ}C$ | | | 1.0 | V |
| Reverse Current | I_R | at Rated $V_R; T_J=25^{\circ}C$ at Rated $V_R; T_J=125^{\circ}C$ | | | 5 100 | μA |
| Junction Capacitance | C_J | $V_R=4V; f=1MHz; T_J=25^{\circ}C$ | | 13 | 35 | pF |

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

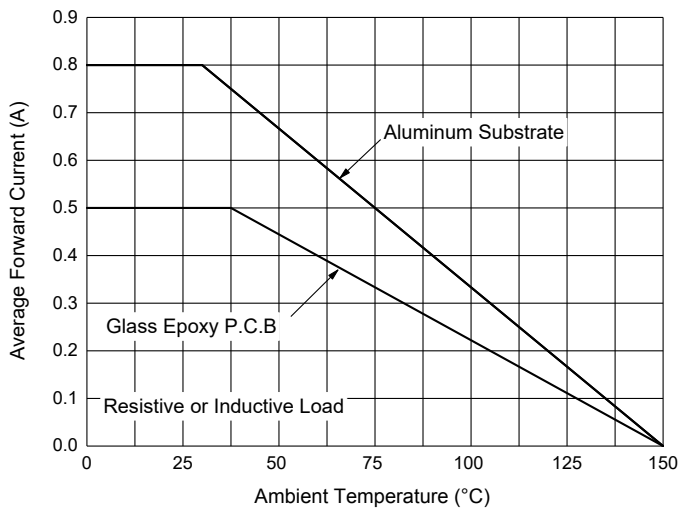


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

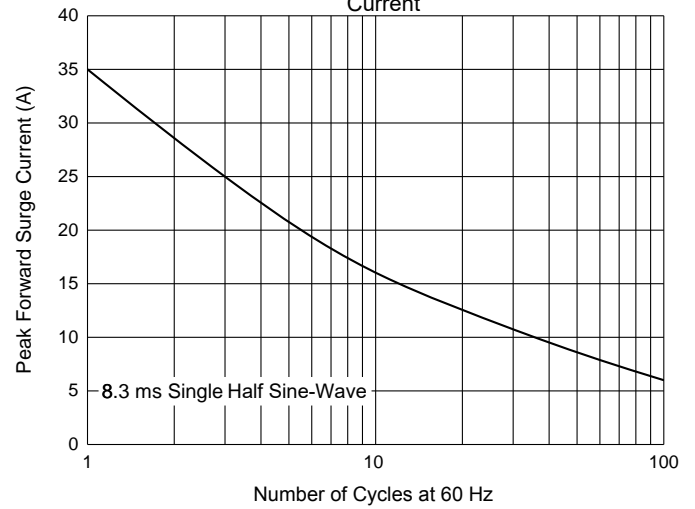


Fig. 3 - Typical Forward Characteristics

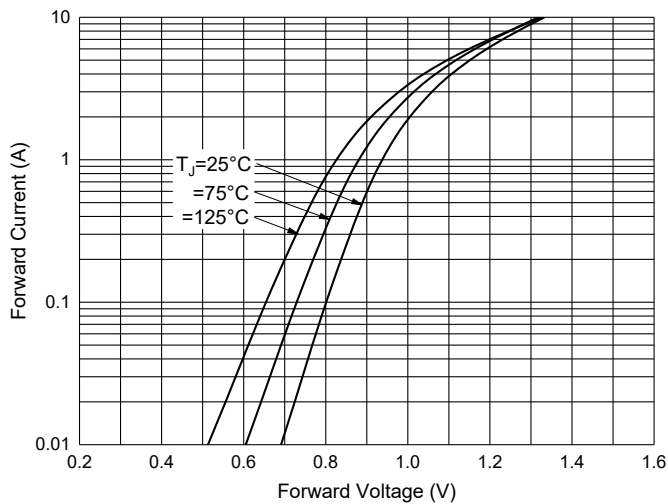


Fig. 4 - Typical Reverse Leakage Characteristics

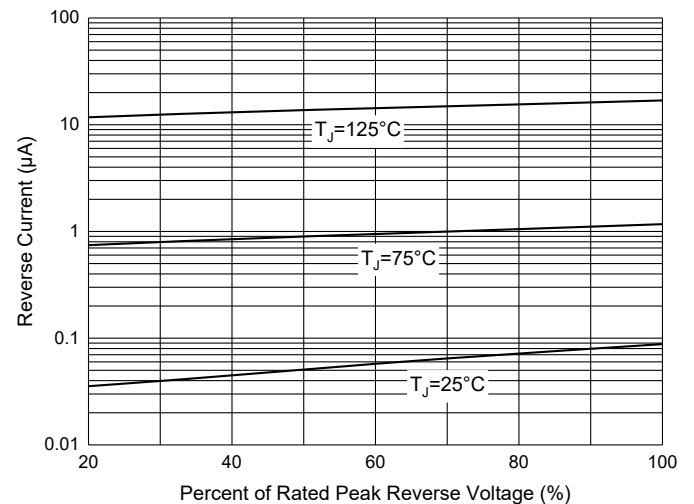
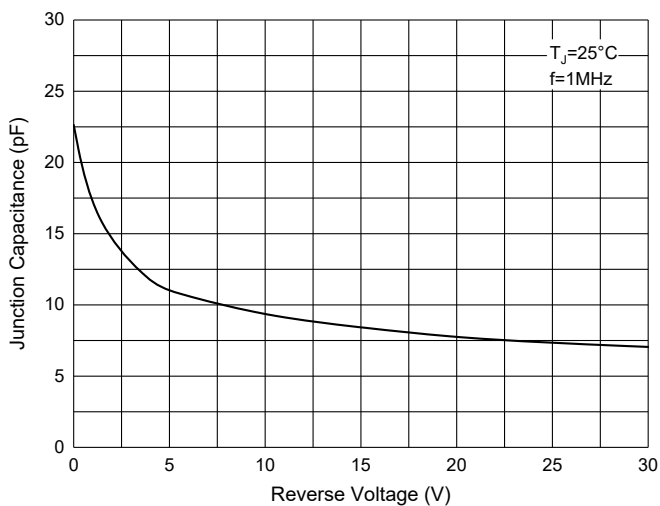


Fig. 5 - Typical Capacitance Characteristics



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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