V_{RM} = 100 V, $I_{F(AV)}$ = 40 A
Schottky Diode

FMES-24010

Data Sheet

Description

The FMES-24010 is a 100 V, 40 A Schottky diode with allowing improvements in I_R and V_F characteristic.

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

Features

- V_{RM} ---------- 100 V
- $I_{F(AV)}$ ---------- 40 A
- V_F (I_F = 20 A) ---------- 0.80 V typ.
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0

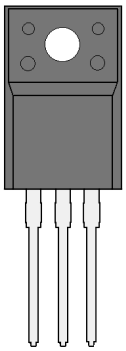
Applications

High speed switching applications as follows:

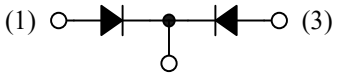
- DC-DC Converter
- Adapter

Package

TO220F-3L



(1) (2) (3)



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

Not to scale

Absolute Maximum Ratings

Unless otherwise specified, T_A = 25 °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	40	A
Surge Forward Current(1)	I_{FSM}	Half cycle sine wave, positive side, 10 ms, 1 shot	150	A
I^2t Limiting Value(1)	I^2t	1 ms ≤ t ≤ 10 ms	112.5	A^2s
Junction Temperature	T_J		−40 to 150	°C
Storage Temperature	T_{STG}		−40 to 150	°C

Electrical Characteristics

Unless otherwise specified, T_A = 25 °C.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop(1)	V_F	I_F = 20 A	—	0.80	0.85	V
Reverse Leakage Current(1)	I_R	$V_R = V_{RM}$	—	—	150	μA
Reverse Leakage Current under High Temperature(1)	H·I_R	$V_R = V_{RM}$, T_J = 150 °C	—	—	75	mA
Thermal Resistance(2)	$R_{th(J-C)}$		—	—	4.0	°C/W

Mechanical Characteristics

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

(1) Specifies a value per chip; the FMES-24010 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

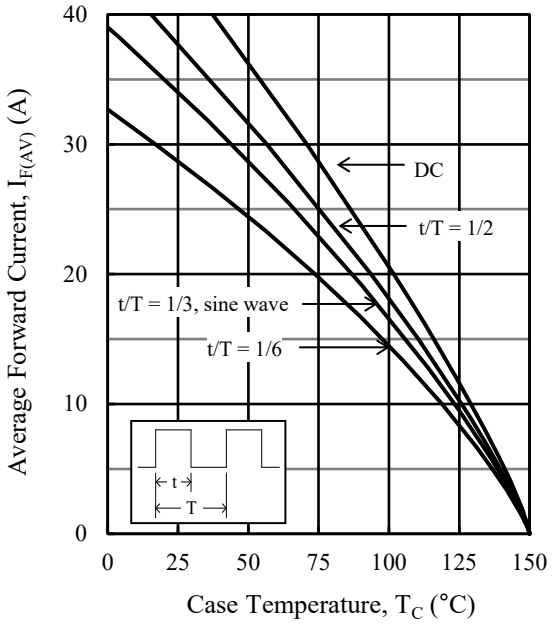


Figure 1. $I_{F(AV)}$ vs. T_C (T_J = 150 °C, V_R = 0 V)

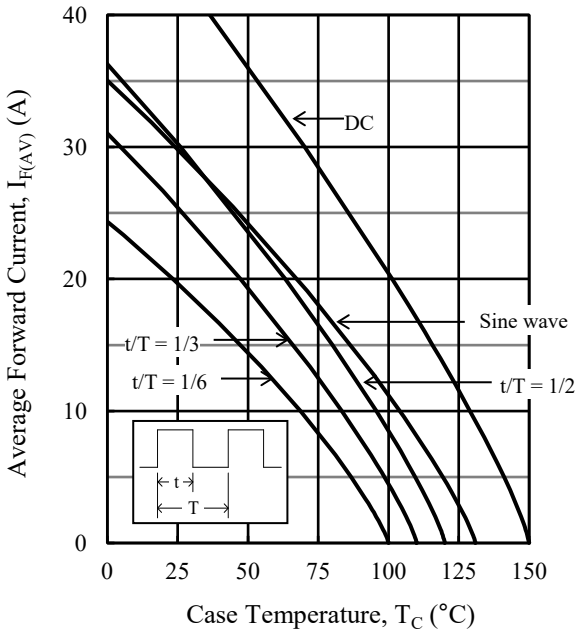


Figure 2. $I_{F(AV)}$ vs. T_C (T_J = 150 °C, V_R = 100 V)

