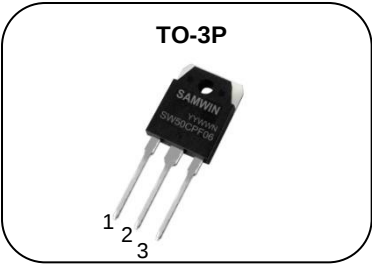


DIODE

Features

- Ultrafast recovery time
- Low forward voltage drop
- 150 °C operating junction temperature
- Low leakage current
- Designed and qualified according to JEDEC-JESD47



1. Anode 2. Gathode 3. Anode

VR : 620V

IF(AV) : 50A

VF at IF : 1.5V

Base
Common
Cathode

2

Anode 1

1

Common
Cathode

2

Anode 2

3

General Description

This FRED is designed with optimized performance of forward voltage drop and ultrafast recovery time. the platinum doped life time control, guarantee the best overall performance ruggedness and reliability characteristics. This devices are intended for use in the output rectification stage of SMPS, UPS, DC/DC converters as freewheeling diode in low voltage inverters. Their extremely optimized stored charge and low recovery current minimize the switching losses and reduce over dissipation in the switching element.

Order Codes

Item	Sales Type	Marking	Package	Packaging
1	SW W 50CPF06	SW50CPF06	TO-3P	TUBE

Absolute maximum ratings

Symbol	Parameter	Value	Unit
VR	Repetitive peak reverse voltage	620	V
IF(AV)	Average rectified forward current (@TC=150°C)	50	A
TJ, TStg	Operating junction and storage temperatures	-55 ~ + 150	°C

Electrical characteristic (TC = 25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
VR	Breakdown voltage,blocking voltage	IR=100uA	620			V
VF	Forward voltage	IF=3A		0.9	1.13	V
		IF=50A			1.5	V
		IF=50A, TJ= 150 °C			1.3	V
IR	Reverse leakage current	VR=600V			500	nA
		VR=600V, TJ= 150 °C			500	uA
CT	Junction capacitance	VR=600V		30		pF

DYNAMIC RECOVERY CHARACTERISTICS (TJ= 25 °C unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{rrm}	Peak recovery current	$I_F=50A, di/dt=200A/us,$ $V_R=100V$		5.9		A
T_{rr}	Reverse recovery time			59		ns
Q_{rr}	Reverse recovery Charge			190		nC

THERMAL - MECHANICAL SPECIFICATIONS

Symbol	Parameter	Value	Unit
R_{thjc}	Thermal resistance, Junction to case (Per Leg)	0.57	°C/W
R_{thjc}	Thermal resistance, Junction to case (Per Package)	0.62	°C/W
R_{thja}	Thermal resistance, Junction to ambient(Per Leg)	35.5	°C/W
R_{thja}	Thermal resistance, Junction to ambient(Per Package)	34.3	°C/W

