Ultrafast Recovery Diode

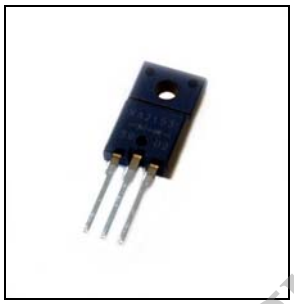
FMXA-2153S

November, 2005

■General Description

Shorter trr at high temperature has been realized by employing the new life time control technology.
This is the optimum characteristic as a high frequency rectifier FRD for FCC power supply, etc.

■Package---TO220F



■Applications

- PDP panel driver circuit.
- A high frequency rectifier for FCC power supply unit, etc.
- An output rectifier for SMPS, UPS, DC-DC converter.
- A Flywheel diode for the inverter and chopper.

■Key Specifications

●Absolute maximum ratings

Parameter	Symbol	Unit	Rating
Transient Peak Reverse Voltage	VRSM	V	300
Peak Reverse Voltage	VRM	V	300
Average Forward Current	IF(AV)	A	15
Peak Surge Forward Current	IFSM	A	75

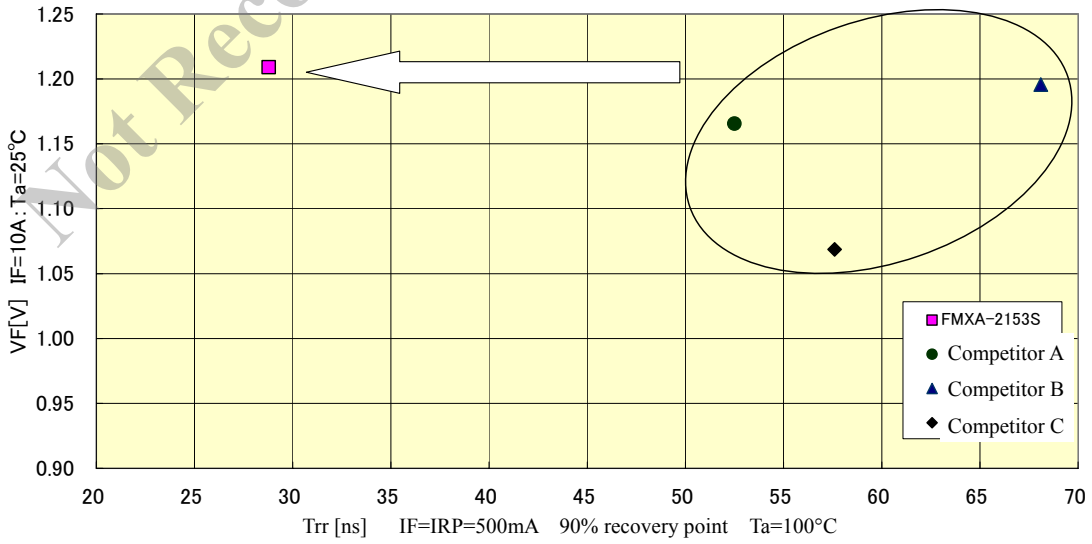
●Electrical characteristics (Per element)

Parameter	Symbol	Unit	Rating	Conditions
Forward Voltage Drop	VF	V	1.3 max.	IF=7.5A
Reverse Leakage Current	IR	μA	75 max.	VR=VRM
Reverse Leakage Current Under High Temperature	H•IR	mA	23 max.	VR=VRM, Tj=150°C
Reverse Recovery Time	trr	ns	25 max.	IF=IRP=500mA 90%Recovery point

■Features

- The shortest trr characteristic in the world at high temperature (100°C).
  The VF is nearly equivalent to the competitors'.
  This trr at high temperature (100°C, IF=IRP=500mA) is as short as 44 to 57% of the competitors'.

