Ultrafast Recovery Diode

FMXA-2102ST

March, 2006

General Description

A combination of a new lifetime control technology and a thinner die realizes low power dissipation.

As a FRD for SW power supply secondary side rectification, this device has optimal characteristics for a high frequency rectification use.

Applications

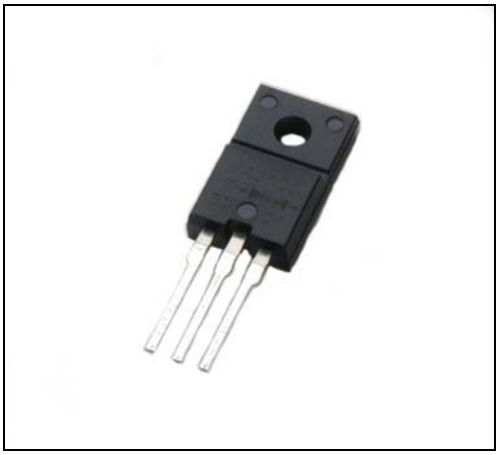
- PDP driver circuit.
- An output rectifier for SMPS, UPS, DC-DC converter.
- A Flywheel diode for the inverter and chopper.

Features

- An excellent reverse recovery characteristic under high temperature
- An improved heat dissipation at a junction part thanks to a thinner die

Die Structure: Silicon Planer Diode (FRD)

Package—TO220F



Key Specifications

Absolute maximum ratings

Parameter	Symbol	Unit	Rating
Transient Peak Reverse Voltage	VRSM	V	200
Peak Reverse Voltage	VRM	V	200
Average Forward Current	IF(AV)	A	10
Peak Surge Forward Current	IFSM	A	100

Electrical characteristics

Parameter	Symbol	Unit	Rating	Conditions
Forward Voltage Drop	VF	V	1.2 max.	IF=5A
Reverse Leakage Current	IR	μA	100 max.	VR=VRM
Reverse Leakage Current Under High Temperature	H•IR	mA	20 max.	VR=VRM, Tj=150°C
Reverse Recovery Time	trr	ns	25 max.	IF=IRP=500mA 90%Recovery point

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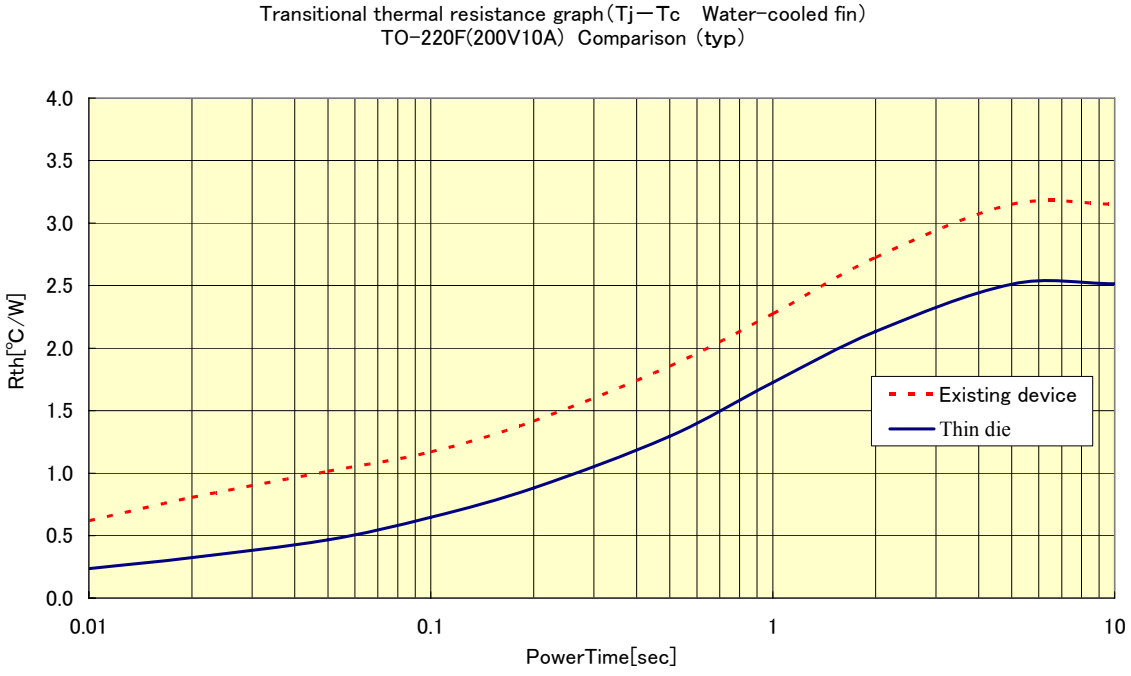
§1. Absolute Maximum Ratings and Electrical Characteristics

