

$V_{RSM} = 40\text{ V}$, $I_{F(AV)} = 30\text{ A}$
Schottky Diode
FMW-4304

Description

The FMW-4304 is a 40 V, 30 A Schottky diode with allowing improvements in V_F characteristic. These characteristic features contribute to improving power supply efficiency and to enabling high-frequency systems.

Features

- V_{RSM} ----- 40 V
- $I_{F(AV)}$ ----- 30 A
- V_F ($I_F = 15\text{ A}$) ----- 0.51 V typ.
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0

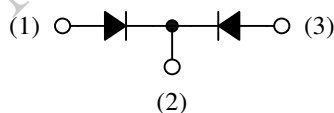
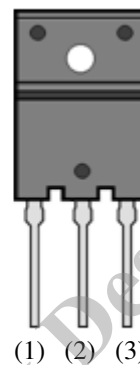
Applications

High speed switching applications as follows:

- DC-DC Converter
- Adapter

Package

TO3PF-3L



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

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} | | 40 | V |
| Repetitive Peak Reverse Voltage | V_{RM} | | 40 | V |
| Average Forward Current | $I_{F(AV)}$ | See Figure 1 and Figure 2 | 30 | A |
| Surge Forward Current | I_{FSM} | Half cycle sine wave, positive side, 10 ms, 1 shot | 150 | A |
| I^2t Limiting Value | I^2t | $1\text{ ms} \leq t \leq 10\text{ ms}$ | 112.5 | A^2s |
| 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 | $I_F = 15\text{ A}$ | — | 0.51 | 0.55 | V |
| Reverse Leakage Current ⁽¹⁾ | I_R | $V_R = V_{RM}$ | — | — | 1.5 | mA |
| Reverse Leakage Current under High Temperature ⁽¹⁾ | $H \cdot I_R$ | $V_R = V_{RM}, T_J = 150\text{ }^\circ\text{C}$ | — | — | 500 | mA |
| Thermal Resistance ⁽²⁾ | $R_{th(J-C)}$ | | — | — | 2.0 | $^\circ\text{C/W}$ |

Mechanical Characteristics

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|--------------------------------|------------|-------|------|-------|-------------------------|
| Heatsink Mounting Screw Torque | | 0.686 | — | 0.882 | $\text{N}\cdot\text{m}$ |

⁽¹⁾ The rating of one chip.

⁽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.

Rating and Characteristic Curves

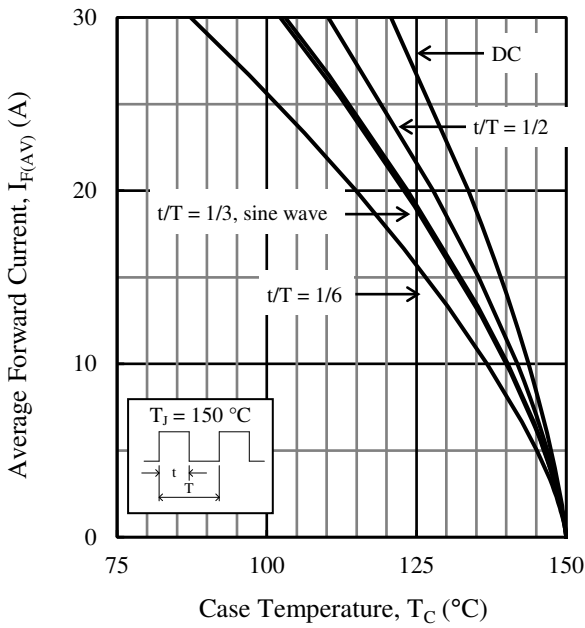


Figure 1. Typical Characteristics: $I_{F(AV)}$ vs. T_C ($V_R = 0$ V)

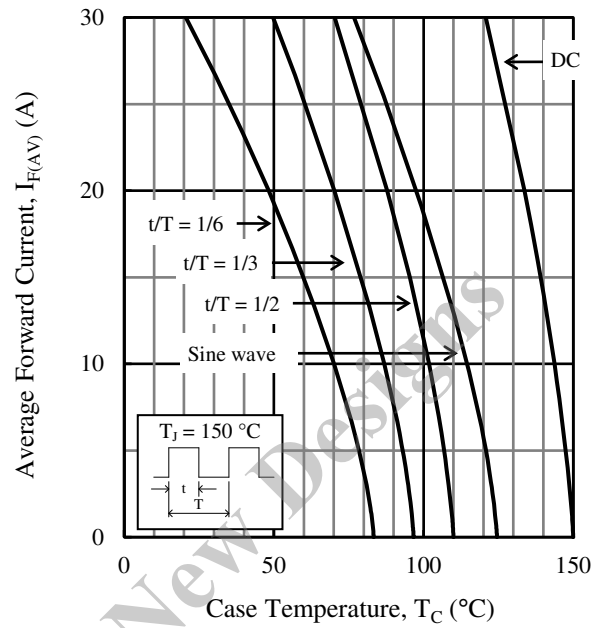


Figure 2. Typical Characteristics: $I_{F(AV)}$ vs. T_C ($V_R = 40$ V)

