

**$V_{RM} = 400\text{ V}$ ,  $I_{F(AV)} = 1.0\text{ A}$**   
**General-purpose Rectifier Diode**  
**EM01**

**Description**

The EM01 is a 400 V, 1.0 A general-purpose rectifier diode with low loss characteristics. This rectifier diode is for a commercial power supply.

**Features**

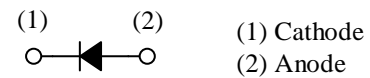
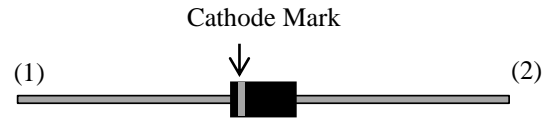
- $V_{RM}$ ----- 400 V
- $I_{F(AV)}$ ----- 1.0 A
- $V_F$  ( $I_F = 1.0\text{ A}$ )----- 0.90 V typ.
- Bare Leads: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0

**Applications**

- Rectification Circuit
- Reverse Protection Circuit

**Package**

Axial ( $\phi 2.7 \times 5.0L / \phi 0.6$ )



Not to scale

## Absolute Maximum Ratings

Unless otherwise specified,  $T_A = 25\text{ }^\circ\text{C}$ .

| Parameter                          | Symbol      | Conditions   | Rating     | Unit                 |
|------------------------------------|-------------|--|------------|----------------------|
| Nonrepetitive Peak Reverse Voltage | $V_{RSM}$   |  | 450        | V                    |
| Repetitive Peak Reverse Voltage    | $V_{RM}$    |  | 400        | V                    |
| Average Forward Current            | $I_{F(AV)}$ | See Figure 2 and Figure 3.                         | 1.0        | A                    |
| Surge Forward Current              | $I_{FSM}$   | Half cycle sine wave, positive side, 10 ms, 1 shot | 45         | A                    |
| $I^2t$ Limiting Value              | $I^2t$      | $1\text{ ms} \leq t \leq 10\text{ ms}$             | 10.1       | $\text{A}^2\text{s}$ |
| Junction Temperature               | $T_J$       |  | -40 to 150 | $^\circ\text{C}$     |
| Storage Temperature                | $T_{STG}$   |  | -40 to 150 | $^\circ\text{C}$     |

## Electrical Characteristics

Unless otherwise specified,  $T_A = 25\text{ }^\circ\text{C}$ .

| Parameter                                      | Symbol        | Conditions                                      | Min. | Typ. | Max. | Unit               |
|--|---------------|---|------|------|------|--------------------|
| Forward Voltage Drop                           | $V_F$         | $I_F = 1.0\text{ A}$                            | —    | 0.90 | 0.97 | V                  |
| Reverse Leakage Current                        | $I_R$         | $V_R = V_{RM}$                                  | —    | —    | 10   | $\mu\text{A}$      |
| Reverse Leakage Current under High Temperature | $H \cdot I_R$ | $V_R = V_{RM}, T_J = 100\text{ }^\circ\text{C}$ | —    | —    | 50   | $\mu\text{A}$      |
| Thermal Resistance <sup>(1)</sup>              | $R_{th(J-L)}$ | See Figure 1.                                   | —    | —    | 20   | $^\circ\text{C/W}$ |

## Mechanical Characteristics

| Parameter      | Conditions | Min. | Typ. | Max. | Unit |
|----------------|------------|------|------|------|------|
| Package Weight |            | —    | 0.2  | —    | g    |

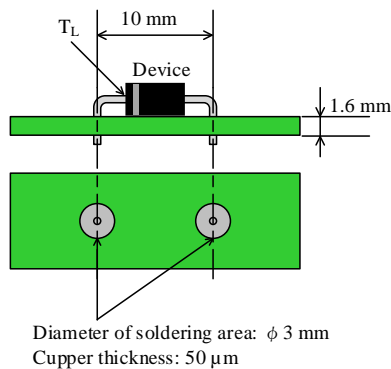


Figure 1. Lead Temperature Measurement Conditions

<sup>(1)</sup>  $R_{th(J-L)}$  is thermal resistance between junction and lead. Lead temperature ( $T_L$ ) is measured near the root of pin (see Figure 1).