•Absolute Maximum Ratings

No.	Item	Symbol	Unit	Rating	Conditions
1	Transient Peak Reverse Voltage	VRSM	V	200	
2	Peak Reverse Voltage	VRM	V	200	
3	Average Forward Current	IF(AV)	A	10	Refer to "§4 Derating".
4	Peak Surge Forward Current	IFSM	A	100	10msec. Half sine-wave, one shot
5	I^2t Limiting Value	I^2t	A^2S	50	1msec ≤ t ≤ 10msec
6	Junction Temperature	Tj	°C	-40 to +150	
7	Storage Temperature	Tstg	°C	-40 to+150	

• Electrical Characteristics

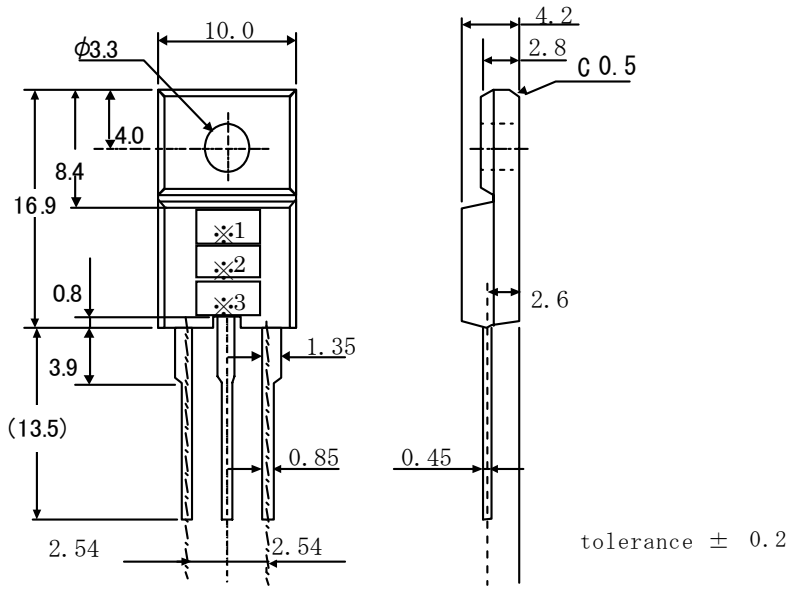
No.	Item	Symbol	Unit	Rating	Conditions
1	Forward Voltage Drop	V_F	V	1.2 max.	IF=5A
2	Reverse Leakage Current	I_R	μA	100 max.	VR=VRM
3	Reverse Leakage Current Under High Temperature	H•I_R	mA	20 max.	VR=VRM, Tj=150°C
4	Reverse Recovery Time	trr	ns	25 max	IF=IRP=100mA 90% Recovery point
5	Thermal Resistance	$R_{th(j-c)}$	°C/W	4.0 max.	Between Junction and case



