

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

Package—TO220F



Die Structure: Silicon Planer Diode (FRD)

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

§1. Absolute Maximum Ratings and Electrical Characteristics

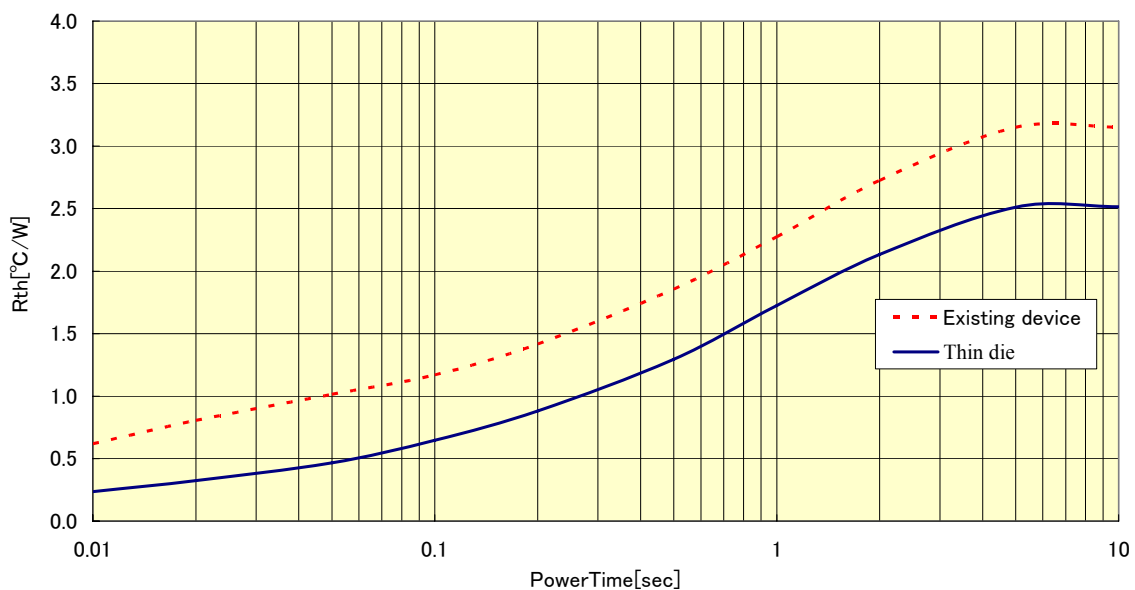
• Absolute Maximum Ratings

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 ² t Limiting Value	I ² t	A ² S	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

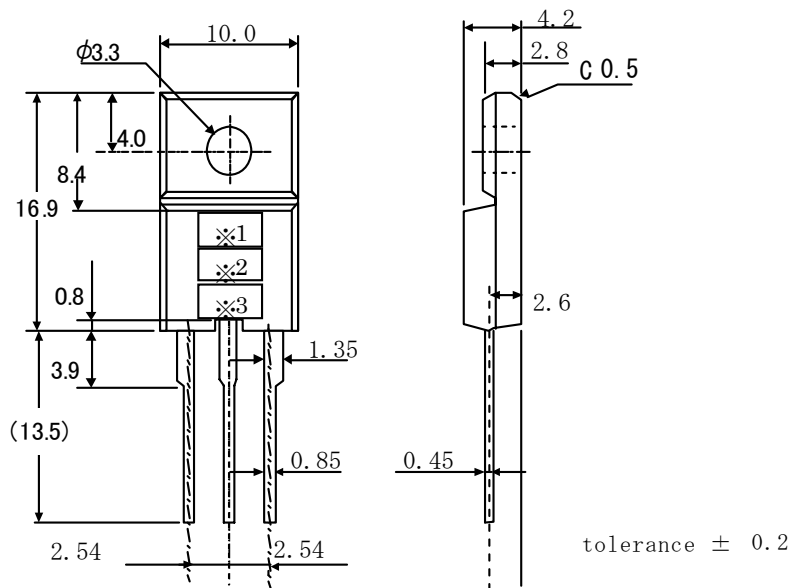
Transitional thermal resistance graph (T_j—T_c Water-cooled fin)
TO-220F(200V10A) Comparison (typ)



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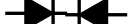
§2. Package information

