

**$V_{RM} = 200\text{ V}$ ,  $I_{F(AV)} = 20\text{ A}$ ,  $t_{rr} = 25\text{ ns}$**   
**Fast Recovery Diode**  
**FMXA-4202S**

**Description**

The FMXA-4202S is a fast recovery diode of 200 V / 20 A. The maximum  $t_{rr}$  of 25 ns is realized by optimizing a life-time control.

**Package**

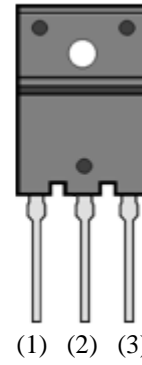
TO3PF-3L

**Features**

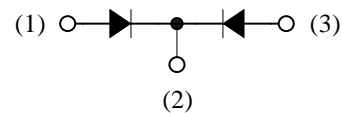
- $V_{RSM}$  ----- 200 V
- $I_{F(AV)}$  ----- 20 A
- $V_F$  ----- 0.90 V
- $t_{rr1}$  ( $I_F = I_{RP}$ ) ----- 25 ns
- Bare Lead Frame: Pb-free (RoHS Compliant)

**Applications**

- Secondary Side Rectifier Diode  
(Flyback Converter, LLC Converter, etc.)
- Freewheel Diode  
(Offline Buck and Buck-boost Converter)



Not to scale



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

## FMXA-4202S

### Absolute Maximum Ratings

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

Parameter	Symbol	Conditions	Rating	Unit
Peak Repetitive Reverse Voltage	$V_{RSM}$		200	V
Repetitive Reverse Voltage	$V_{RM}$		200	V
Average Forward Current	$I_{F(AV)}$	See Figure 1 and Figure 2	20	A
Surge Forward Current	$I_{FSM}$	Half cycle sine wave, positive side, 10 ms, 1 shot	100	A
$I^2t$ Limiting Value	$I^2t$	$1\text{ ms} \leq t \leq 10\text{ ms}$	50	$\text{A}^2\text{s}$
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>	$V_F$	$I_F = 10\text{ A}$	—	0.90	1.20	V
Reverse Leakage Current <sup>(1)</sup>	$I_R$	$V_R = V_{RM}$	—	—	100	$\mu\text{A}$
Reverse Leakage Current Under High Temperature <sup>(1)</sup>	$H \cdot I_R$	$V_R = V_{RM}, T_J = 150\text{ }^\circ\text{C}$	—	—	30	mA
Reverse Recovery Time <sup>(1)</sup>	$t_{rr}$	$I_F = I_{RP} = 500\text{ mA}$ 90% recovery point, $T_J = 25\text{ }^\circ\text{C}$	—	—	25	ns
Thermal Resistance <sup>(2)</sup>	$R_{th(J-C)}$		—	—	2.0	$^\circ\text{C/W}$

<sup>(1)</sup> The rating of one chip.

<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

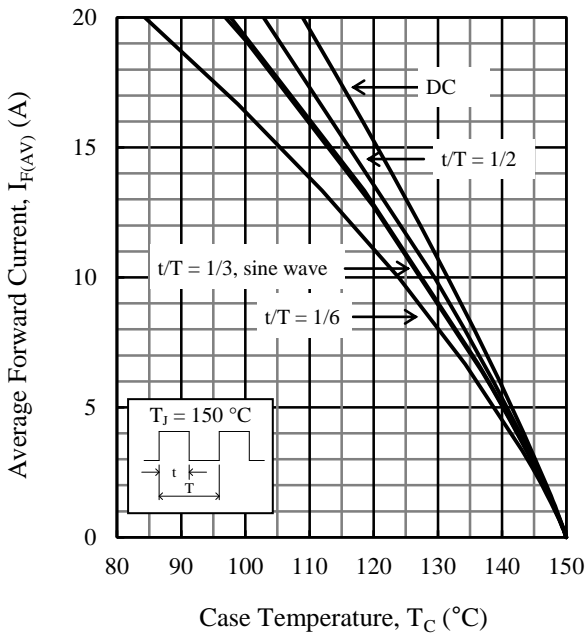


Figure 1.  $I_{F(AV)}$  vs.  $T_C$  Typical Characteristics ( $V_R = 0\text{ V}$ )

