

$V_{RM} = 300\text{ V}$, $I_{F(AV)} = 20\text{ A}$, $t_{rr} = 25\text{ ns}$
Fast Recovery Diode
FMXA-4203S

Description

The FMXA-4203S is a fast recovery diode of 300 V / 20 A. The maximum t_{rr} of 25 ns is realized by optimizing a life-time control.

Package

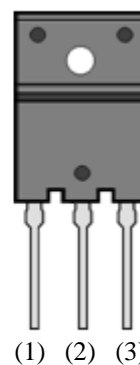
TO3PF-3L

Features

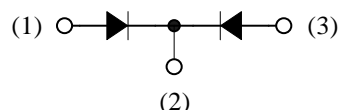
- V_{RM} ----- 300 V
- $I_{F(AV)}$ ----- 20 A
- V_F ----- 1.30 V
- t_{rr} ----- 25 ns
- Bare lead frame: Pb-free (RoHS compliant)

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

Absolute Maximum RatingsUnless otherwise specified, $T_A = 25\text{ }^{\circ}\text{C}$

Parameter	Symbol	Rating	Unit	Conditions
Peak Repetitive Reverse Voltage ⁽¹⁾	V_{RSM}	300	V	
Repetitive Reverse Voltage ⁽¹⁾	V_{RM}	300	V	
Average Forward Current	$I_{\text{F(AV)}}$	20	A	See Figure 1 and Figure 2
Surge Forward Current ⁽¹⁾	I_{FSM}	100	A	Half cycle sine wave, positive side, 10 ms, 1 shot
I^2t Limiting Value ⁽¹⁾	I^2t	50	A^2s	$1\text{ ms} \leq t \leq 10\text{ ms}$
Junction Temperature	T_J	-40 to 150	$^{\circ}\text{C}$	
Storage Temperature	T_{STG}	-40 to 150	$^{\circ}\text{C}$	

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop ⁽¹⁾	V_F	$T_J = 25\text{ }^{\circ}\text{C}, I_F = 10\text{ A}$	—	—	1.30	V
		$T_J = 100\text{ }^{\circ}\text{C}, I_F = 10\text{ A}$	—	1.03	—	V
Reverse Leakage Current ⁽¹⁾	I_R	$V_R = V_{\text{RM}}$	—	—	100	μA
Reverse Leakage Current Under High Temperature ⁽¹⁾	$H \cdot I_R$	$V_R = V_{\text{RM}}, T_J = 150\text{ }^{\circ}\text{C}$	—	—	30	mA
Reverse Recovery Time ⁽¹⁾	t_{rr}	$I_F = I_{\text{RP}} = 500\text{ mA}$ 90% recovery point, $T_J = 25\text{ }^{\circ}\text{C}$	—	—	25	ns
Thermal Resistance ⁽²⁾	$R_{\text{th(J-C)}}$		—	—	2.0	$^{\circ}\text{C/W}$

⁽¹⁾ Specifies a value per chip; the FMXA-4203S consists of two chips.⁽²⁾ $R_{\text{th(J-C)}}$ 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

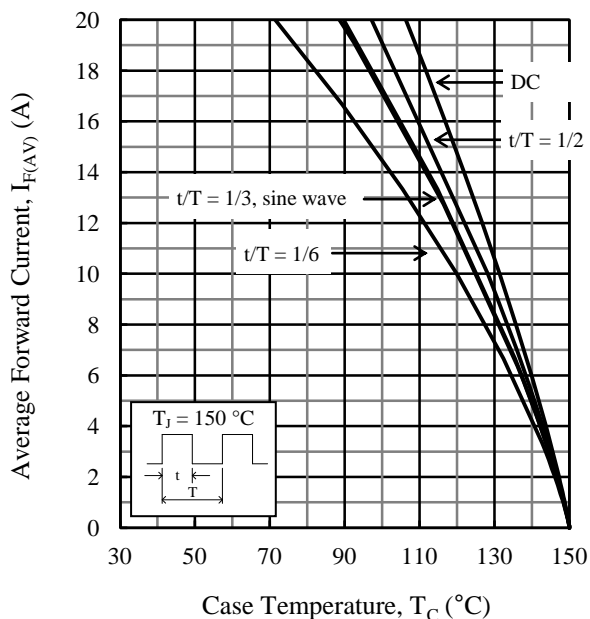


Figure 1. $I_{F(AV)}$ vs. T_C Typical Characteristics ($V_R = 0$ V)

