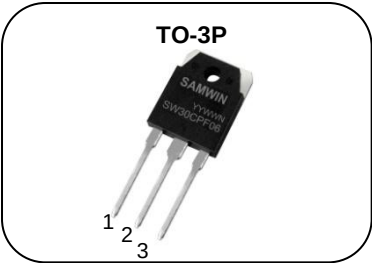


DIODE

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	: 600V
IF(AV)	: 30A
VF at IF	: 1.4V

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 30CPF06	SW30CPF06	TO-3P	TUBE

Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_R	Repetitive peak reverse voltage	600	V
$I_{F(AV)}$	Average rectified forward current (@ $T_C=150^{\circ}C$)	30	A
T_J, T_{Stg}	Operating junction and storage temperatures	-55 ~ + 150	$^{\circ}C$

Electrical characteristic ($T_C = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_R	Breakdown voltage,blocking voltage	$I_R=100\mu A$	600			V
V_F	Forward voltage	$I_F=30A$		1.4	1.5	V
		$I_F=30A, T_J=150^{\circ}C$			1.3	V
I_R	Reverse leakage current	$V_R=600V$			500	nA
		$V_R=600V, T_J= 150^{\circ}C$			500	μA
CT	Junction capacitance	$V_R=600V$		14		pF

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

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{rrm}	Peak recovery current	$I_F=30A, di/dt=200A/us,$ $V_R=100V$		3.6		A
T_{rr}	Reverse recovery time			41		ns
Q_{rr}	Reverse recovery Charge			80		nC

THERMAL - MECHANICAL SPECIFICATIONS

Symbol	Parameter	Value	Unit
R_{thjc}	Thermal resistance, Junction to case (Per Leg)	0.72	°C/W
R_{thjc}	Thermal resistance, Junction to case (Per Package)	0.83	°C/W
R_{thja}	Thermal resistance, Junction to ambient(Per Leg)	38.4	°C/W
R_{thja}	Thermal resistance, Junction to ambient(Per Package)	36.6	°C/W