Fig. 1. Typical Forward Voltage Drop Characteristics

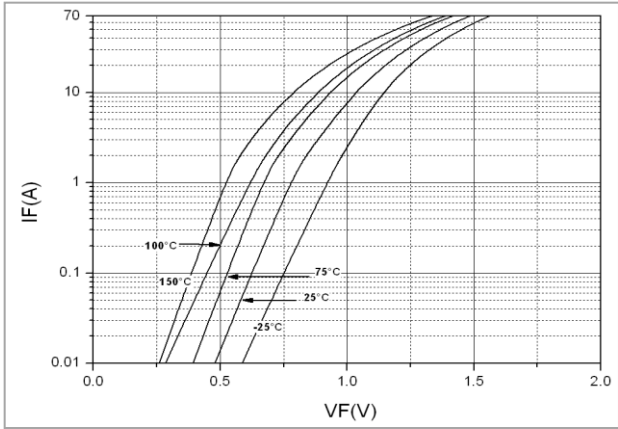


Fig. 2. Typical Values of Reverse Current vs. Reverse Voltage

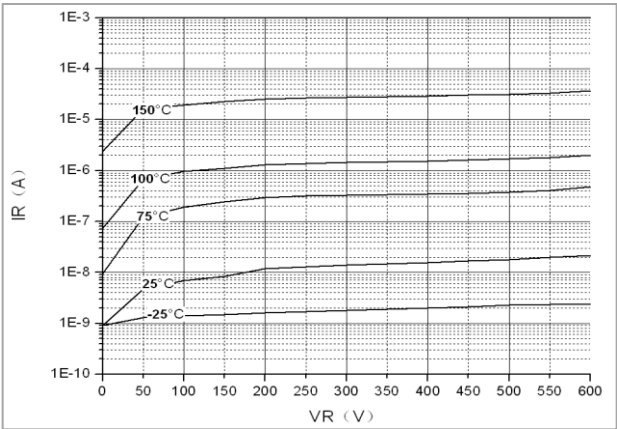


Fig. 3. Typical Junction Capacitance vs. Reverse Voltage

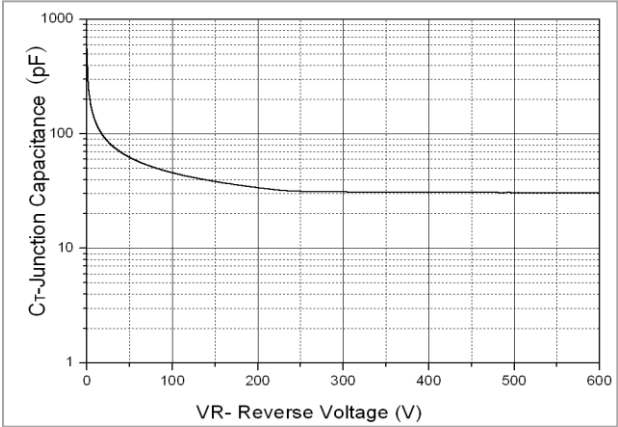


Fig. 4. Max. Thermal Impedance ZthJC Characteristics (Per Leg)

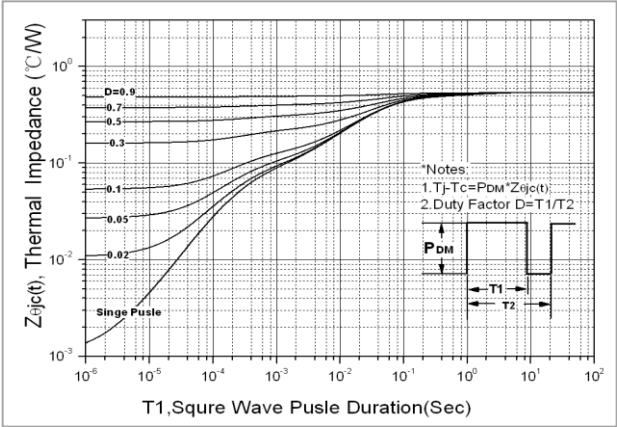


Fig 5. Max. Thermal Impedance Z_{thJC} Characteristics (Per Package)