2-1 Package type, physical dimensions and material



Unit: mm

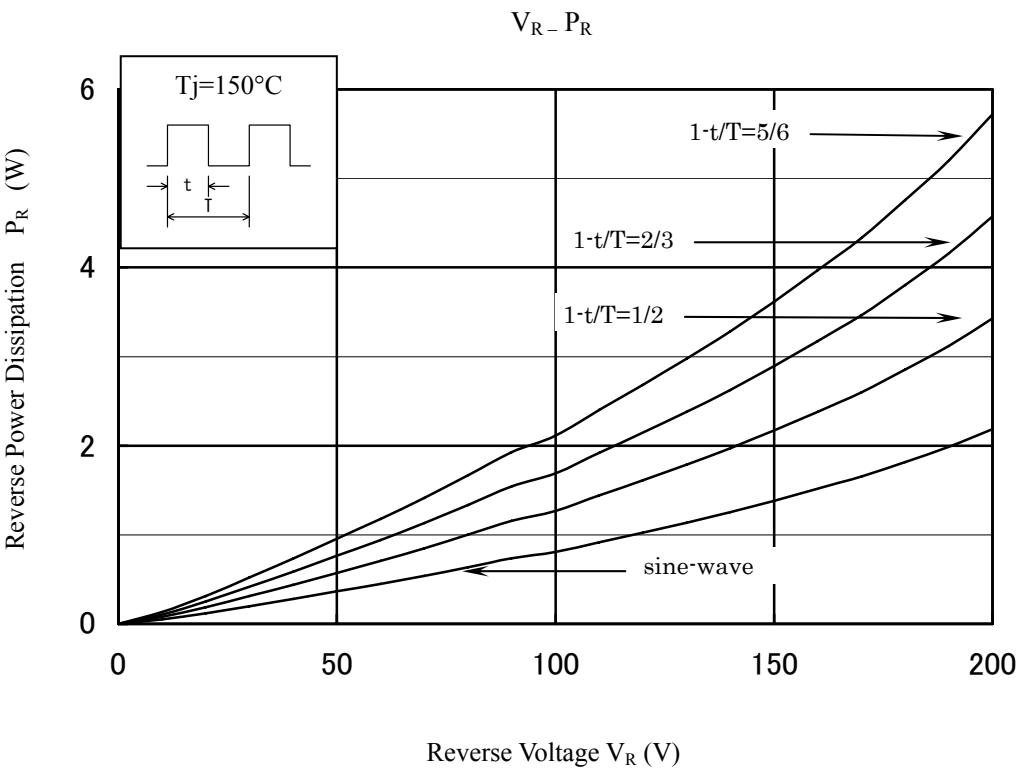
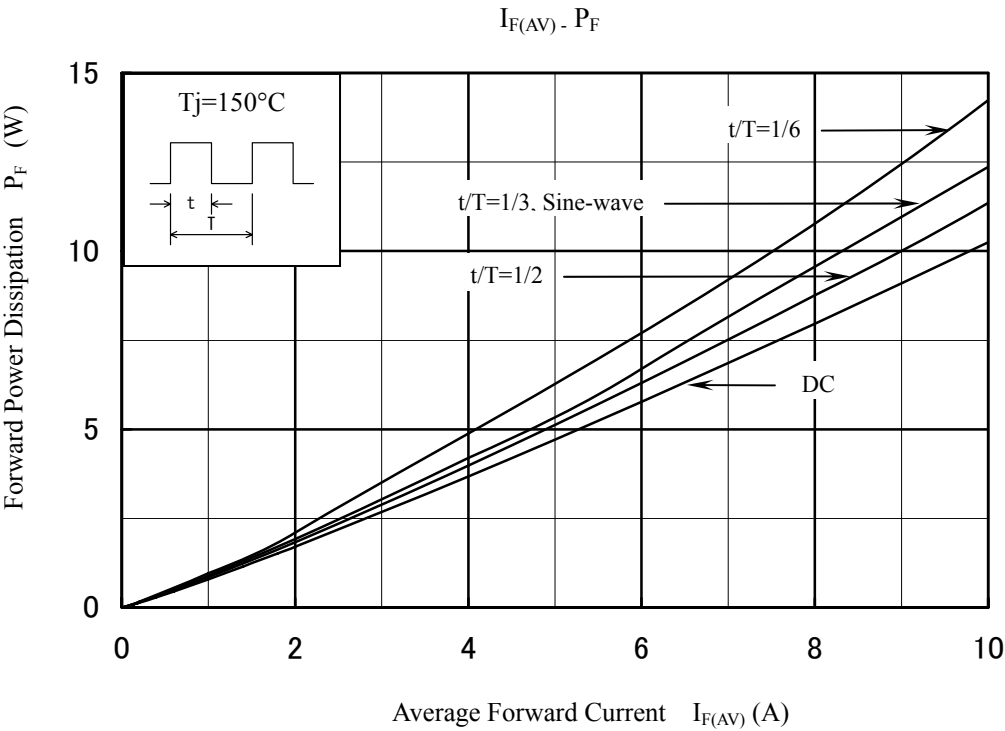
2-2 Marking

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)

