

**$V_{RM} = 100\text{ V}$ ,  $I_{F(AV)} = 20\text{ A}$**   
**Schottky Diode**  
**FMEN-220A**

**Description**

The FMEN-220A is a 100 V, 20 A Schottky diode with allowing improvements in  $V_F$  and  $I_R$  characteristics.

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

**Features**

- $V_{RM}$ ----- 100 V
- $I_{F(AV)}$ ----- 20 A
- $V_F$  ( $I_F = 10\text{ A}$ ) ----- 0.81 V typ.
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0

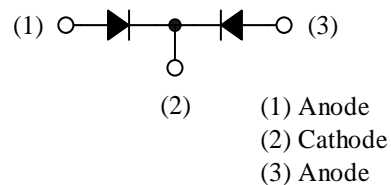
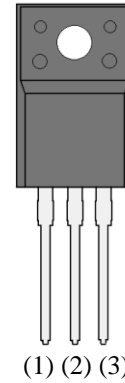
**Applications**

High speed switching applications as follows:

- DC-DC Converter
- Adapter

**Package**

TO220F-3L



Not to scale

## FMEN-220A

### Absolute Maximum Ratings

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

| Parameter   | Symbol      | Conditions   | Rating     | Unit                 |
|---|-------------|--|------------|----------------------|
| Nonrepetitive Peak Reverse Voltage <sup>(1)</sup> | $V_{RSM}$   |  | 100        | V                    |
| Repetitive Peak Reverse Voltage <sup>(1)</sup>    | $V_{RM}$    |  | 100        | V                    |
| Average Forward Current                           | $I_{F(AV)}$ | See Figure 1 and Figure 2                          | 20         | A                    |
| Surge Forward Current <sup>(1)</sup>              | $I_{FSM}$   | Half cycle sine wave, positive side, 10 ms, 1 shot | 120        | A                    |
| $I^2t$ Limiting Value <sup>(1)</sup>              | $I^2t$      | $1\text{ ms} \leq t \leq 10\text{ ms}$             | 72         | $\text{A}^2\text{s}$ |
| 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 <sup>(1)</sup>                           | $V_F$         | $I_F = 10\text{ A}$                                  | —    | 0.81 | 0.85 | V                    |
| Reverse Leakage Current <sup>(1)</sup>                        | $I_R$         | $V_R = V_{RM}$                                       | —    | —    | 200  | $\mu\text{A}$        |
| Reverse Leakage Current under High Temperature <sup>(1)</sup> | $H \cdot I_R$ | $V_R = V_{RM}$ , $T_J = 150\text{ }^{\circ}\text{C}$ | —    | —    | 100  | mA                   |
| Thermal Resistance <sup>(2)</sup>                             | $R_{th(J-C)}$ |  | —    | —    | 4.0  | $^{\circ}\text{C/W}$ |

### Mechanical Characteristics

| Parameter                      | Conditions | Min.  | Typ. | Max.  | Unit |
|--------------------------------|------------|-------|------|-------|------|
| Heatsink Mounting Screw Torque |            | 0.490 | —    | 0.686 | N·m  |

<sup>(1)</sup> Specifies a value per chip; the FMEN-220A consists of two chips.

<sup>(2)</sup>  $R_{th(J-C)}$  is thermal resistance between junction and the case. The case temperature is measured at the back side near the screw hole.