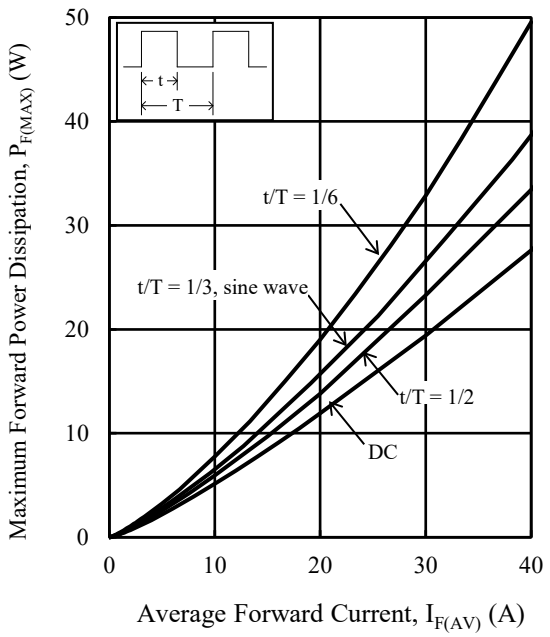


Figure 3. $P_{F(MAX)}$ vs. $I_{F(AV)}$ (T_J = 150 °C)

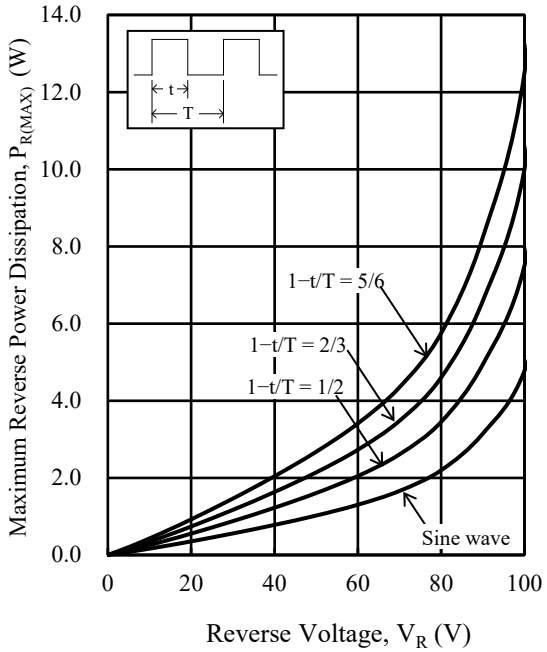


Figure 4. $P_{R(MAX)}$ vs. V_R (T_J = 150 °C)