FMXA-2102ST

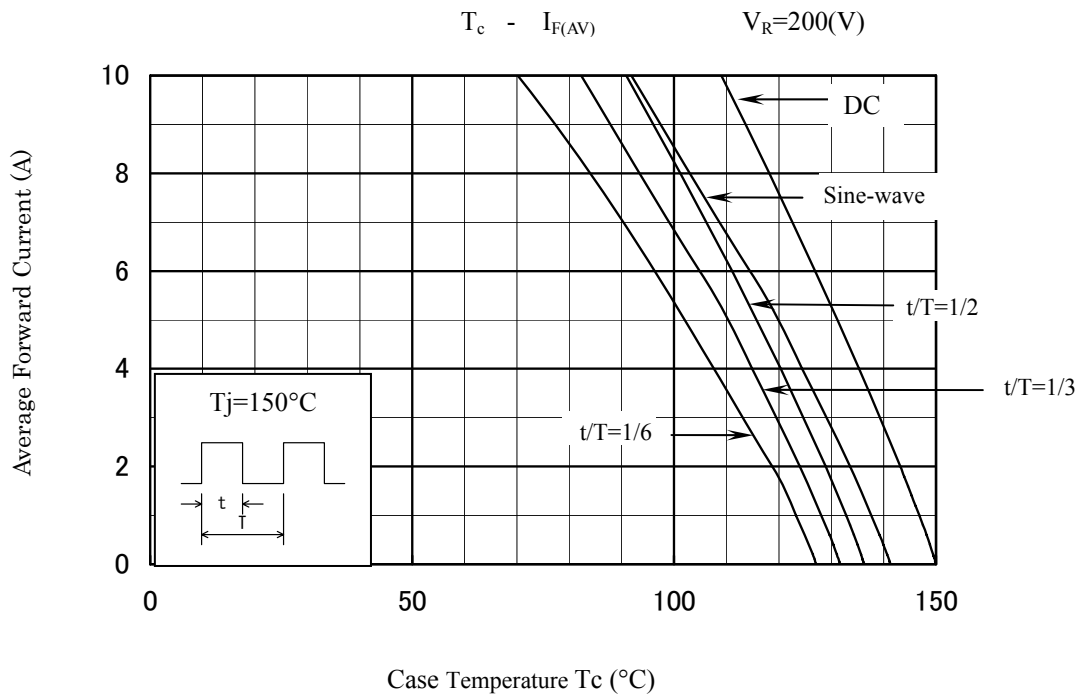
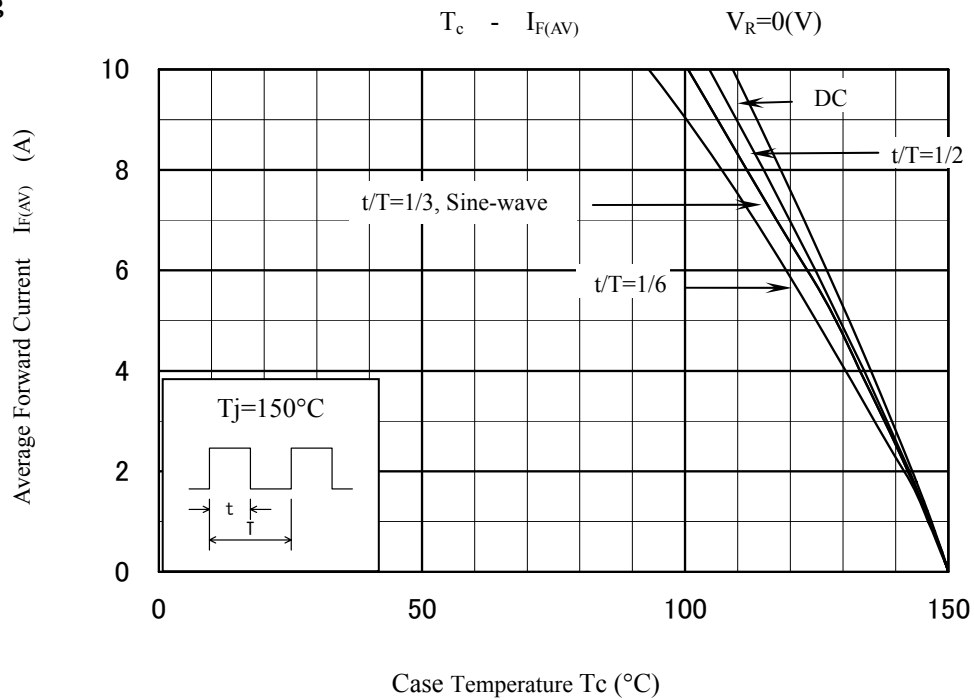
March, 2006

§3. Characteristics



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§4. Derating



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