

**$V_{RM} = 150\text{ V}$ ,  $I_{F(AV)} = 20\text{ A}$**   
**Schottky Diode**  
**FMEN-220B**

**Description**

The FMEN-220B is a 150 V, 20 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**

- $V_{RM}$ ----- 150 V
- $I_{F(AV)}$ ----- 20 A
- $V_F$  ( $I_F = 10\text{ A}$ ) ----- 0.90 V typ.
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0

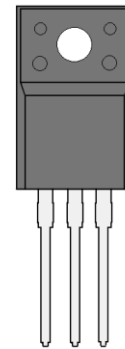
**Applications**

High speed switching applications as follows:

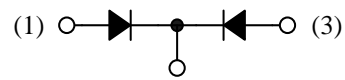
- DC-DC Converter
- Adapter

**Package**

TO220F-3L



(1) (2) (3)



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

Not to scale

## FMEN-220B

### 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>	$V_{RSM}$		150	V
Repetitive Peak Reverse Voltage <sup>(1)</sup>	$V_{RM}$		150	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	A <sup>2</sup> 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>	$V_F$	$I_F = 10\text{ A}$	—	0.90	0.95	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>	$H \cdot I_R$	$V_R = V_{RM}, T_J = 150\text{ }^\circ\text{C}$	—	—	50	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
Package Weight		—	1.8	—	g

<sup>(1)</sup> Specifies a value per chip; the FMEN-220B 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.

Derating Curves

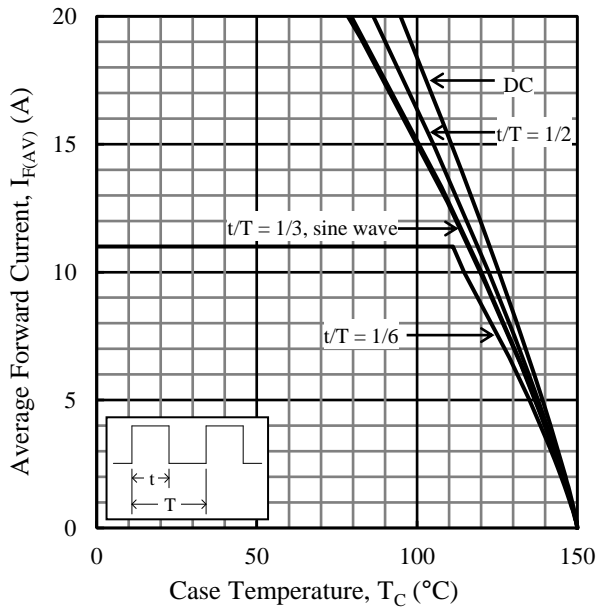


Figure 1.  $I_{F(AV)}$  vs.  $T_C$  ( $T_J = 150$  °C,  $V_R = 0$  V)

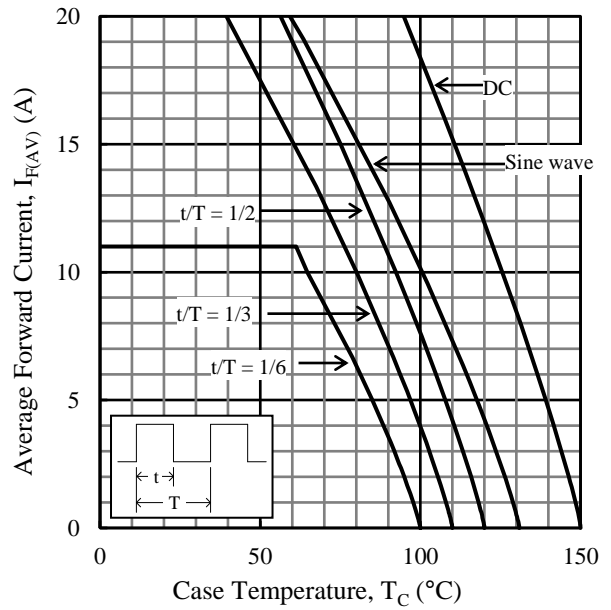


Figure 2.  $I_{F(AV)}$  vs.  $T_C$  ( $T_J = 150$  °C,  $V_R = 150$  V)