Derating Curves

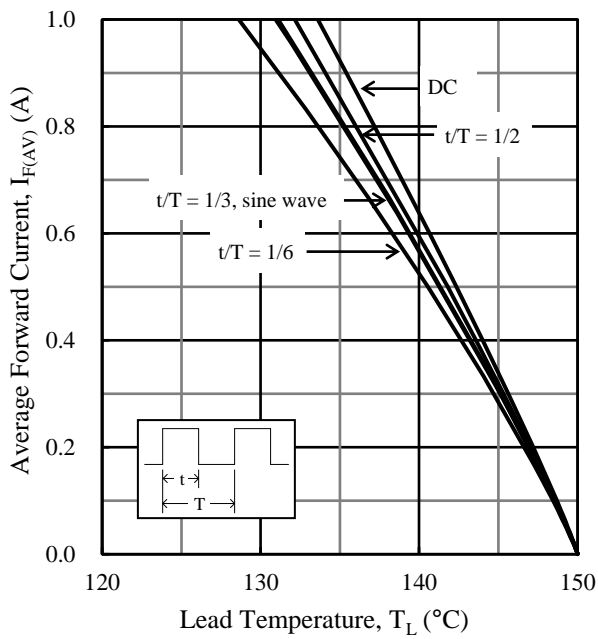


Figure 2.  $I_{F(AV)}$  vs.  $T_L$  ( $T_J = 150$  °C,  $V_R = 0$  V)

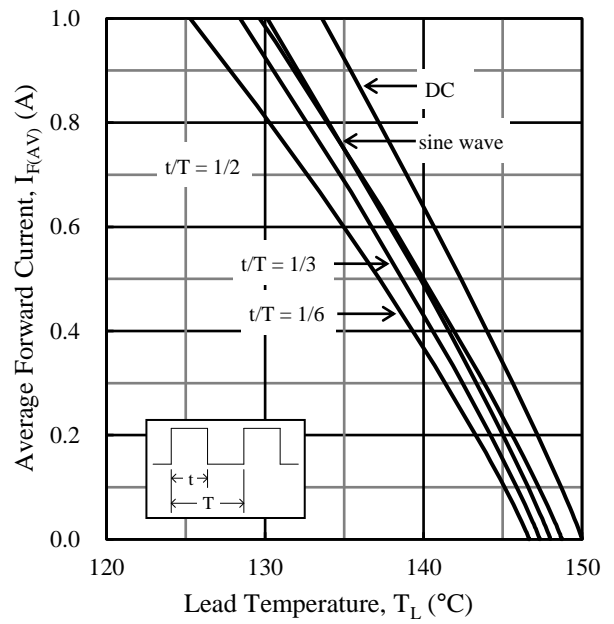


Figure 3.  $I_{F(AV)}$  vs.  $T_L$  ( $T_J = 150$  °C,  $V_R = 400$  V)

Characteristic Curves

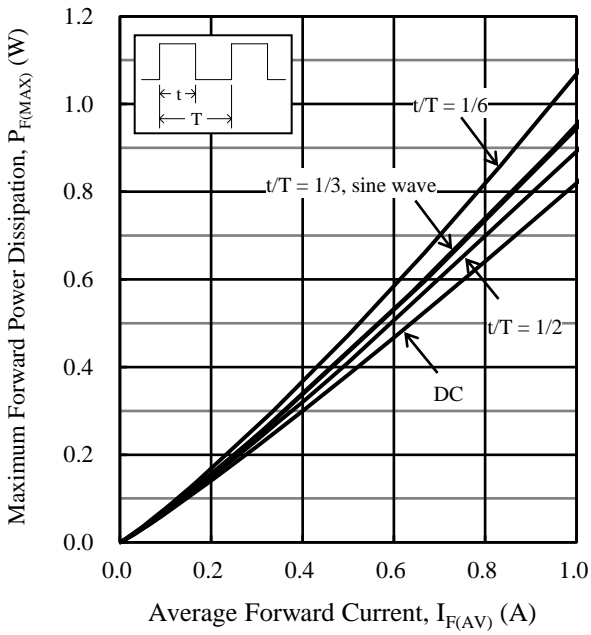


Figure 4.  $P_{F(MAX)}$  vs.  $I_{F(AV)}$  ( $T_J = 150\text{ }^\circ\text{C}$ )