FMXA-2102ST

§2. Package information

2-1 Package type, physical dimensions and material



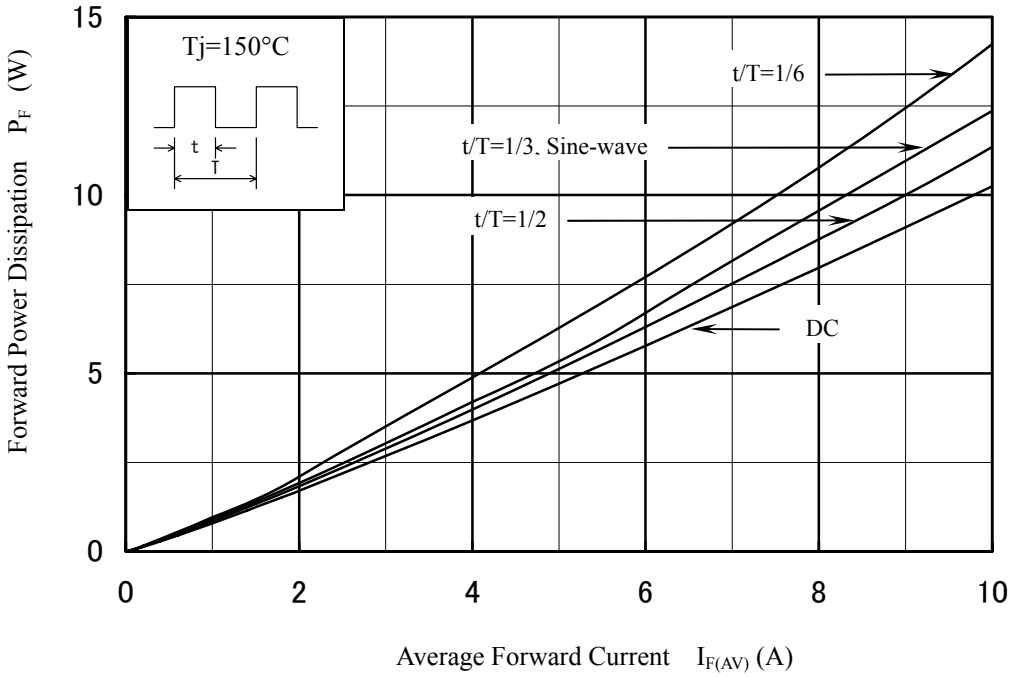
Unit: mm

2-2 Marking

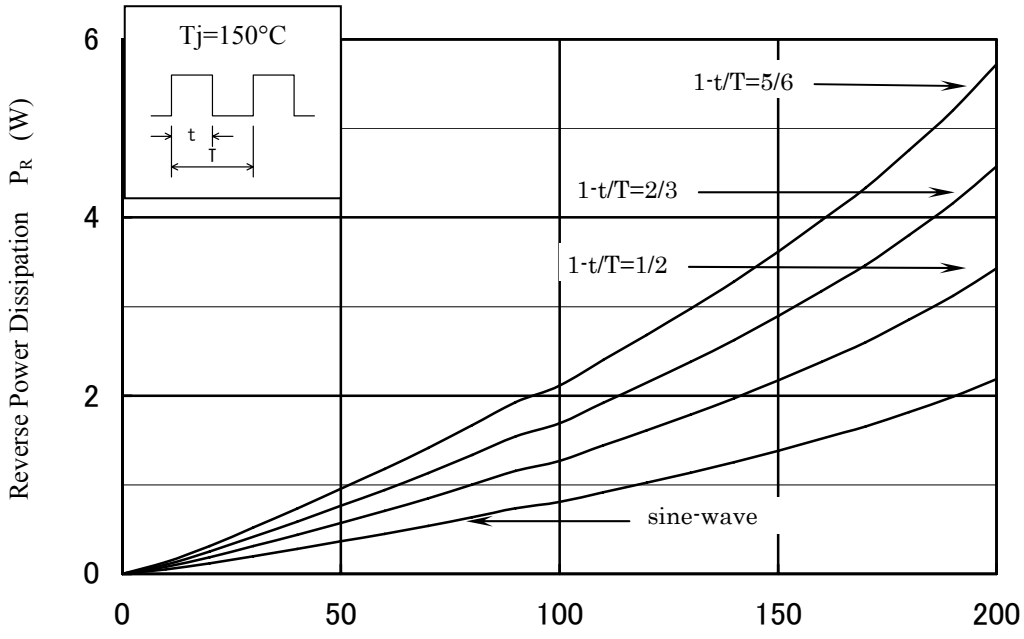
Part Number	Marking		
	Type Name	Polarity	Lot number
FMXA-2102ST	XA2102	T 	1st letter: Last digit of year 2nd letter: Month From 1 to 9 for Jan. to Sep., O for Oct., N for Nov., D for Dec. 3rd & 4th letter: Day ex. 6227 (Feb.,27, 2006)

