

$V_{RM} = 100\text{ V}$, $I_{F(AV)} = 20\text{ A}$
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

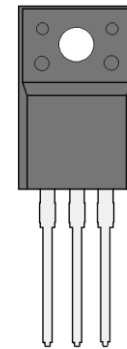
Applications

High speed switching applications as follows:

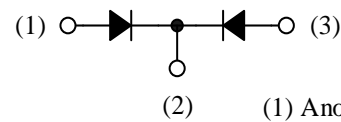
- DC-DC Converter
- Adapter

Package

TO220F-3L



(1) (2) (3)



(1) Anode
(2) Cathode
(3) Anode

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

Mechanical Characteristics

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|--------------------------------|------------|-------|------|-------|------|
| Heatsink Mounting Screw Torque | | 0.490 | — | 0.686 | N·m |
| Package Weight | | — | 1.8 | — | g |

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

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

Derating Curves

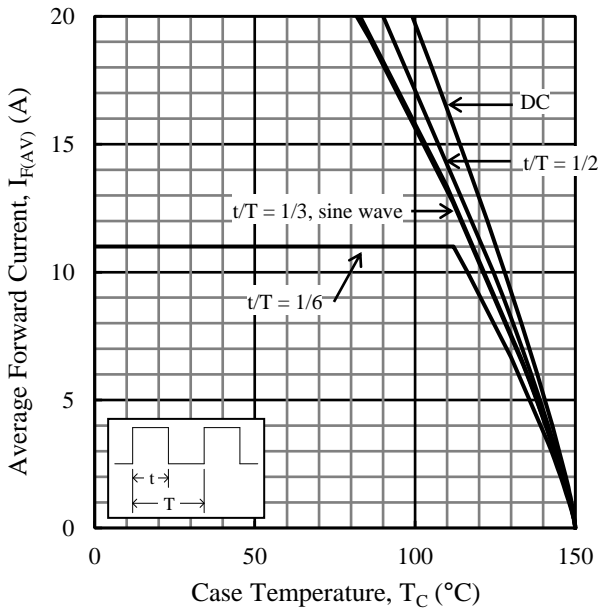


Figure 1. $I_{F(AV)}$ vs. T_C ($T_J = 150$ °C, $V_R = 0$ V)

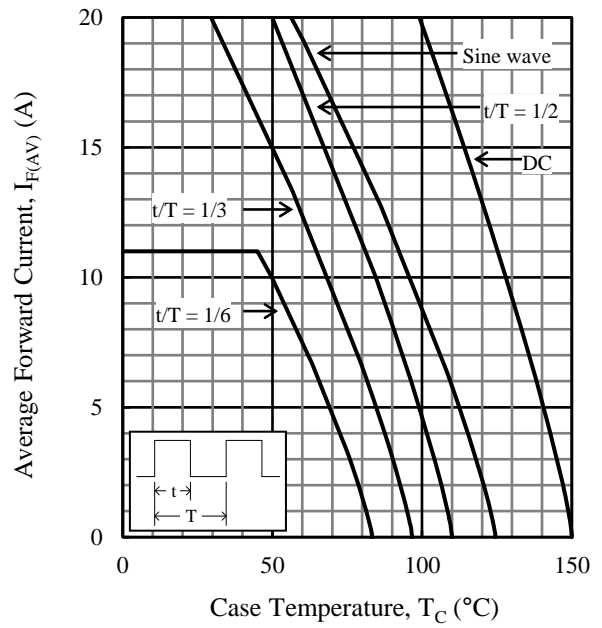


Figure 2. $I_{F(AV)}$ vs. T_C ($T_J = 150$ °C, $V_R = 100$ V)

Characteristic Curves

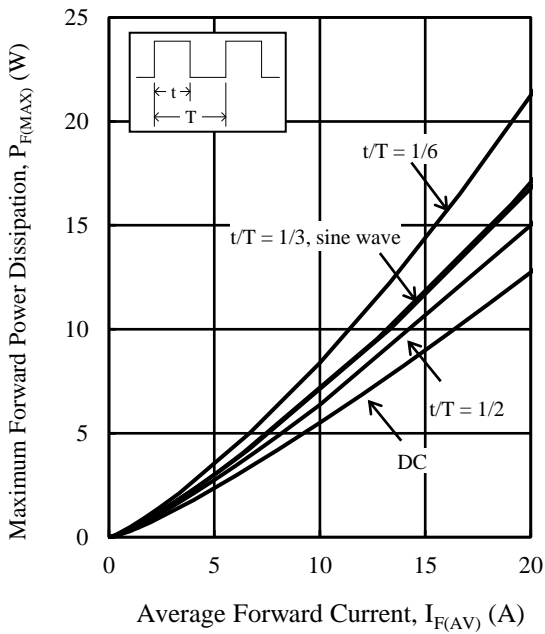


Figure 3. $P_{F(MAX)}$ vs. $I_{F(AV)}$ ($T_J = 150\text{ }^\circ\text{C}$)