Characteristic Curves

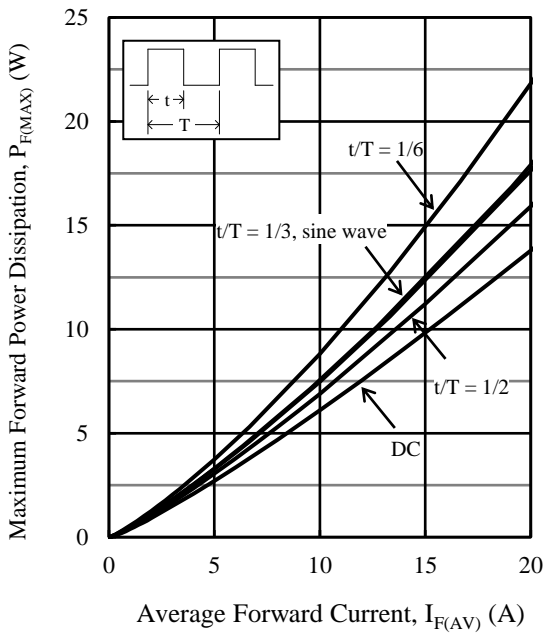


Figure 3.  $P_{F(MAX)}$  vs.  $I_{F(AV)}$  ( $T_J = 150\text{ }^\circ\text{C}$ )

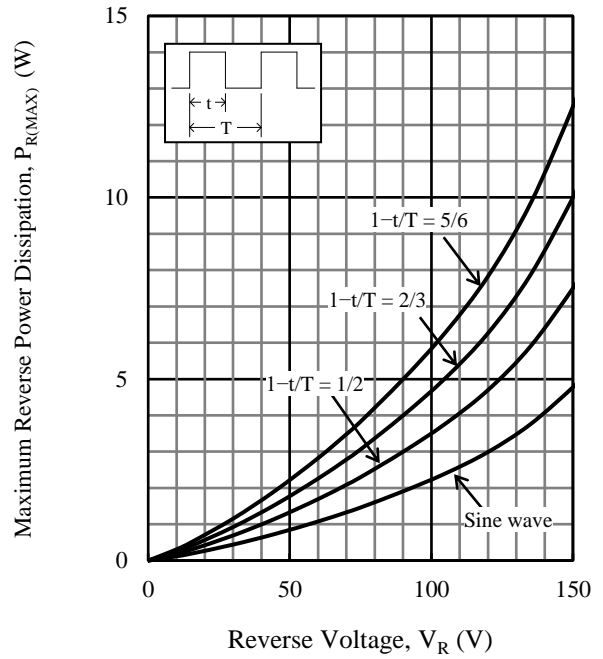


Figure 4.  $P_{R(MAX)}$  vs.  $V_R$  ( $T_J = 150\text{ }^\circ\text{C}$ )