Fig. 1. Typical Forward Voltage Drop Characteristics

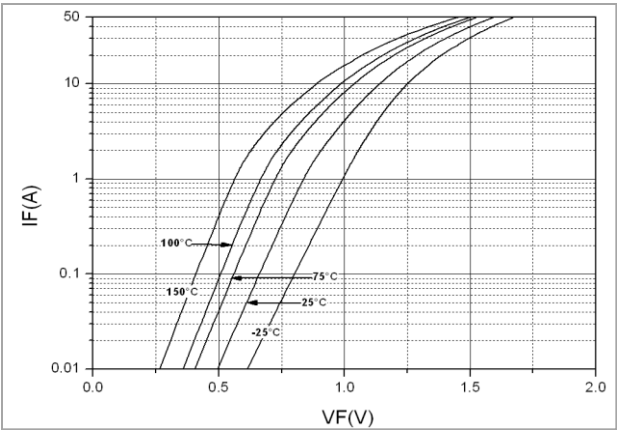


Fig. 2. Typical Values of Reverse Current vs. Reverse Voltage

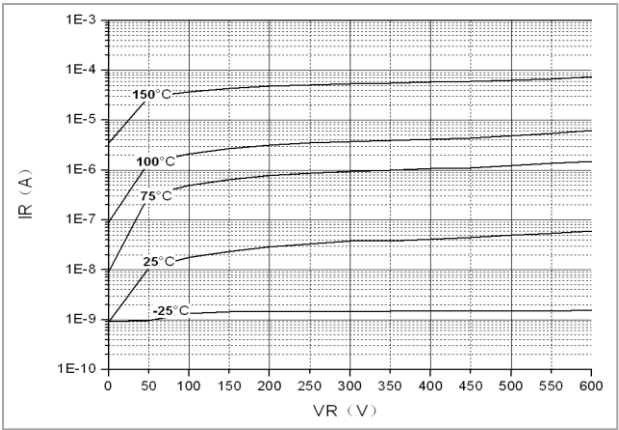


Fig. 3. Typical Junction Capacitance vs. Reverse Voltage

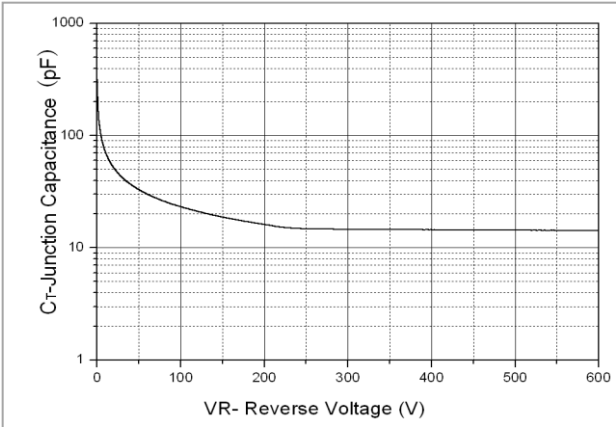


Fig. 4. Max. Thermal Impedance ZthJC Characteristics (Per Leg)

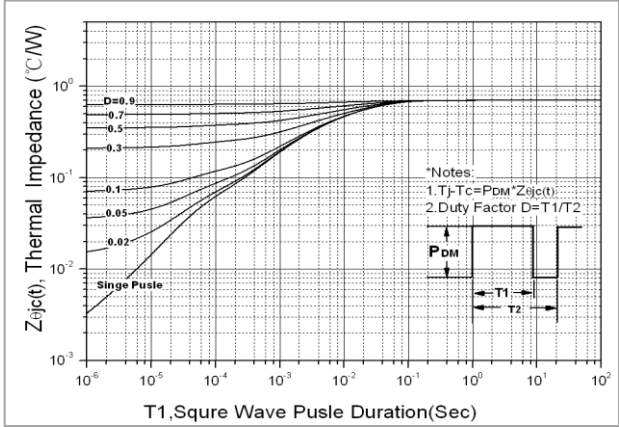


Fig 5. Max. Thermal Impedance Z_{thJC} Characteristics (Per Package)