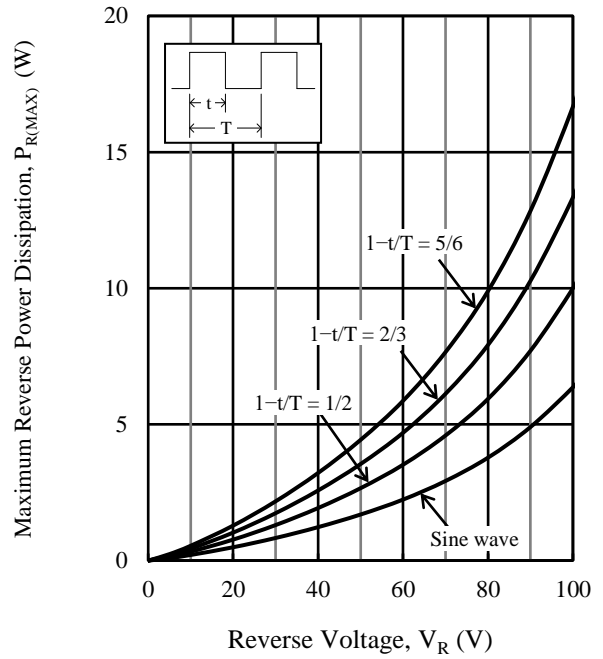


Figure 4. $P_{R(MAX)}$ vs. V_R ($T_J = 150\text{ }^\circ\text{C}$)