§3. Characteristics

$I_{F(AV)}$ - P_F

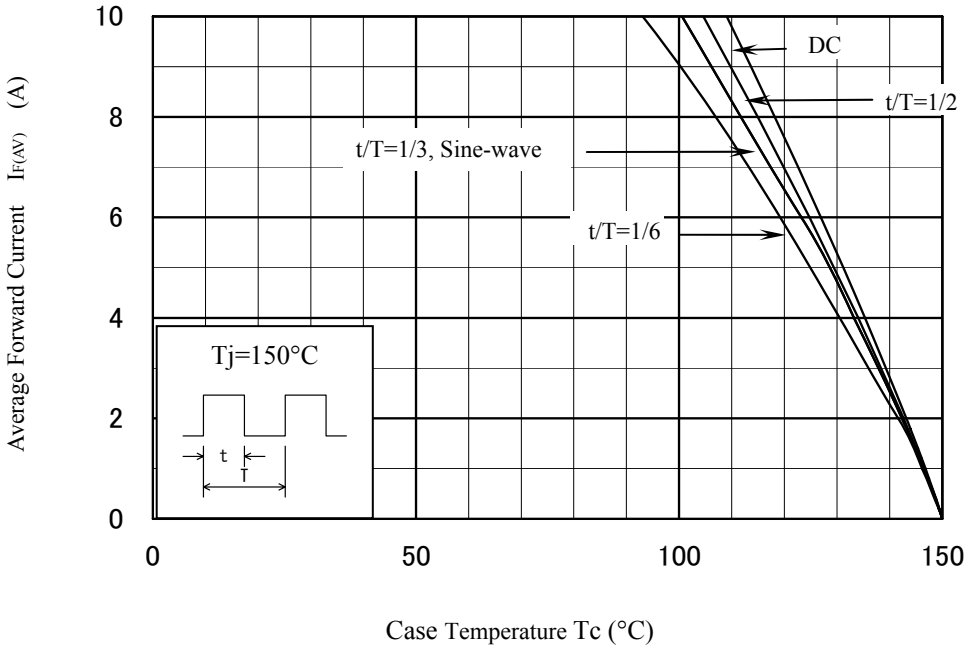


V_R – P_R



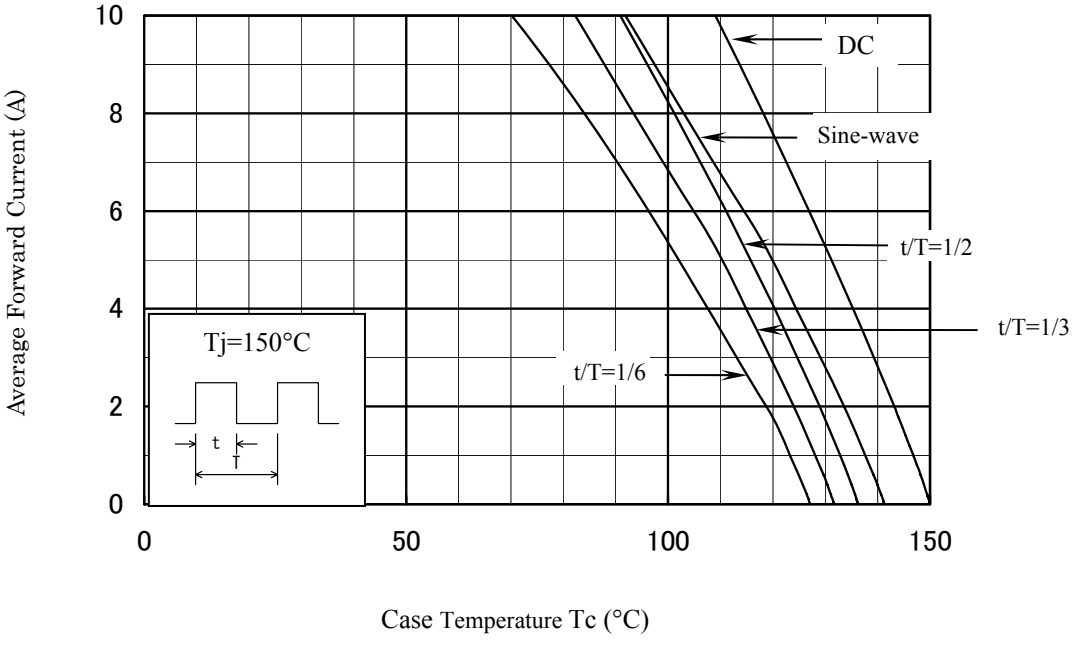
§4. Derating

T_c - $I_{F(AV)}$ V_R=0(V)



Case Temperature Tc (°C)

T_c - $I_{F(AV)}$ V_R=200(V)



Case Temperature Tc (°C)

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