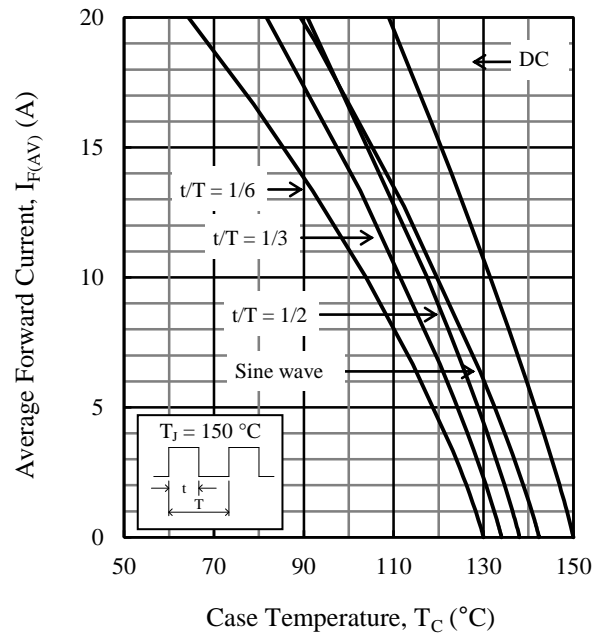


Figure 2.  $I_{F(AV)}$  vs.  $T_C$  Typical Characteristics ( $V_R = 200\text{ V}$ )

