

# **Description**

The FMCA-11065 is a 650 V, 10 A, SiC Schottky diode that lowers reverse leakage current at high temperatures and reduces switching loss with its high-speed switching characteristics.

These characteristic features contribute to improving power supply efficiency and to enabling high-frequency systems.

#### **Features**

| • | RoHS Compliant     |          |
|---|--------------------|----------|
| • | V <sub>RSM</sub>   | 650 V    |
| • | I <sub>F(AV)</sub> | 10 A     |
|   | V 05 00            | 1 7 37 . |

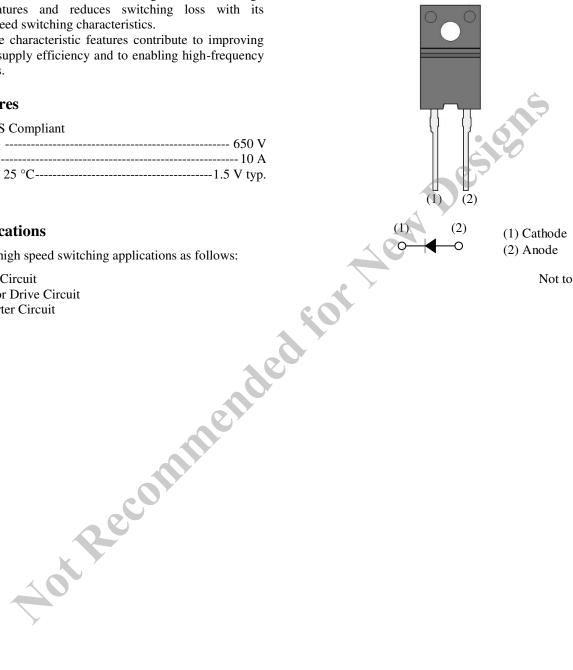
## **Applications**

The high speed switching applications as follows:

- PFC Circuit
- Motor Drive Circuit
- Inverter Circuit

#### **Package**

TO220F-2L



(2) Anode

Not to scale

## **FMCA-11065**

## **Absolute Maximum Ratings**

Unless otherwise specified,  $T_A = 25$  °C.

| Parameter                       | Symbol           | Rating     | Unit | Conditions   |
|---------------------------------|------------------|------------|------|--|
| Peak Repetitive Reverse Voltage | V <sub>RSM</sub> | 650        | V    |  |
| Repetitive Reverse Voltage      | $V_{RM}$         | 600        | V    |  |
| Average Forward Current         | $I_{F(AV)}$      | 10         | A    |  |
| Surge Forward Current           | I <sub>FSM</sub> | 40         | A    | Half cycle sine wave,<br>positive side, 10 ms,<br>1 shot |
| Junction Temperature            | $T_{J}$          | -40 to 175 | °C   | Ġ  |
| Storage Temperature             | $T_{STG}$        | -40 to 175 | °C   |  |

## **Electrical Characteristics**

Unless otherwise specified,  $T_A = 25$  °C.

| Parameter   | Symbol                      | Conditions  | Min.     | Тур. | Max. | Unit |
|---|-----------------------------|---|----------|------|------|------|
| Farmend Walters Dans                              | $V_{\mathrm{F}}$            | $T_A = 25  ^{\circ}\text{C}, I_F = 10  \text{A}$  | <u> </u> | 1.5  | 1.75 | V    |
| Forward Voltage Drop                              |                             | $T_A = 100  ^{\circ}\text{C}, I_F = 10  \text{A}$ | _        | 1.6  | _    | V    |
| Reverse Leakage Current                           | $I_R$                       | $V_R = V_{RM}$                                    | _        | 15   | 200  | μΑ   |
| Reverse Leakage Current<br>Under High Temperature | $H \cdot I_R$               | $V_R = V_{RM}$ , $T_J = 150$ °C                   | _        | 70   | 500  | μΑ   |
| Thermal Resistance <sup>(1)</sup>                 | $R_{\text{th}(J\text{-}L)}$ |   | _        | _    | 2.5  | °C/W |
| Thermal Resistance <sup>(1)</sup>                 |                             |   |          |      |      |      |

 $<sup>^{(1)}\,</sup>R_{\text{th (J-L)}}$  is thermal resistance between junction and lead.