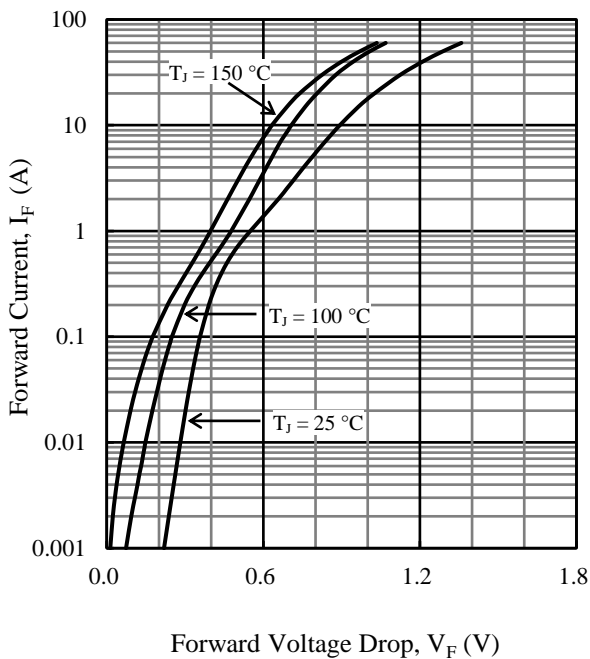


Figure 5. Typical Characteristics:  $I_F$  vs.  $V_F$

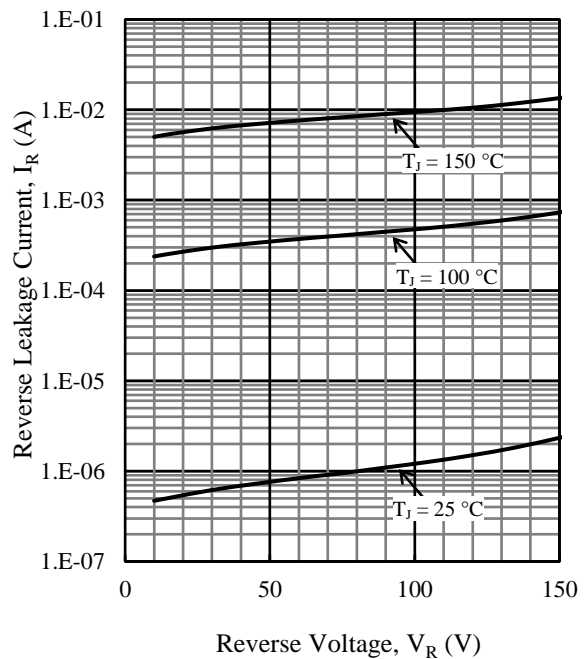


Figure 6. Typical Characteristics:  $I_R$  vs.  $V_R$

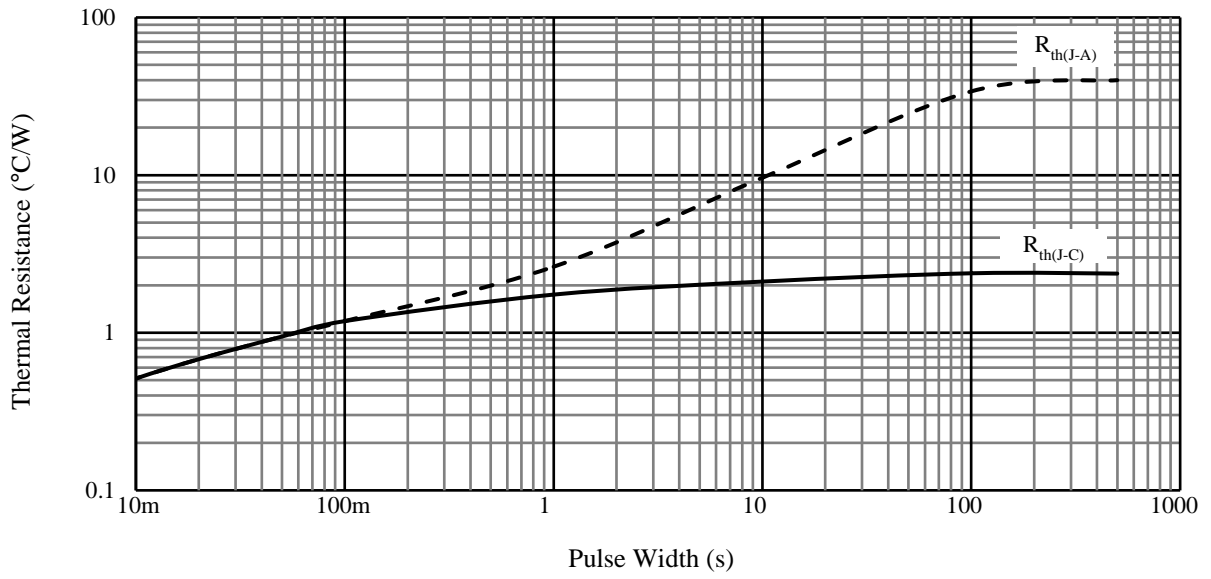
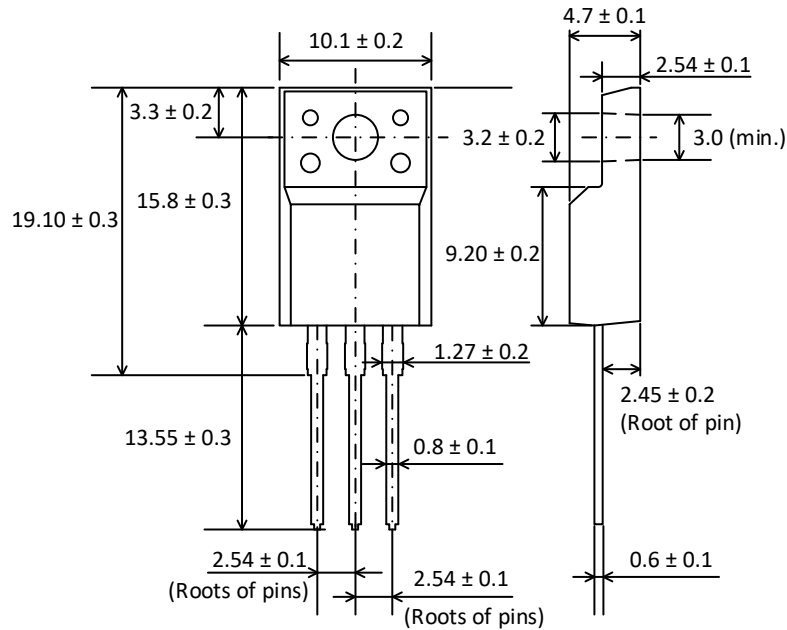


Figure 7. Typical Transient Thermal Resistance Characteristics

# FMEN-220B

## 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:  $260\text{ }^{\circ}\text{C} / 10\text{ s}, 1\text{ time}$
  - Soldering Iron:  $350\text{ }^{\circ}\text{C} / 3.5\text{ s}, 1\text{ time}$
  - Soldering should be at a distance of at least 1.5 mm from the body of the product.

**Marking Diagram**

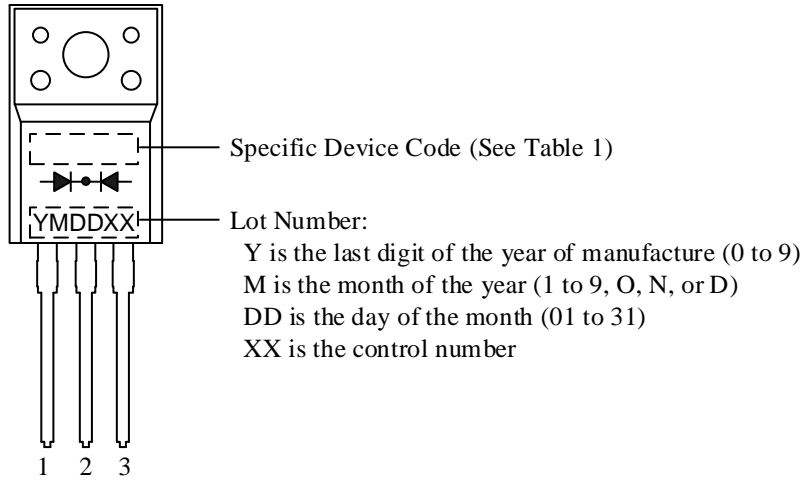


Table 1. Specific Device Code

Specific Device Code	Part Number
EN220B	FMEN-220B

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