# Rating and Characteristic Curves

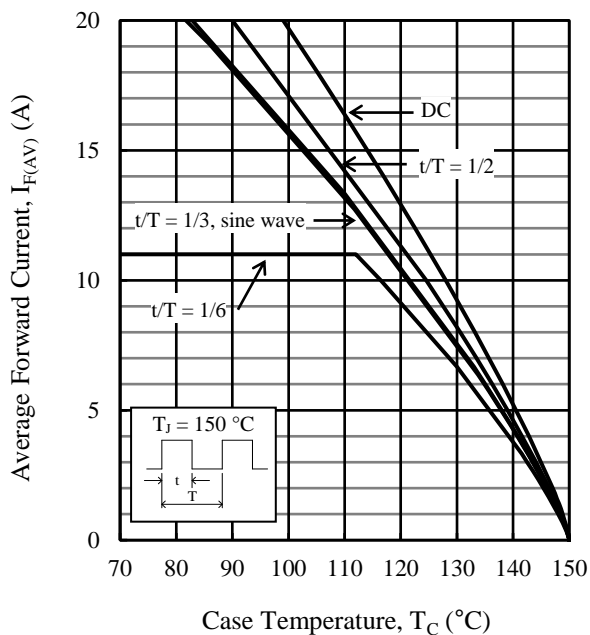


Figure 1. Typical Characteristics:  $I_{F(AV)}$  vs.  $T_C$   
( $V_R = 0$  V)

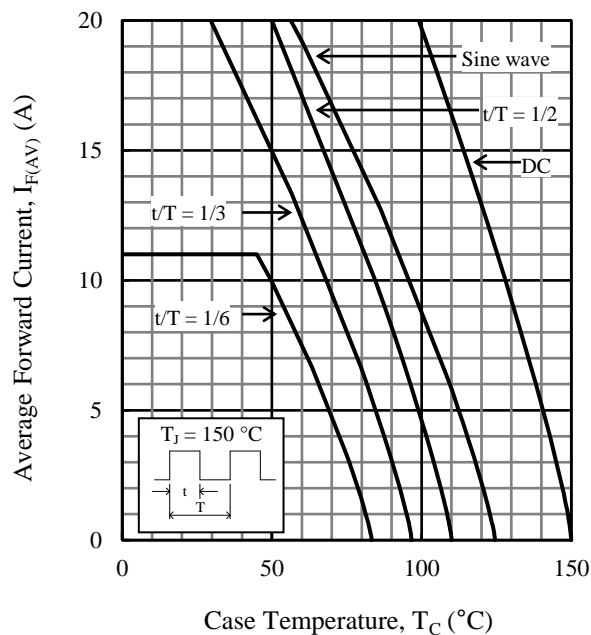


Figure 2. Typical Characteristics:  $I_{F(AV)}$  vs.  $T_C$   
( $V_R = 100$  V)