Characteristic Curves

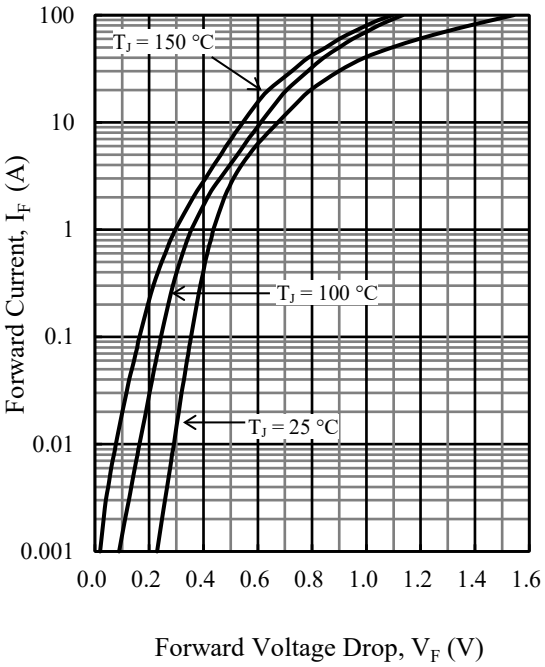


Figure 5. Typical Characteristics: I_F vs. V_F

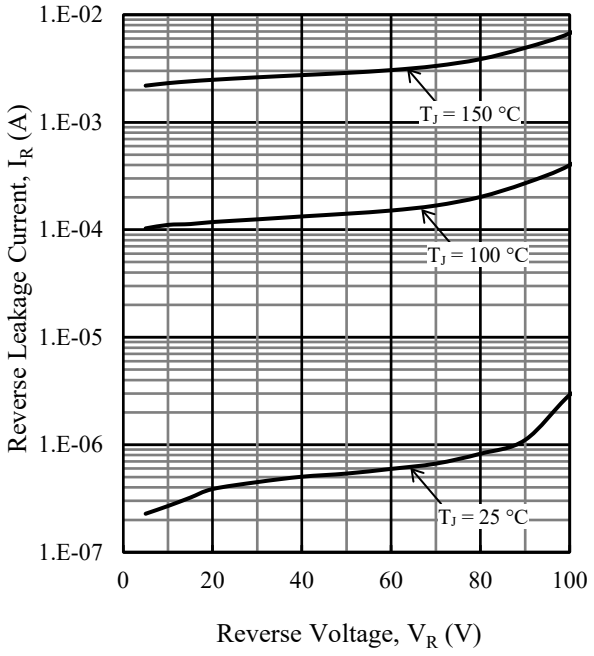


Figure 6. Typical Characteristics: I_R vs. V_R

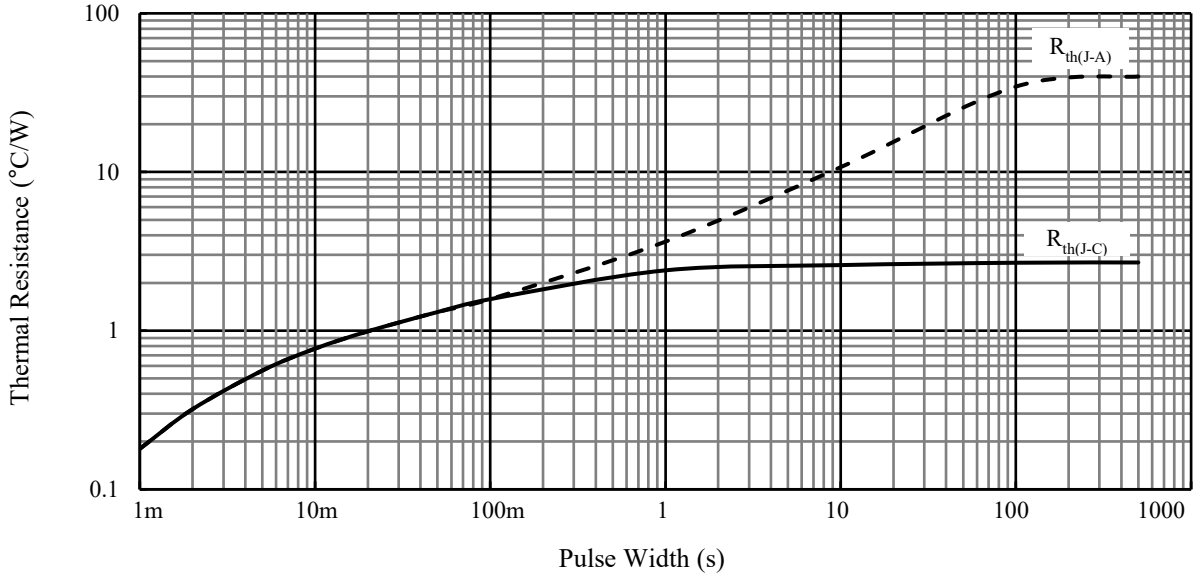
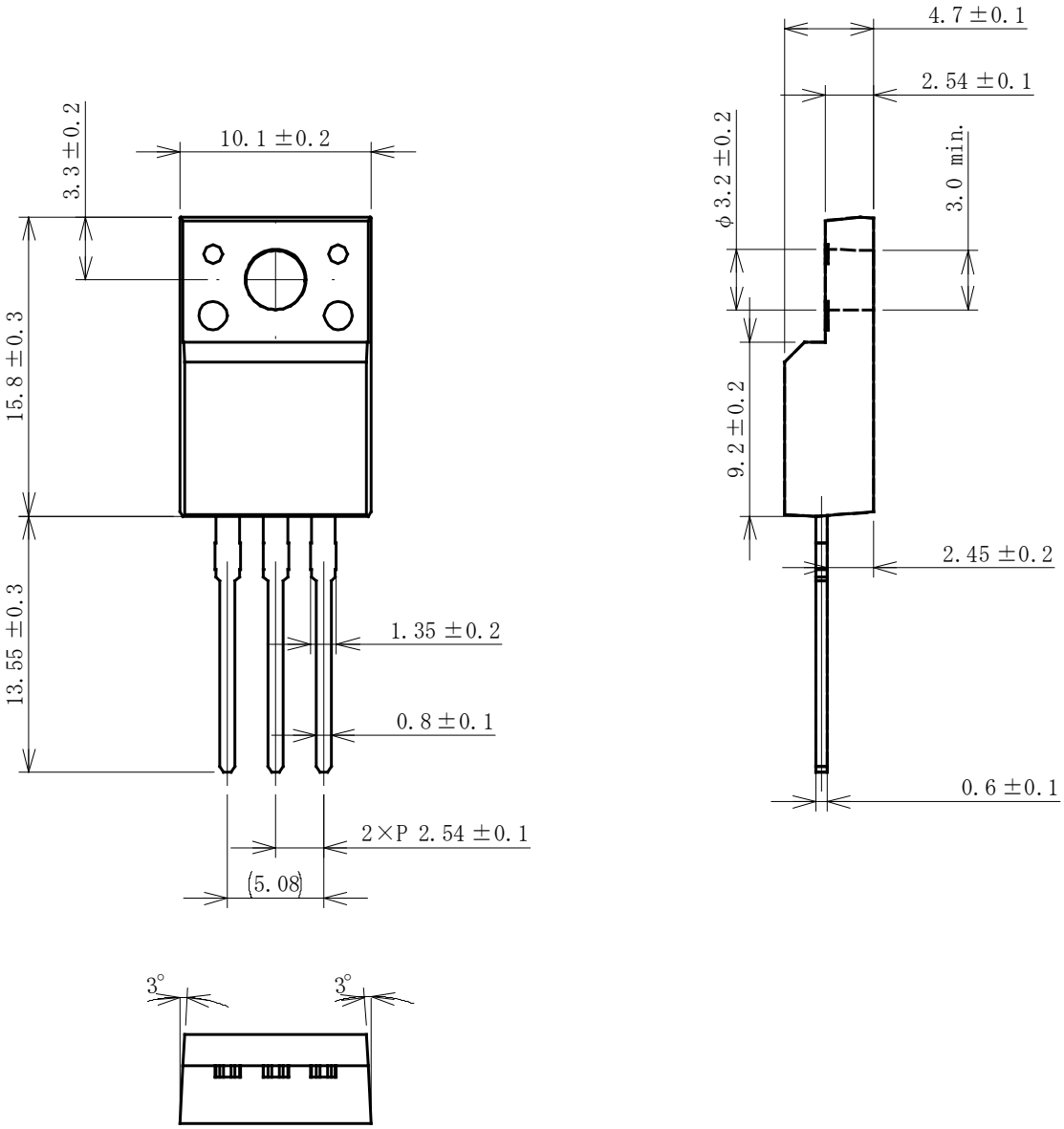


Figure 7. Typical Transient Thermal Resistance Characteristics

Physical Dimensions

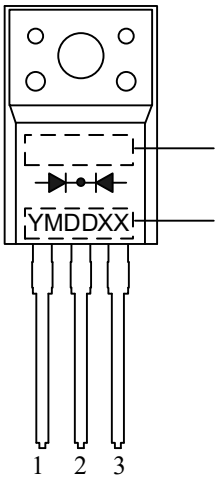
● **TO220F-3L**



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: 270 °C / 7 s, 1 time
  Soldering Iron: 350 °C / 3.5 s, 1 time
  Soldering should be at a distance of at least 1.5 mm from the body of the product.

Marking Diagram



Specific Device Code (See Table 1)

Lot Number:
Y is the last digit of the year of manufacture (0 to 9)
M is the month of the year (1 to 9, O, N, or D)
DD is the day of the month (01 to 31)
XX is the control number

Table 1. Specific Device Code

Specific Device Code	Part Number
ES4010	FMES-24010

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