VF - trr @ High temperature (100°C) Characteristics comparison



Not Recommended for New Designs

FMXA-2153S

November, 2005

Die Structure: Silicon Planer Diode (FRD)

§1. Absolute Maximum Ratings and Electrical Characteristics

•Absolute Maximum Ratings

No.	Item	Symbol	Unit	Rating	Conditions
1	Transient Peak Reverse Voltage	VRSM	V	300	
2	Peak Reverse Voltage	VRM	V	300	
3	Average Forward Current	IF(AV)	A	15	
4	Peak Surge Forward Current	IFSM	A	75	10msec. Half sine-wave, one shot
5	I^2t Limiting Value	I^2t	A^2S	28	1msec ≤ t ≤ 10msec
6	Junction Temperature	Tj	°C	-40 to +150	
7	Storage Temperature	Tstg	°C	-40 to +150	

•Electrical Characteristics

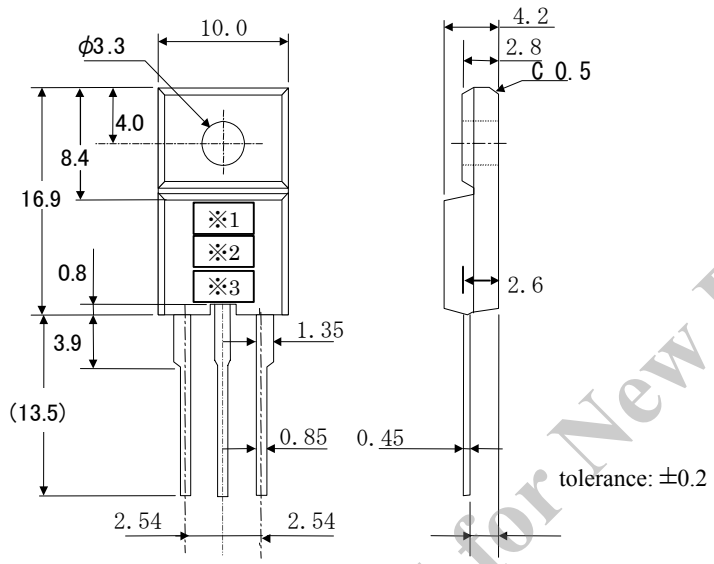
No.	Item	Symbol	Unit	Rating	Conditions
1	Forward Voltage Drop	V_F	V	1.30 max.	IF=7.5A
2	Reverse Leakage Current	I_R	μA	75 max.	VR=VRM
3	Reverse Leakage Current Under High Temperature	H•I_R	mA	23 max.	VR=VRM, Tj=150°C
4	Reverse Recovery Time	trr	ns	25 max	IF=IRP=500mA 90% Recovery point
5	Thermal Resistance	$R_{th(j-c)}$	°C/W	4.0 max.	Between Junction and case

