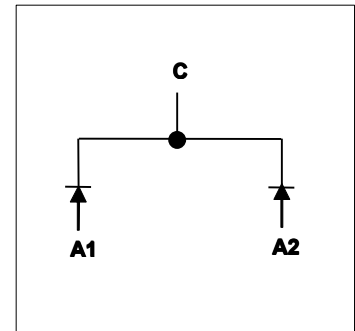


Features

- Ultrafast recovery time
- Soft Recovery characteristics
- Low Recovery Loss
- Low forward voltage
- High reliability by planer design
- Low leakage current

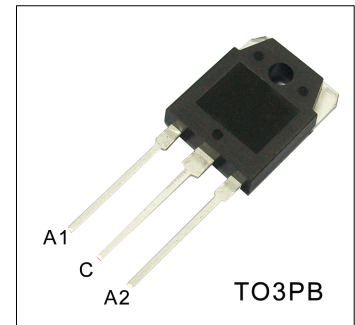


General Description

FRD from Winsemi utilizes advanced processing techniques to achieve ultrafast recovery times and higher forward current. Its soft recovery characteristics and high reliability suit for wide industrial applications.

Applications

- Freewheeling, Snubber, Clamp
- Inversion Welder
- PFC
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- UPS



Absolute Maximum Ratings

Symbol	Parameter	Test Conditions	Value	Units
V_R	Maximum D.C.Reverse Voltage		400	V
V_{RRM}	Maximum Repetitive Revers Voltage		400	V
$I_{F(AV)}$	Average Forward Current	$T_c=110^{\circ}C$, Per Diode	40	A
		$T_c=110^{\circ}C$, Per Package	80	A
$I_{F(RMS)}$	RMS Forward Current	$T_c=110^{\circ}C$, Per Diode	56	A
I_{FSM}	No-Repetitive Peak Surge current	$T_j=45^{\circ}C$, $t=10ms$, 50Hz, Sine	400	A
P_D	Power Dissipation		156	W
T_J	Junction Temperature		150	$^{\circ}C$
T_{STG}	Storage Temperature Range		-40~150	$^{\circ}C$
Torque	Module-to-Sink	Recommended	1.1	N.m
$R_{\theta JC}$	Thermal Resistance	Junction-to-Case	0.8	$^{\circ}C/W$
Weight			6.0	g

Electrical Characteristics $T_C=25^\circ\text{C}$

Symbol	Parameter	Test Conditions	Value			Units
			Min	Typ	Max	
I_{RM}	Reverse Leakage Current	$V_R=400V$	-	-	10	μA
		$V_R=400V, T_J=125^\circ\text{C}$	-	-	150	μA
V_F	Forward Voltage Drop	$I_F=40A$	-	1.3	1.7	V
		$I_F=40A, T_J=125^\circ\text{C}$	-	1.1	-	V
T_{rr}	Reverse Recovery Time	$I_F=1A, V_R=30, di/dt=-200A/\mu s$	-	22	-	ns
T_{rr}	Reverse Recovery Time	$I_F=40A, V_R=200V$	-	52	-	ns
I_{RRM}	Max.Reverse Recovery Current	$di_F/dt=-200A/\mu s, T_J=25^\circ\text{C}$	-	4.5	-	A
T_{rr}	Reverse Recovery Time	$I_F=40A, V_R=200V$	-	71	-	ns
I_{RRM}	Max.Reverse Recovery Current	$di_F/dt=-200A/\mu s, T_J=125^\circ\text{C}$	-	9	-	A