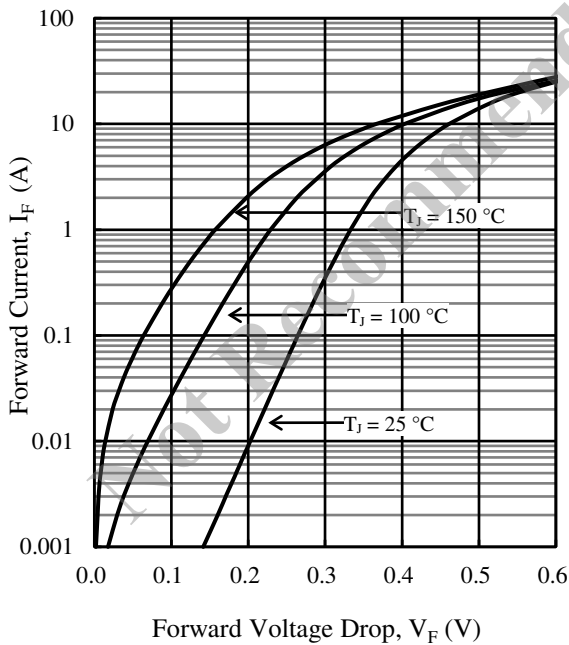


Figure 3. Typical Characteristics: I_F vs. V_F

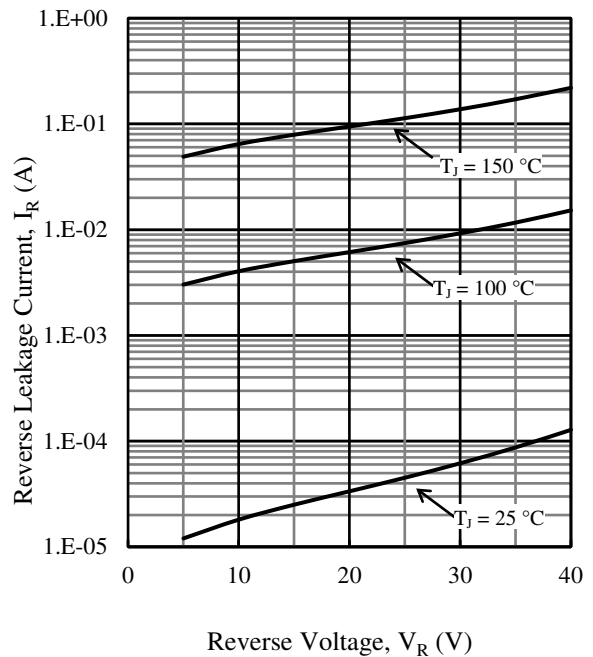
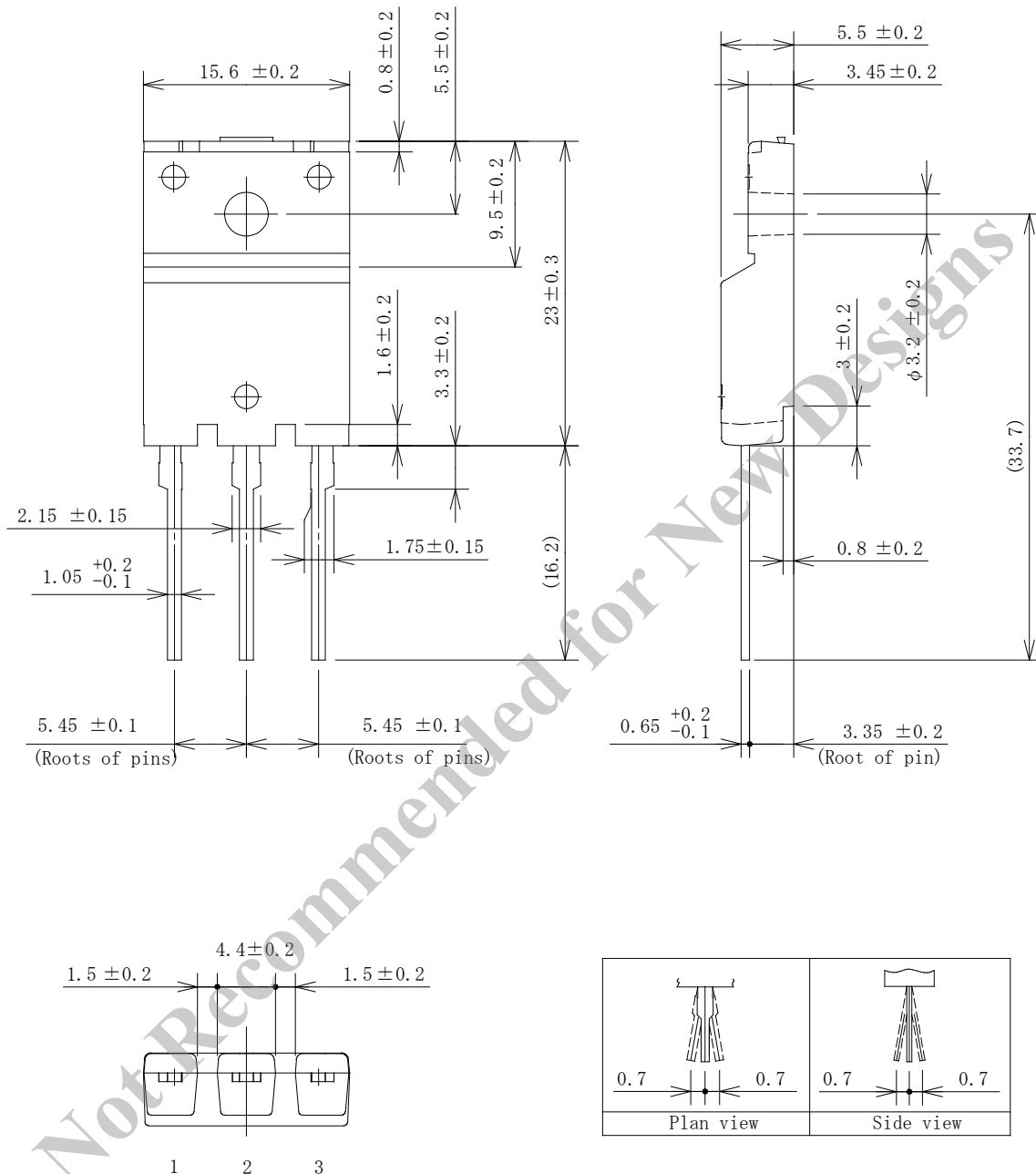