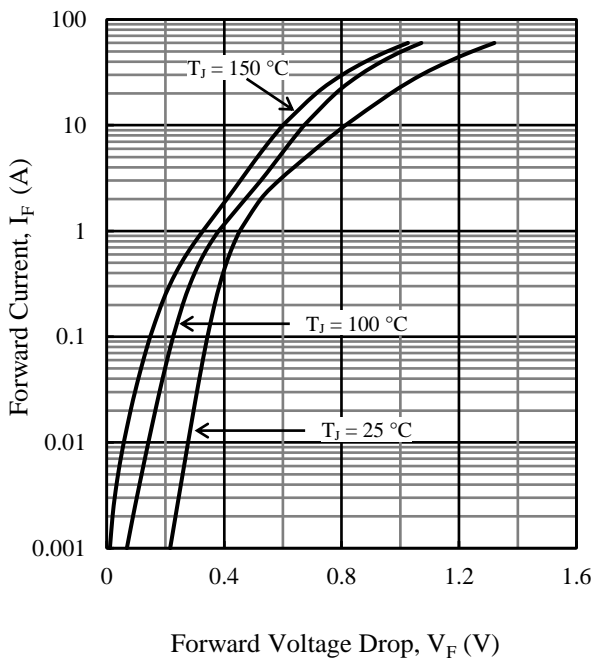


Figure 5. Typical Characteristics: I_F vs. V_F

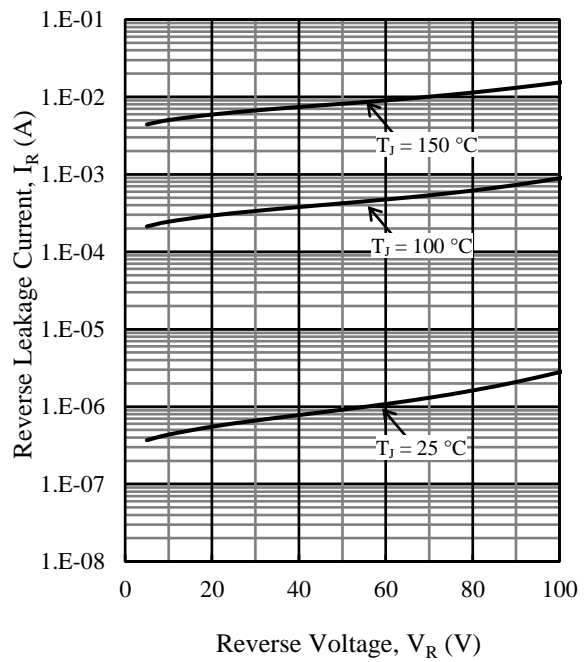


Figure 6. Typical Characteristics: I_R vs. V_R

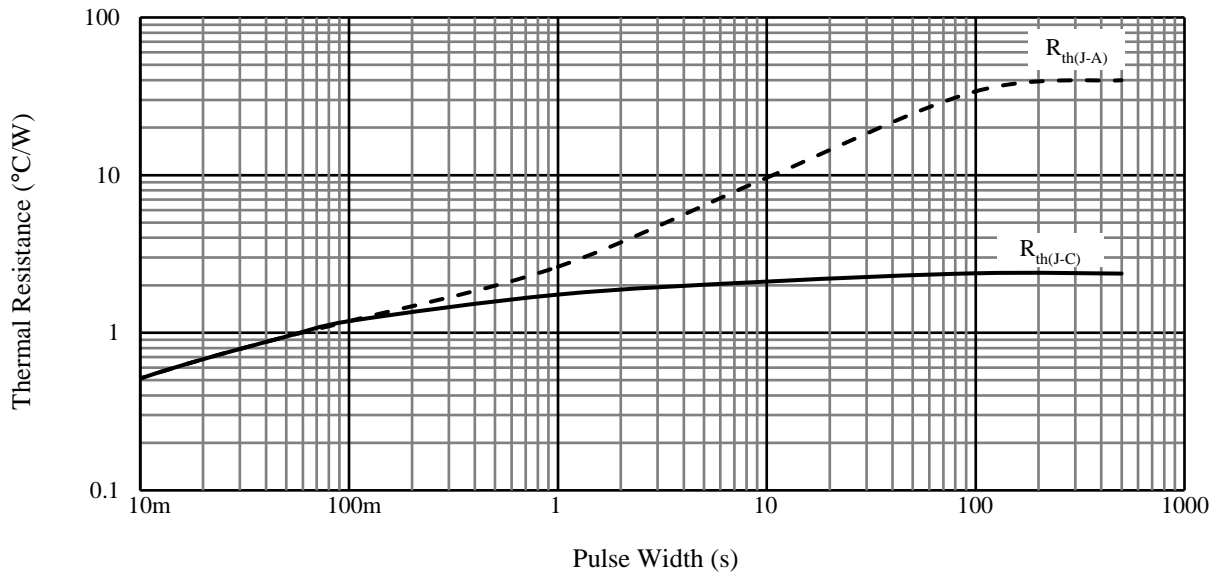
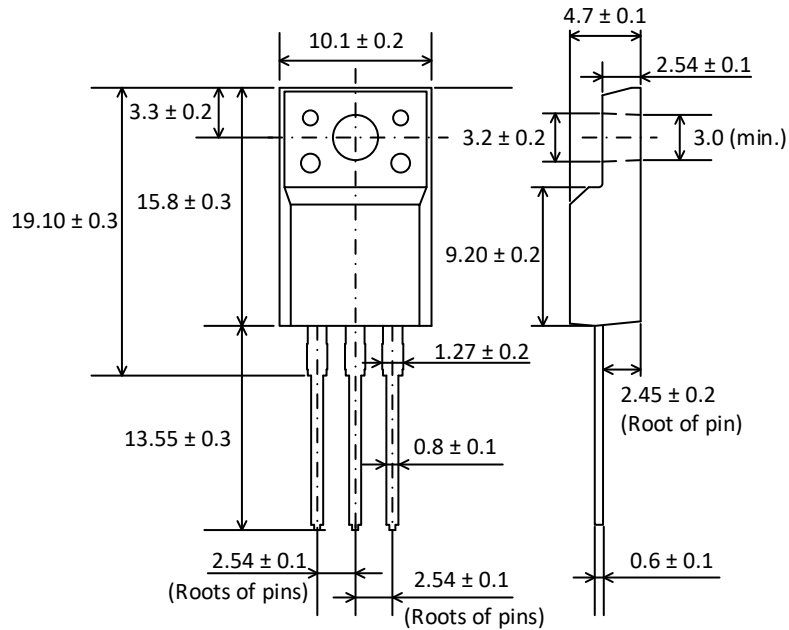


Figure 7. Typical Transient Thermal Resistance Characteristics

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: $260\text{ }^{\circ}\text{C} / 10\text{ s}$, 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

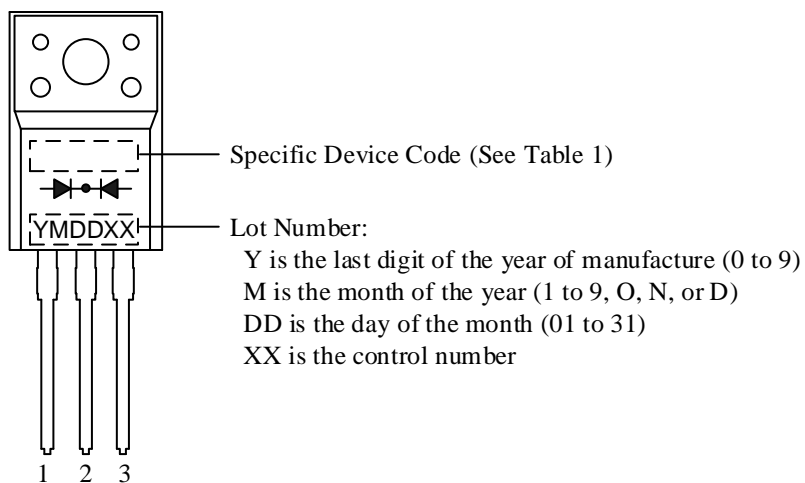


Table 1. Specific Device Code

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

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