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FMXA-2153S

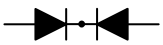
§2. Package information

2-1 Package type, physical dimensions and material



Unit: mm

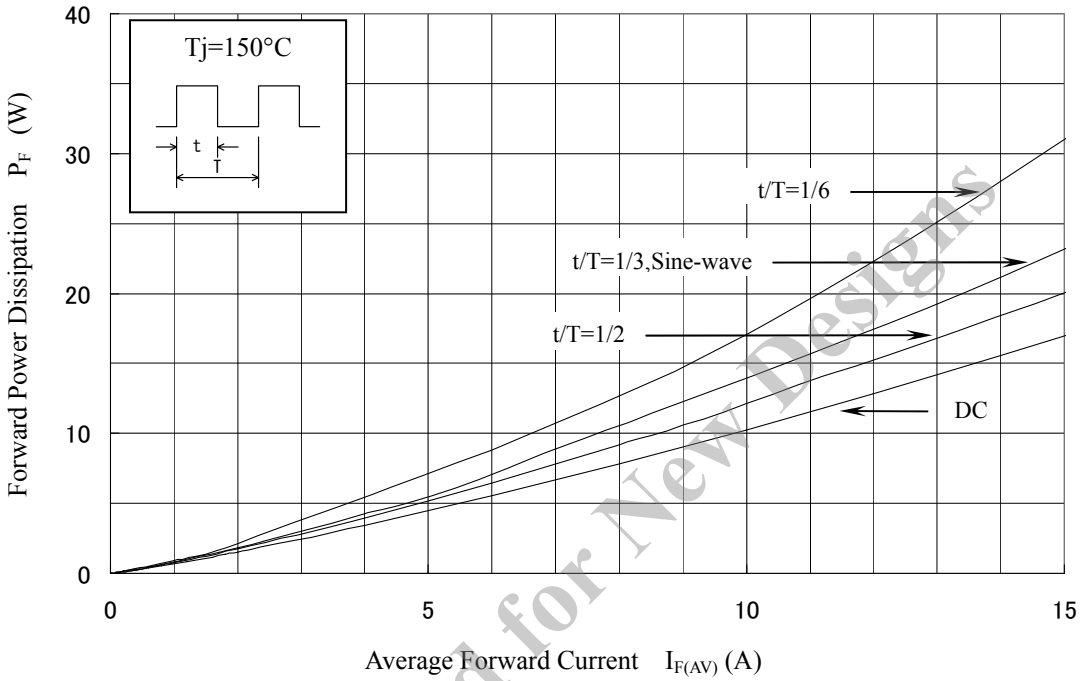
2-2 Marking

Part Number	Marking		
	Type Name	Polarity	Lot number
FMXA-2153S	XA2153		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 e.g.: 5006 (October 6, 2005)

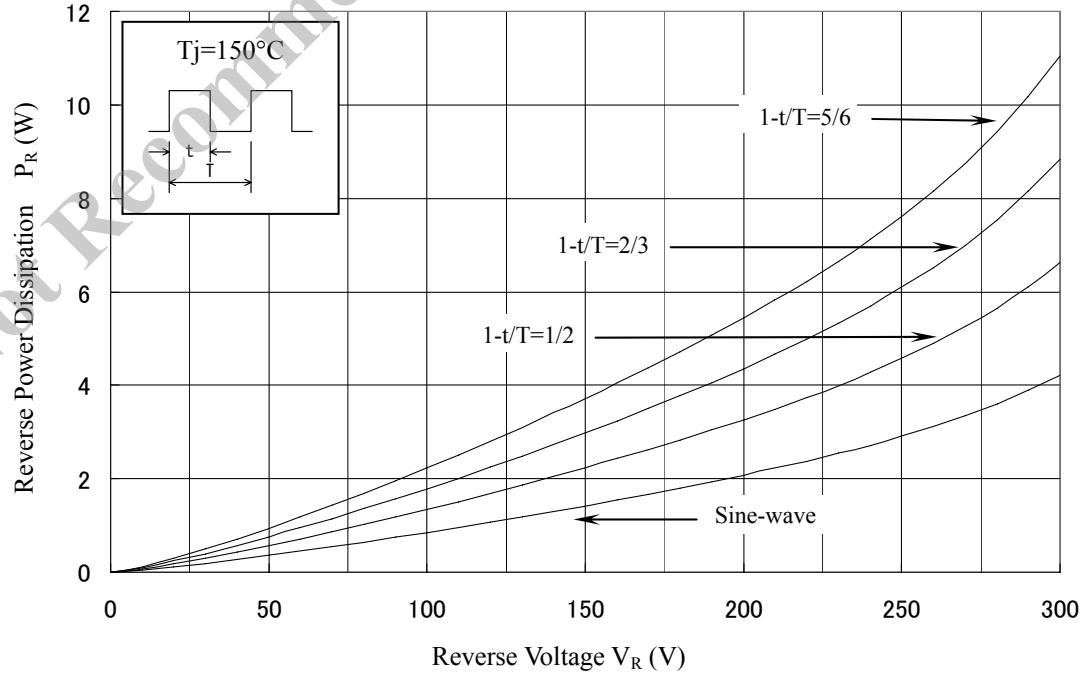
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§3. Characteristics