Figure 4. Typical Characteristics: I_R vs. V_R

Physical Dimensions

• TO3PF-3L



NOTES:

- Dimensions in millimeters
- Maximum gate burr height is 0.3 mm.
- 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 ± 5 °C / 10 ± 1 s, 2 times
 Soldering Iron: 380 ± 10 °C / 3.5 ± 0.5 s, 1 time
 Soldering should be at a distance of at least 1.5 mm from the body of the product.
- Recommended screw torque for TO3PF: 0.686 N·m to 0.882 N·m (7 kgf·cm to 9 kgf·cm)

Marking Diagram

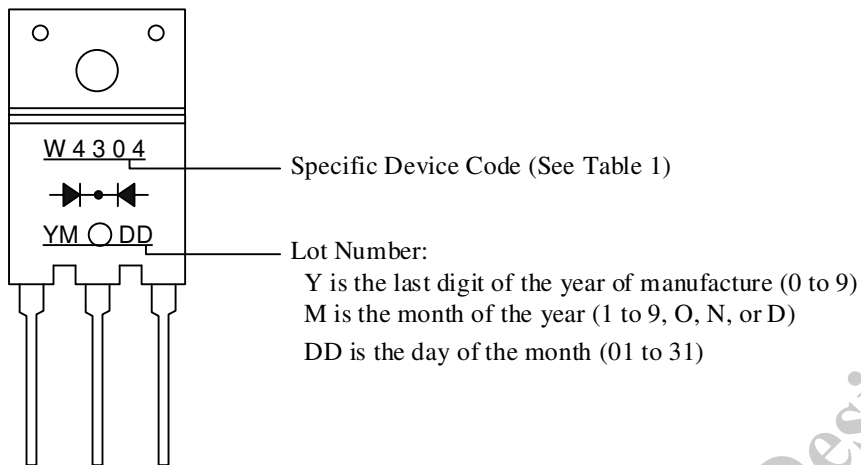


Table 1. Specific Device Code

| Specific Device Code | Part Number |
|----------------------|-------------|
| W4304 | FMW-4304 |

Not Recommended for New Designs

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