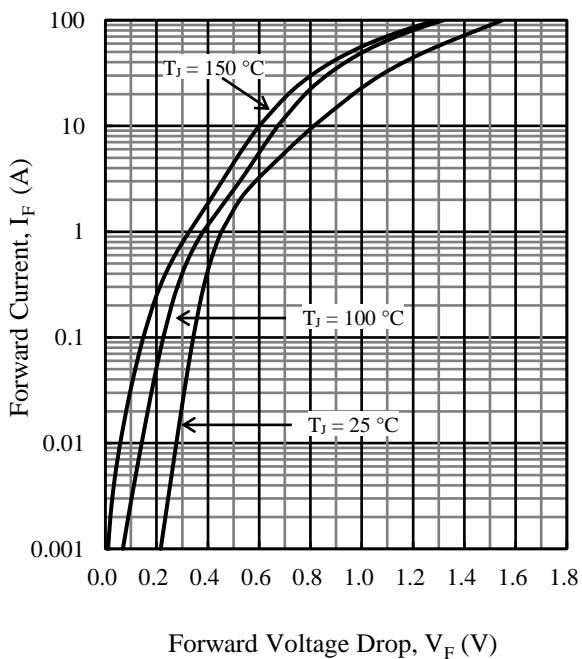


Figure 3. Typical Characteristics:  $I_F$  vs.  $V_F$

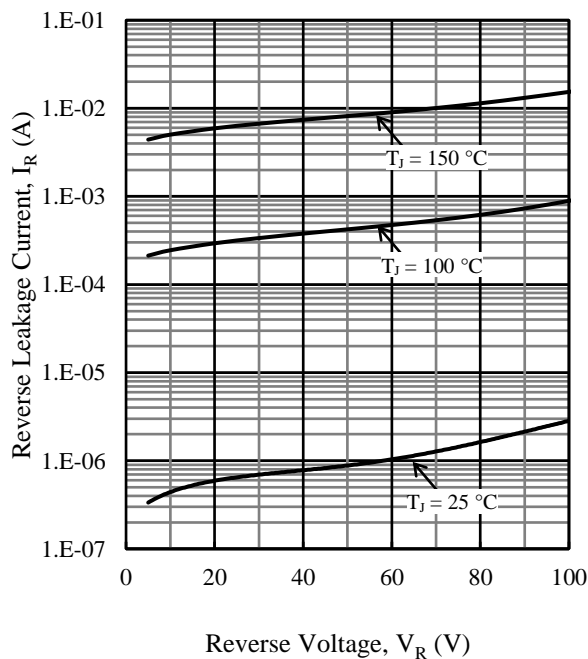
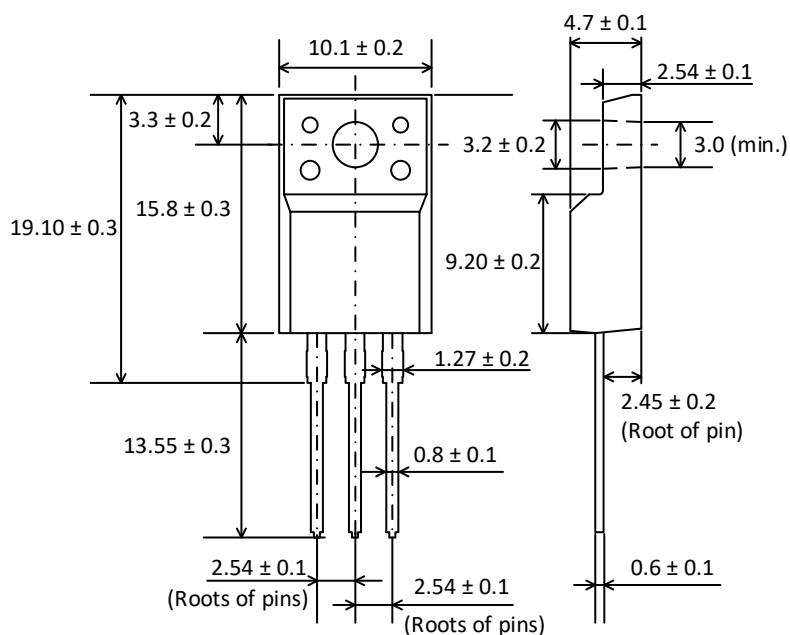


Figure 4. Typical Characteristics:  $I_R$  vs.  $V_R$

## FMEN-220A

### Physical Dimensions

#### • TO220F-3L



#### NOTES:

- Dimensions in millimeters
- All the dimensions exclude mold flashes.
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the products, it is required 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 product.

Marking Diagram

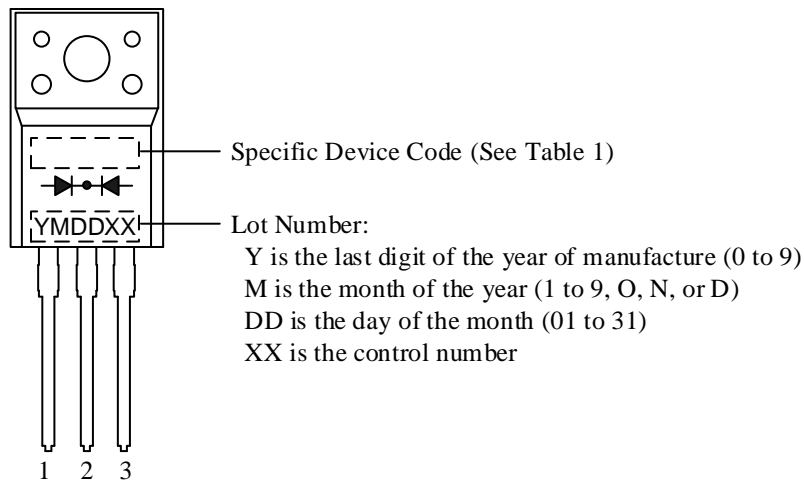


Table 1. Specific Device Code

| Specific Device Code | Part Number |
|----------------------|-------------|
| EN220A               | FMEN-220A   |

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DSGN-CEZ-16003