$I_{F(AV)}$ - P_F

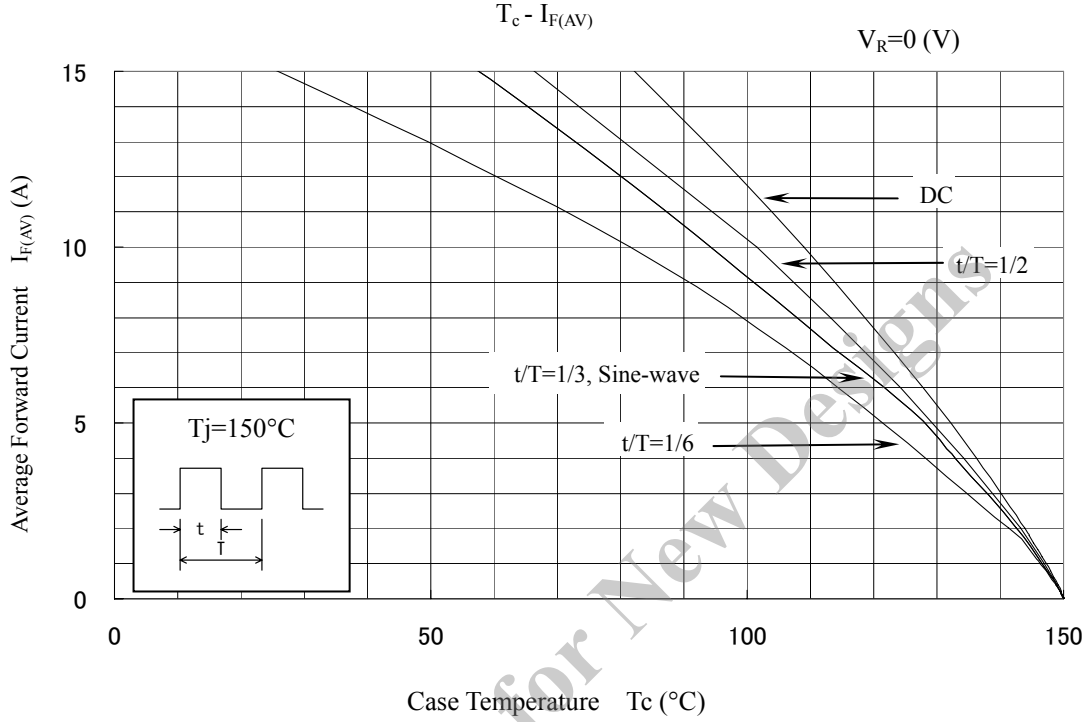


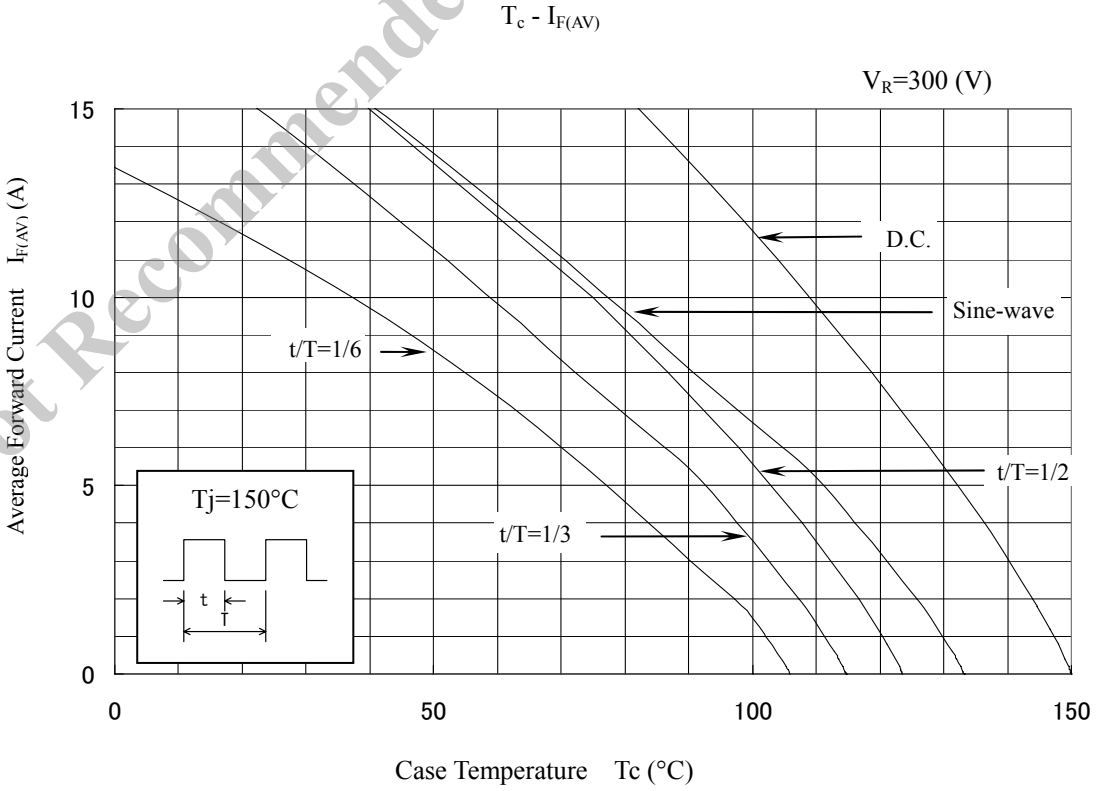
V_R - P_R



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§4. Derating





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