Typical Performance Curres

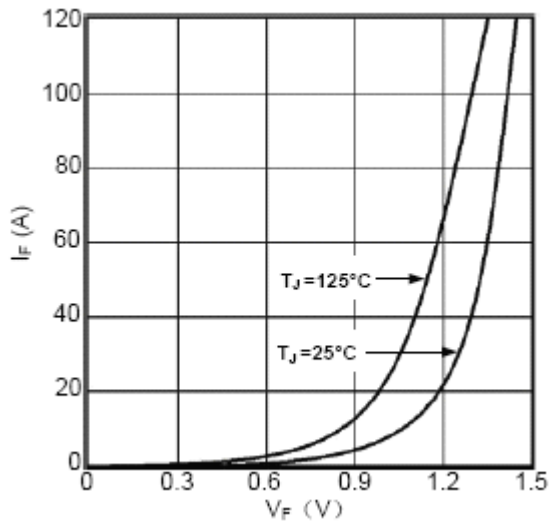


Fig.1 Forward Voltage Drop vs Forward Current

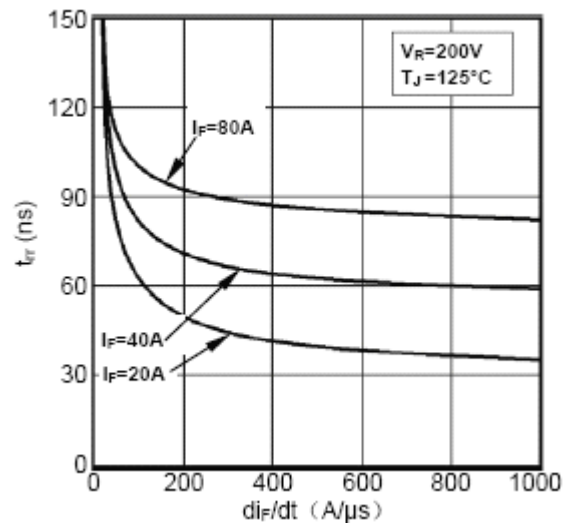


Fig.2 Reverse Recovery Time vs di_F/dt

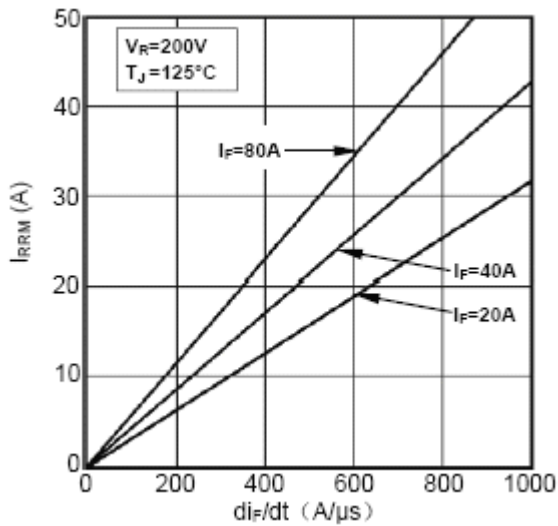


Fig.3 Reverse Recovery Current vs di_F/dt

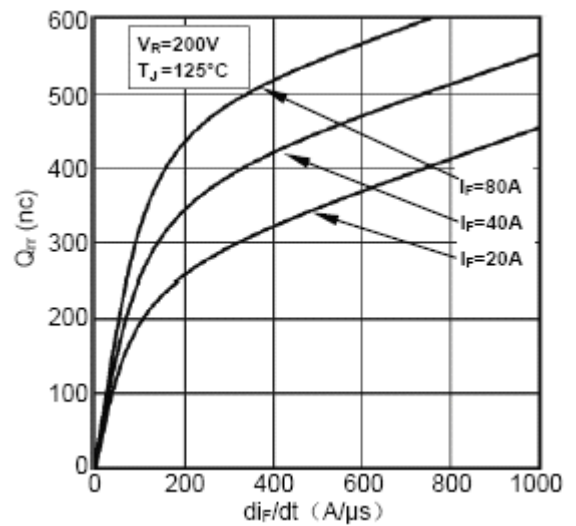


Fig.4 Reverse Recovery Charge vs di_F/dt

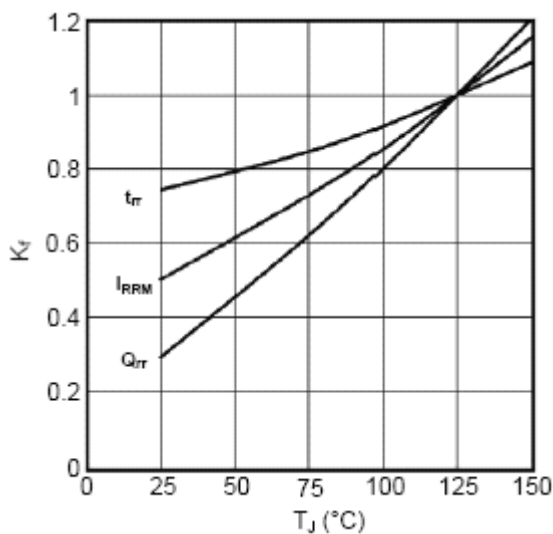


Fig.5 Dynamic Parameters vs Junction Temperature