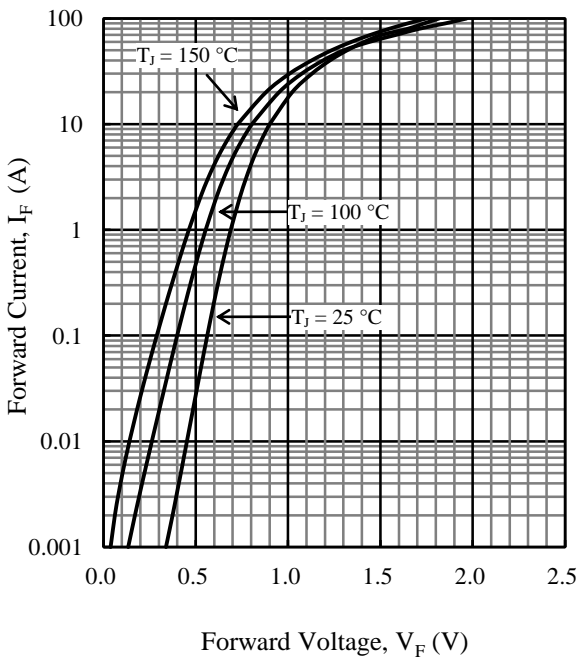


Figure 3.  $V_F$  vs.  $I_F$  Typical Characteristics

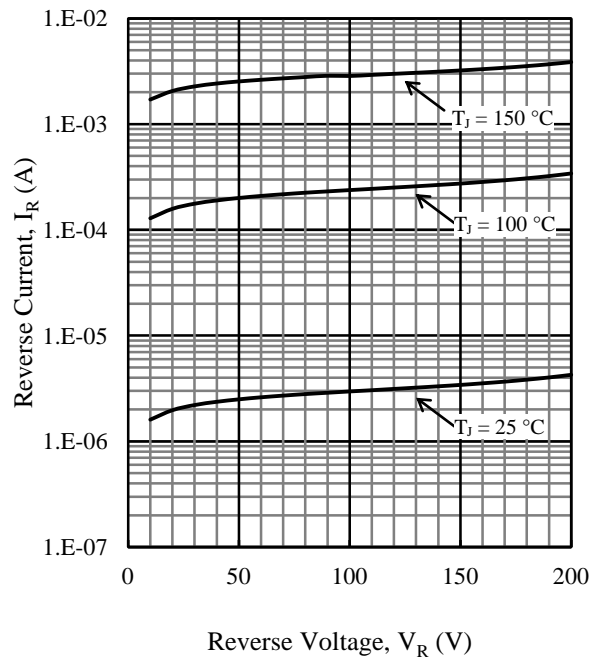
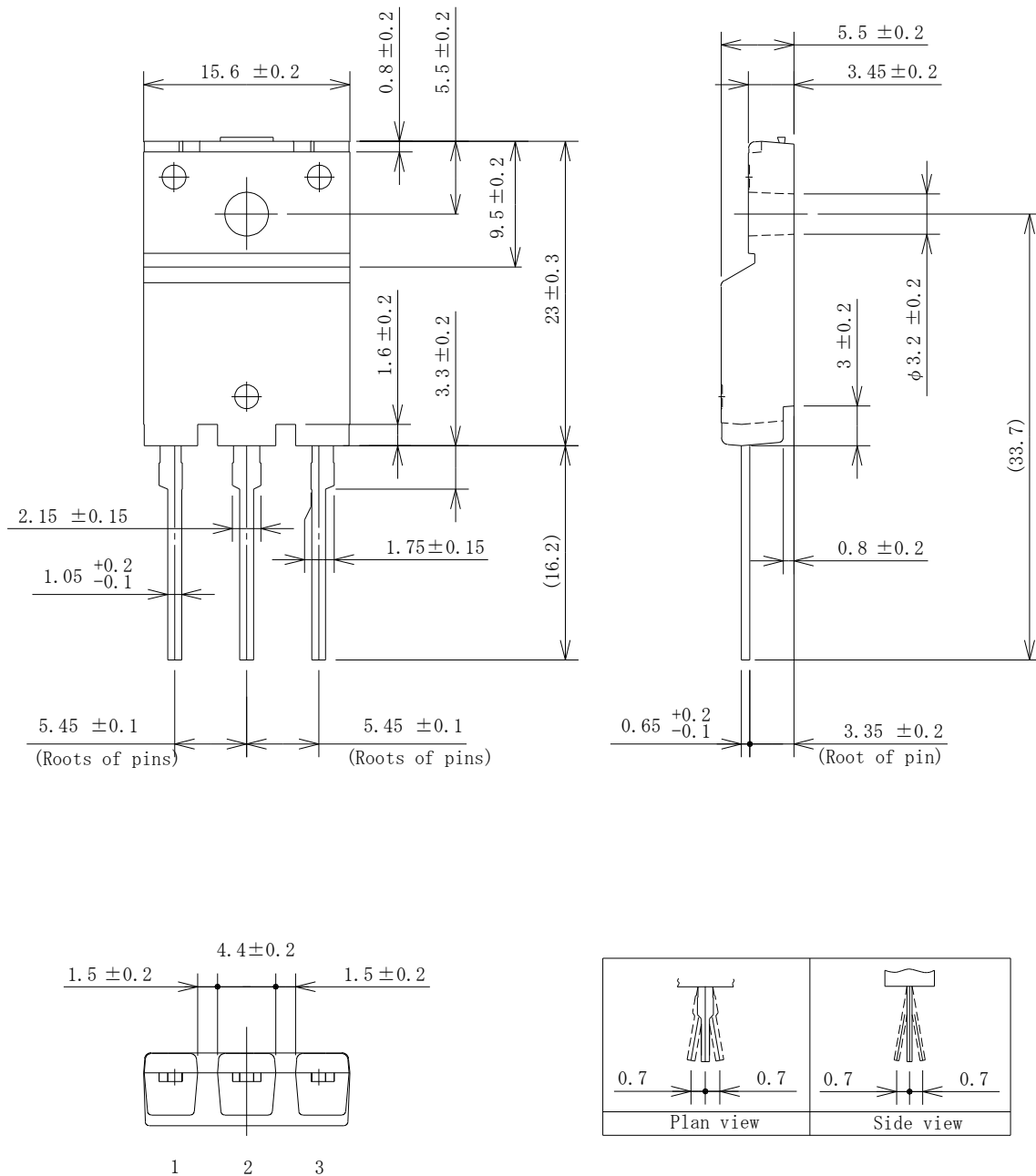


Figure 4.  $V_R$  vs.  $I_R$  Typical Characteristics

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

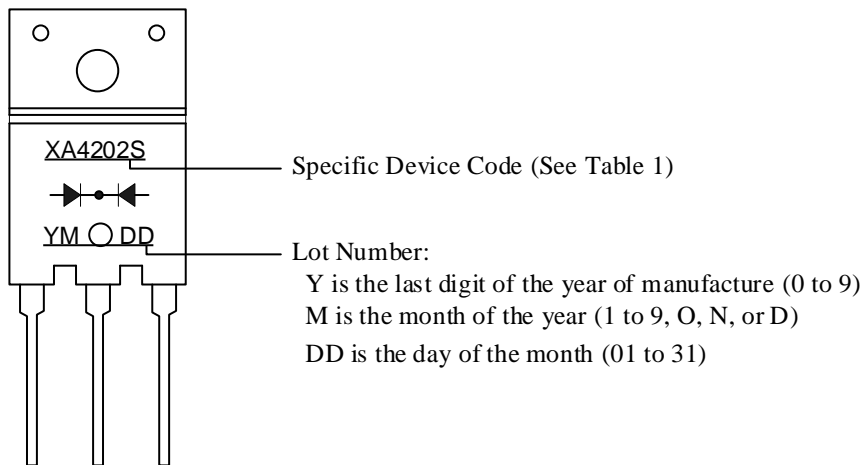


Table 1. Specific Device Code

Specific Device Code	Part Number
XA4202S	FMXA-4202S

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DSGN-CEZ-16003