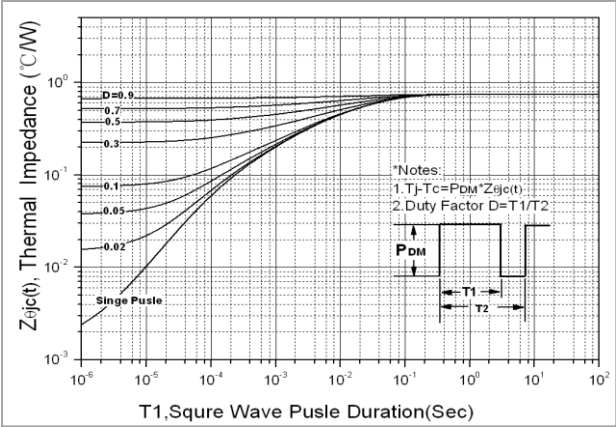


Fig. 6. Typical Reverse Recovery Current vs. di/dt

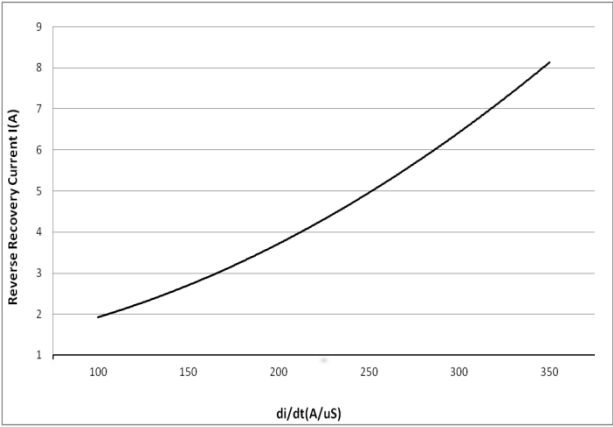


Fig. 7. Typical Reverse Recovery Time vs. di/dt

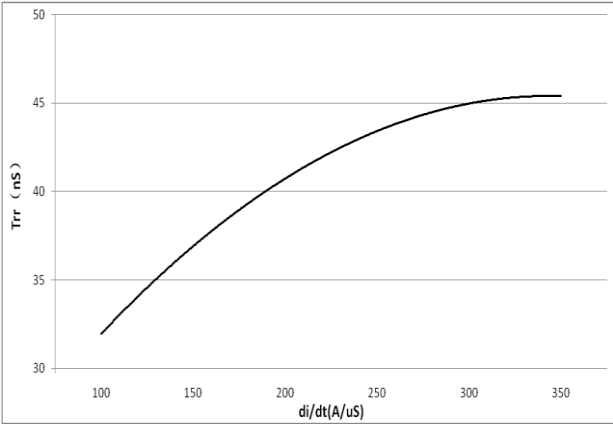


Fig. 8. Typical Stored Charge vs. di/dt

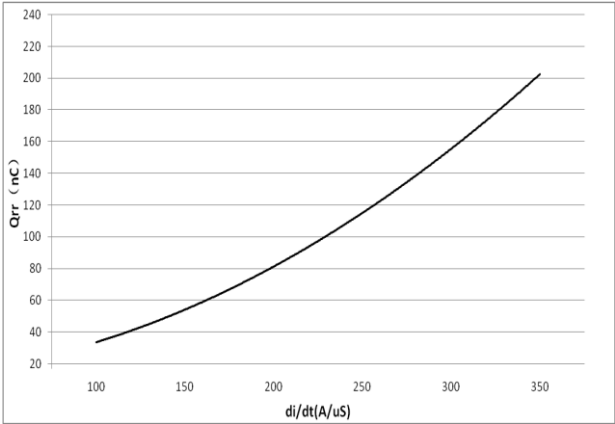


Fig. 9. Reverse Recovery Parameter Test Circuit & waveform

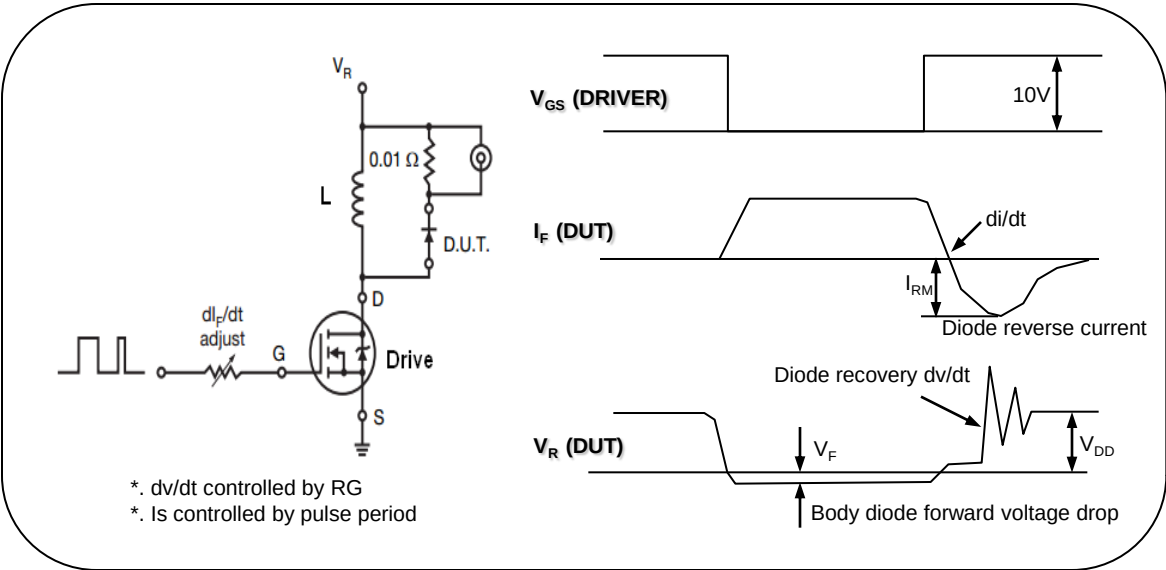


Fig. 10. Unclamped Inductive Test Circuit