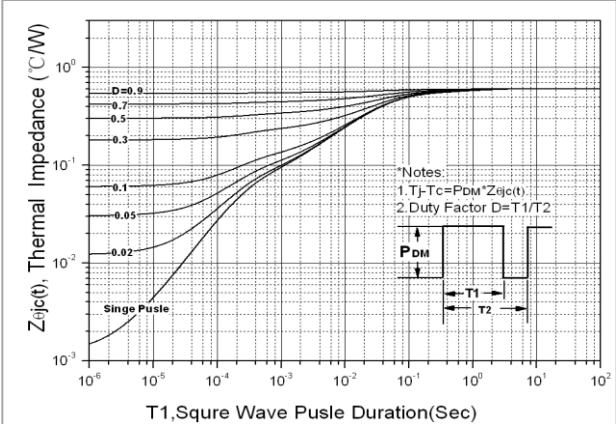


Fig. 6. Typical Reverse Recovery Current vs. di/dt

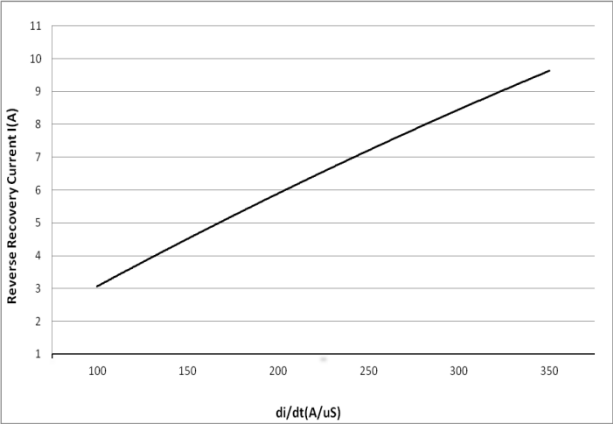


Fig. 7. Typical Reverse Recovery Time vs. di/dt

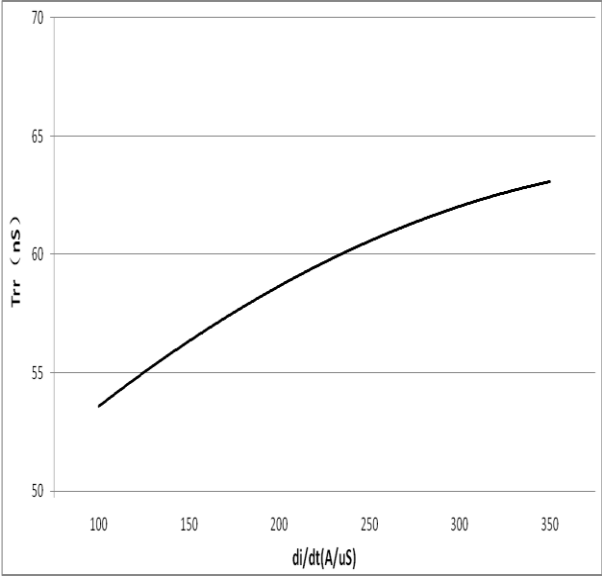


Fig. 8. Typical Stored Charge vs. di/dt

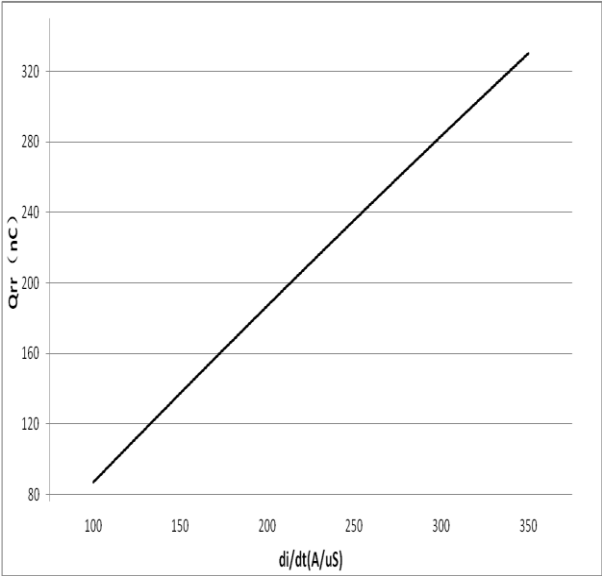


Fig. 9. Reverse Recovery Parameter Test Circuit & waveform

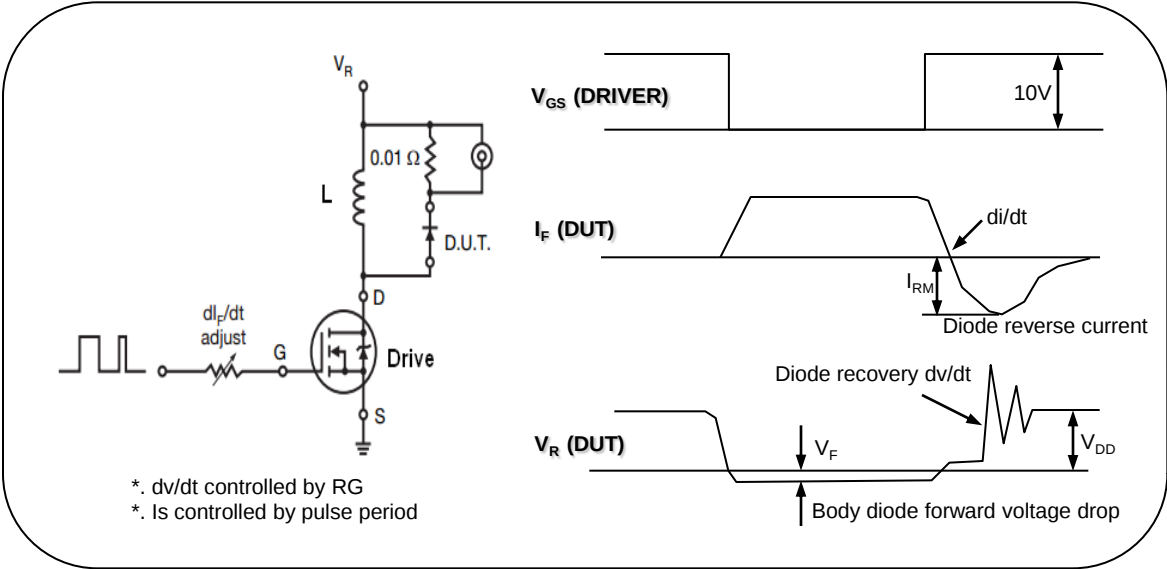


Fig. 10. Unclamped Inductive Test Circuit