## **Rating and Characteristic Curves**

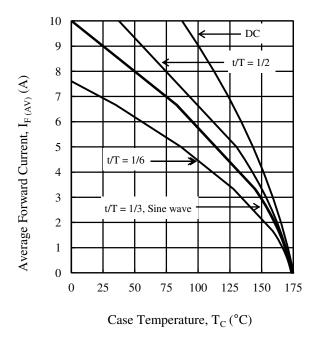


Figure 1.  $T_C$  vs.  $I_{F(AV)}$  Typical Characteristics

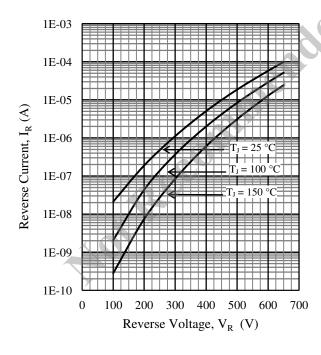


Figure 3.  $V_R$  vs.  $I_R$  Typical Characteristics

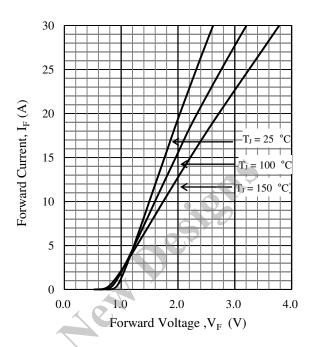
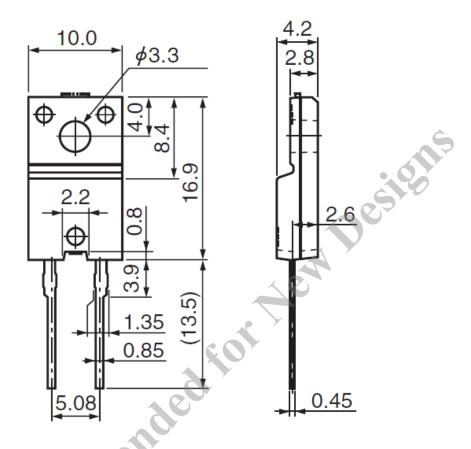


Figure 2. V<sub>F</sub> vs. I<sub>F</sub> Typical Characteristics

## **Physical Dimensions**

• TO220F-2L



#### **NOTES:**

- Dimensions in millimeters
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the products, be sure to minimize the working time, within the following limits:
  - Flow:  $260 \pm 5$  °C /  $10 \pm 1$  s, 2 times
  - Soldering Iron:  $380 \pm 10$  °C /  $3.5 \pm 0.5$  s, 1 time (Soldering should be at a distance of at least 1.5 mm from the body of the products.)
- The recommended screw torque for TO220: 0.490 N·m to 0.686 N·m (5 kgf·cm to 7 kgf·cm)

# **Marking Diagram**

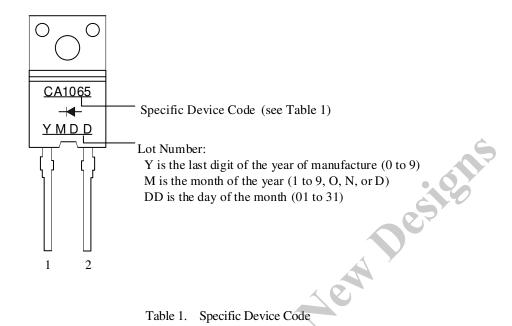


Table 1. Specific Device Code

|         | Specific Device Code | Part Number |
|---------|----------------------|-------------|
|         | CA1065               | FMCA-11065  |
| A OL RE | commende             |             |
|         |                      |             |

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