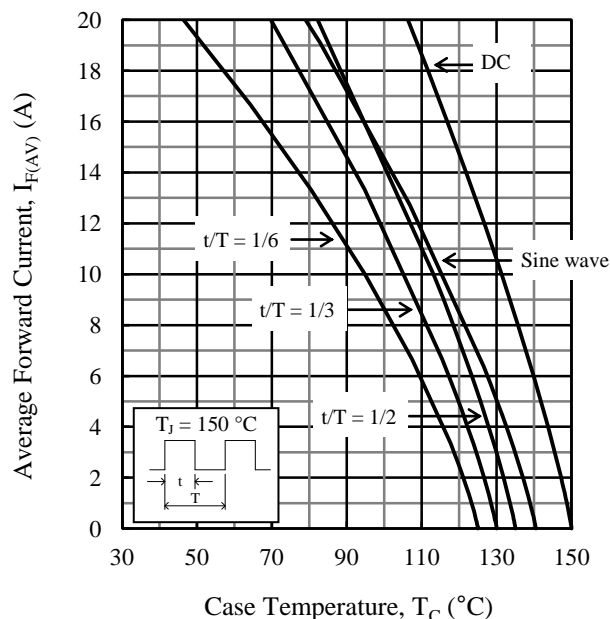


Figure 2. $I_{F(AV)}$ vs. T_C Typical Characteristics ($V_R = 300$ V)