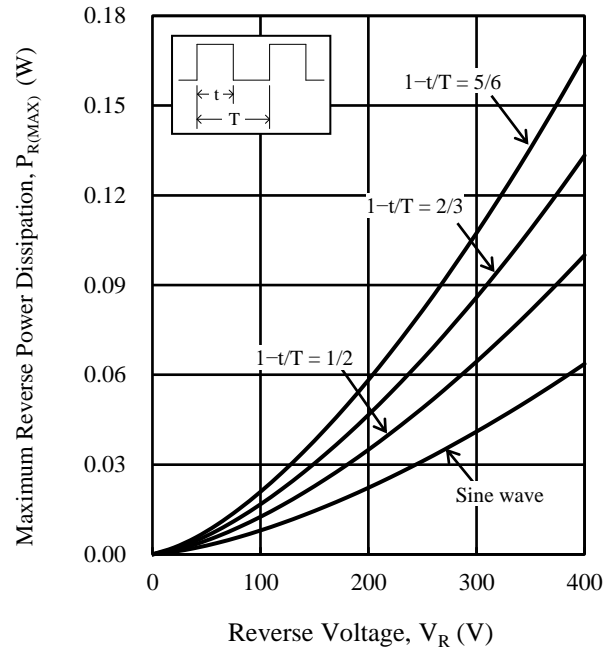


Figure 5.  $P_{R(MAX)}$  vs.  $V_R$  ( $T_J = 150\text{ }^\circ\text{C}$ )