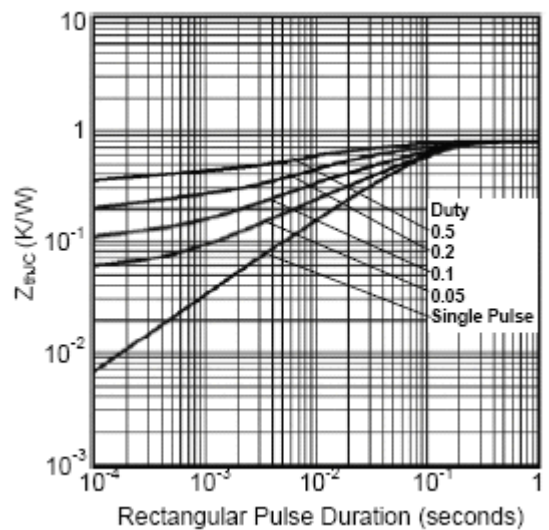


Fig.6 Transient Thermal Impedance

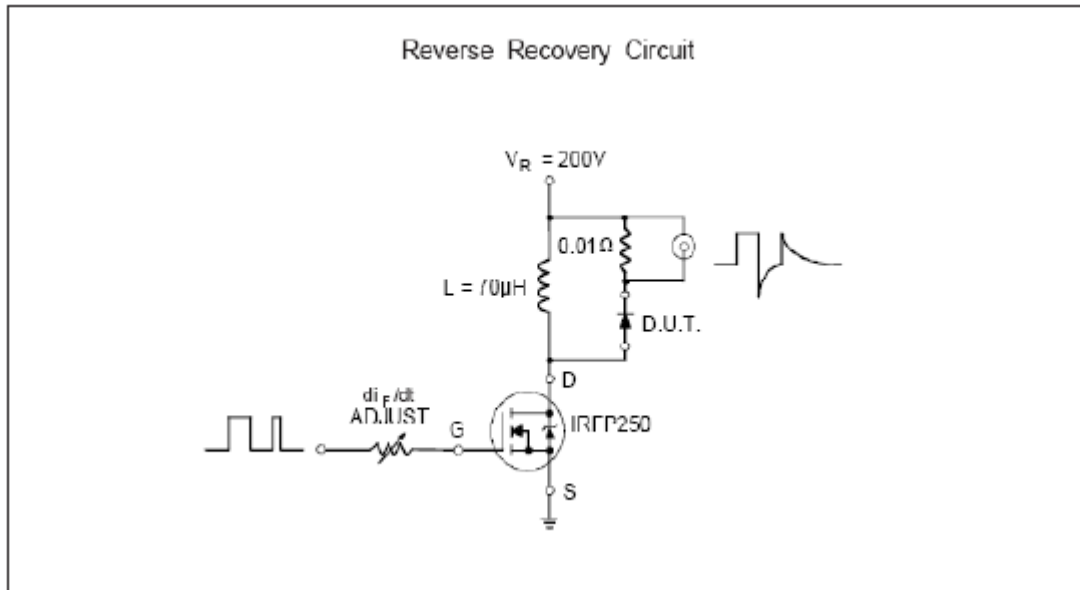


Fig.7 Reverse Recovery Parameter Test circuit

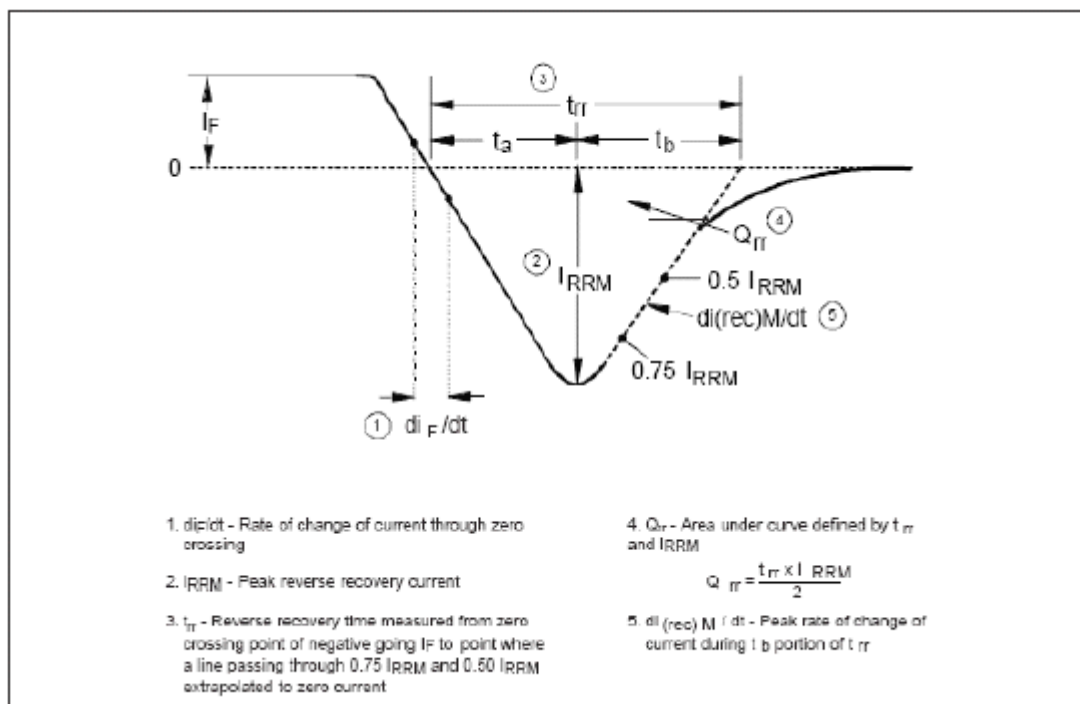
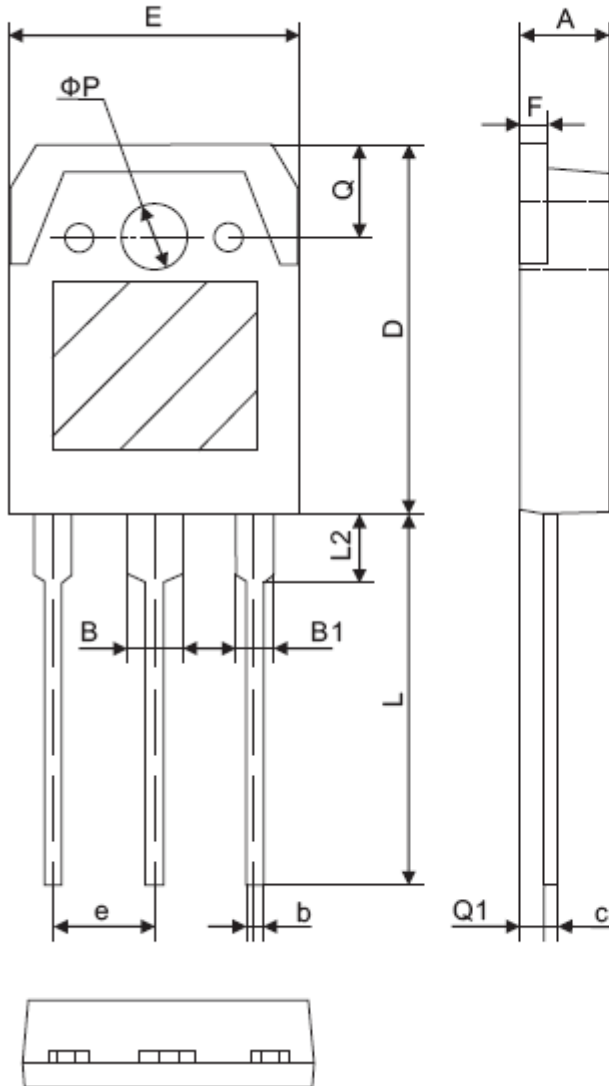


Fig.8 reverse Recovery Waveform and definitions

To-3PB Package Dimension

Unit:mm



符号 symbol	Min	Max
A	4.60	5.00
B	2.90	3.20
B1	1.90	2.20
b	0.90	1.10
c	0.50	0.70
D	19.40	20.40
E	15.40	15.80
e	5.45 (TYP)	
F	1.40	1.60
L	19.50	20.50
L2	3.30	3.70
Q	4.90	5.10
Q1	1.30	1.50
P	3.10	3.50

NOTE:

- 1.We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
- 2.Please do not exceed the absolute maximum ratings of the device when circuit designing.
- 3.Winsemi Microelectronics Co., Ltd reserved the right to make changes in this specification sheet and is subject to change without prior notice.

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