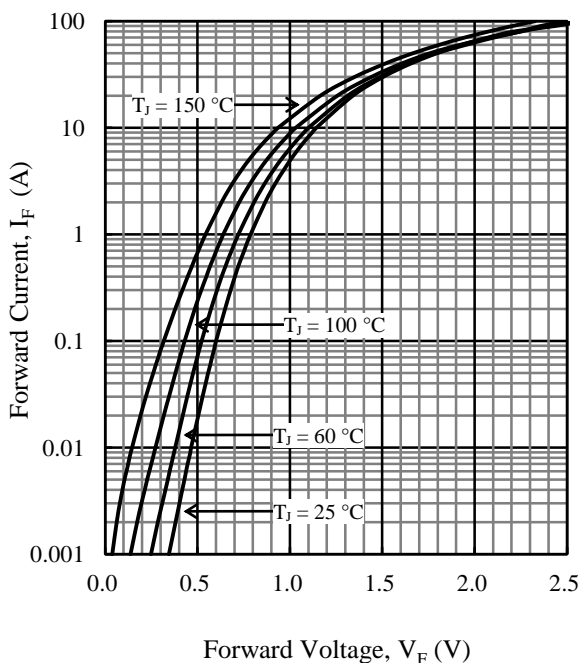


Figure 3. V_F vs. I_F Typical Characteristics

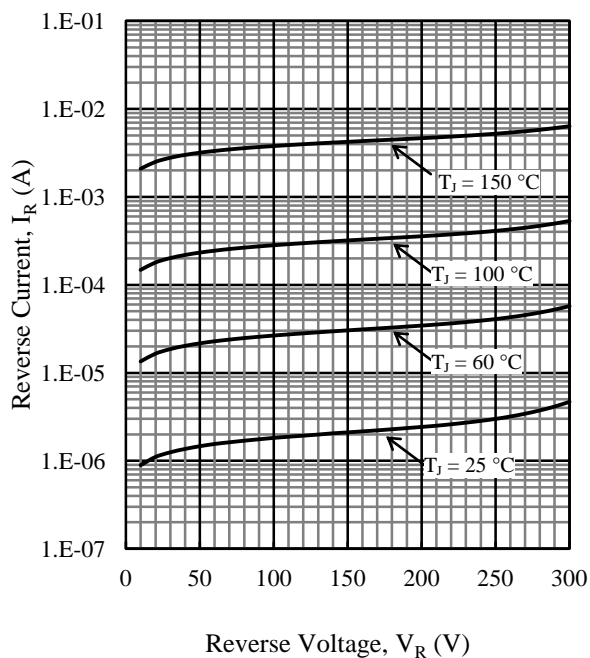
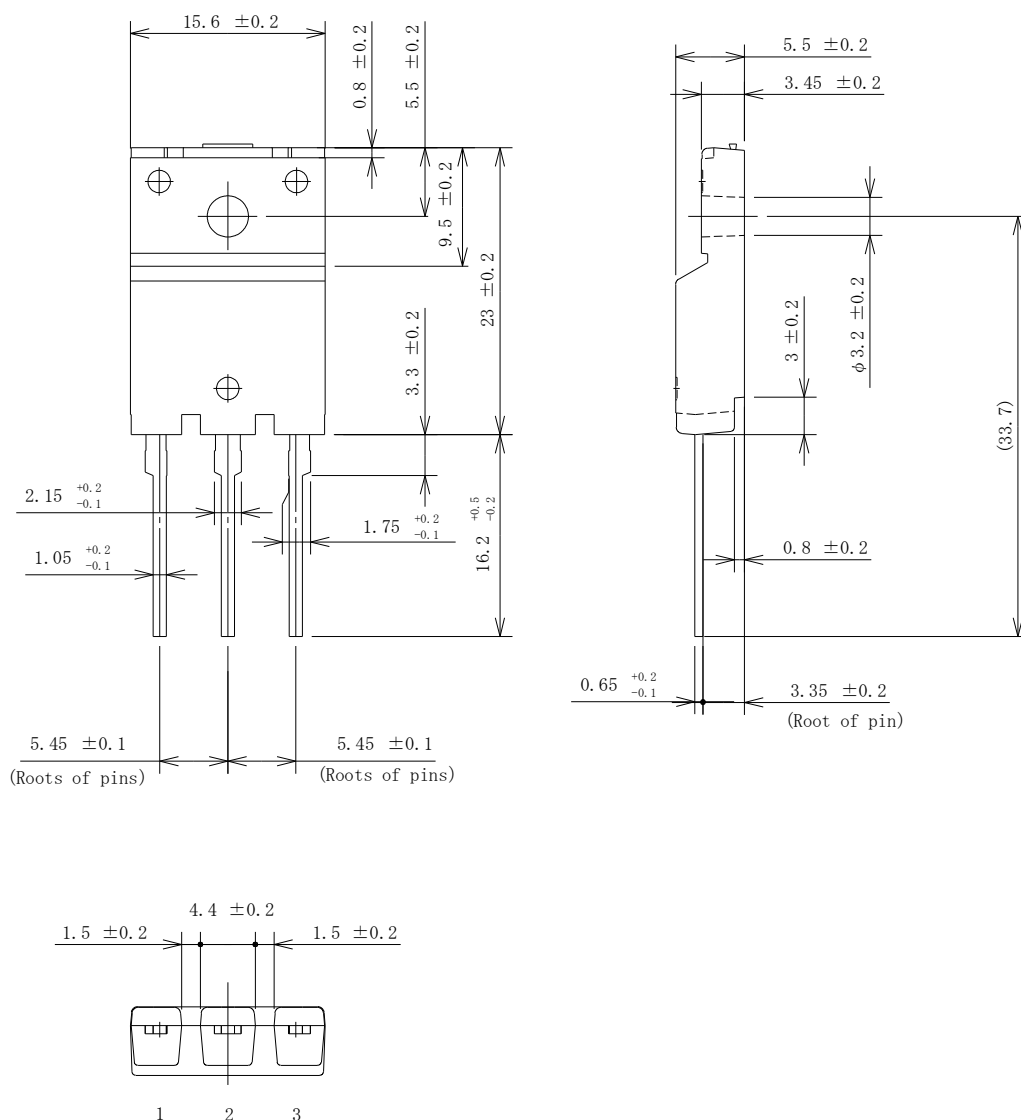


Figure 4. V_R vs. I_R Typical Characteristics

Physical Dimensions

• TO3PF-3L



NOTES:

- Dimensions in millimeters
- 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 TO3PFF: 0.686 N·m to 0.882 N·m (7 kgf·cm to 9 kgf·cm)

Marking Diagram

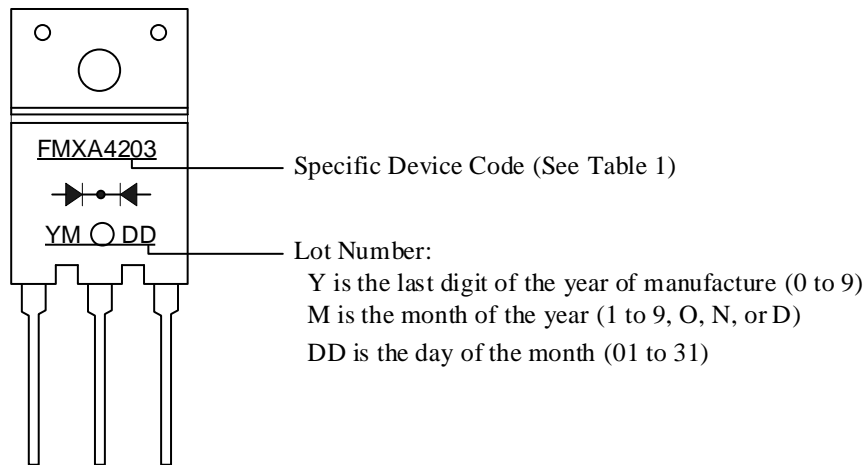


Table 1. Specific Device Code

Specific Device Code	Part Number
FMXA4203	FMXA-4203S

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