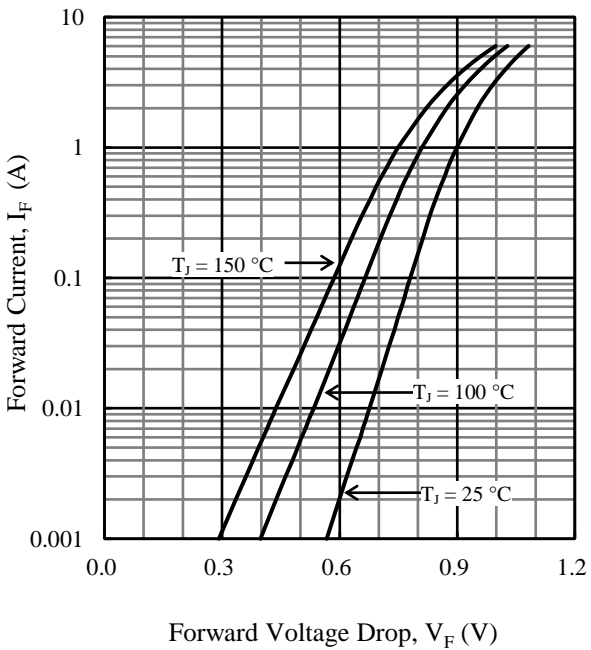


Figure 6. Typical Characteristics:  $I_F$  vs.  $V_F$

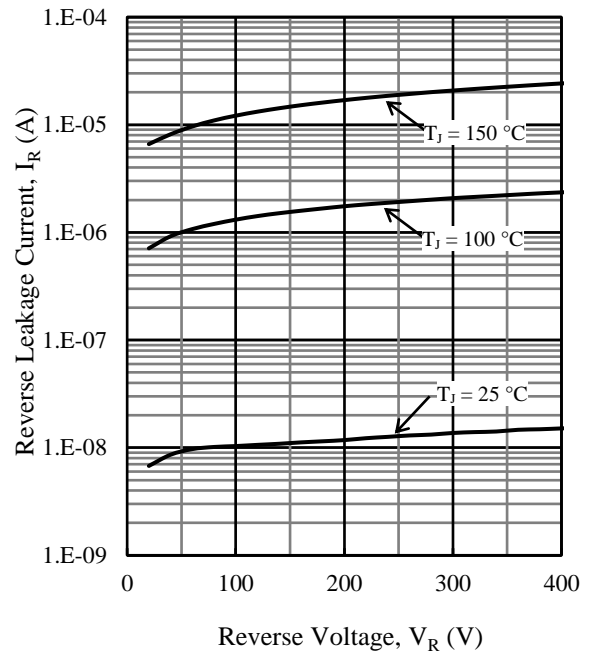


Figure 7. Typical Characteristics:  $I_R$  vs.  $V_R$

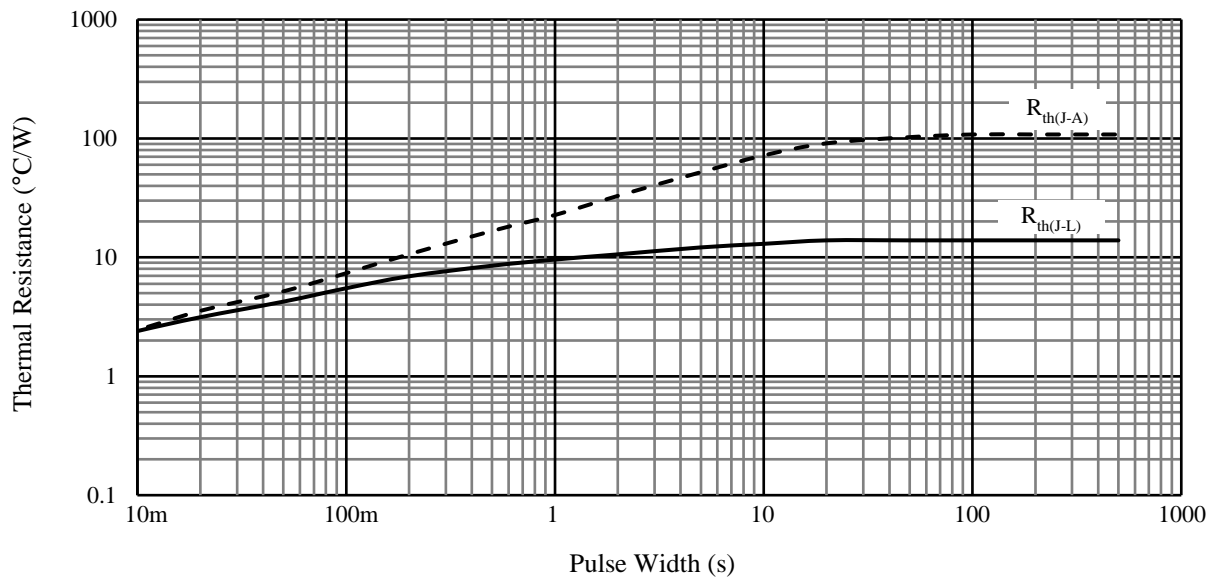
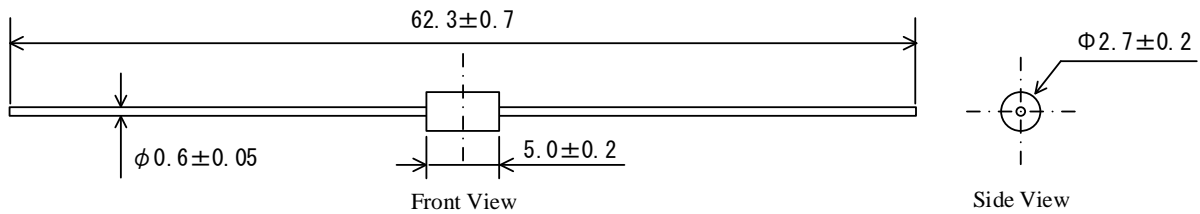


Figure 8. Typical Transient Thermal Resistance Characteristics

# EM01

## Physical Dimensions

- Axial ( $\phi 2.7 \times 5.0L / \phi 0.6$ )



## NOTES:

- Dimensions in millimeters
- Bare leads: Pb-free (RoHS compliant)
- The total length of the product is the dimension when delivered separately and depends on the taping and lead forming specifications.
- The allowance position of body against the center of the total length of the product is 0.5 mm (max.); see Front View.
- The allowance position of lead against the center of body is 0.2 mm (max.); see Side View.
- The burr may exist up to 2 mm from the body of lead root.
- When soldering the products, it is required to minimize the working time within the following limits:  
 Flow:  $260\text{ }^{\circ}\text{C} / 10\text{ s}$ , 1 time  
 Soldering Iron:  $350\text{ }^{\circ}\text{C} / 3.5\text{ s}$ , 1 time (Soldering should be at a distance of at least 1.5 mm from the body of the product.)

## Marking Diagram

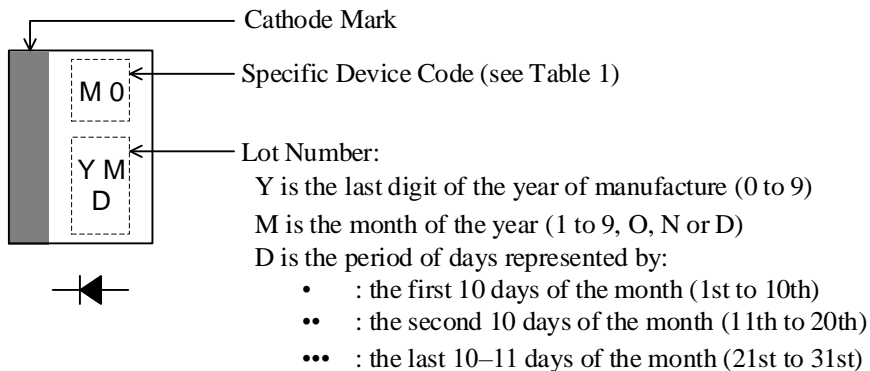


Table 1. Specific Device Code

| Specific Device Code | Part Number |
|----------------------|-------------|
| M0                   | EM01        |

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