FAST RECOVER EPITAXIAL DIODE （FRED）

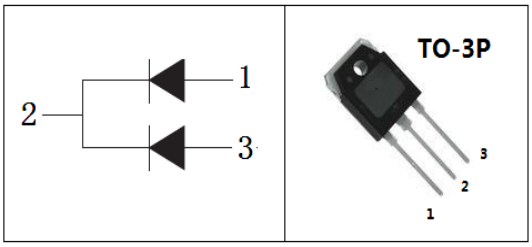
Features

- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low I_{RM} values
- Soft recovery behaviour
- 100% avalanche tested

V_{RRM} = 600 V	**I_{FAVM} = 30 A**
V_F（typ）=1.45V（I_F=15A,T_{VJ}=25℃）	
t_{rr} <40 ns（I_F = 1 A; di/dt = 200 A/s）	
Package	TO3P

Applications

- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders
- Power factor control (PFC)



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{RRM}	Peak Repetitive Reverse Voltage	600	V
$I_{F(AV)}$	Diode Continuous Forward Current (T_C=100℃)	30	A
I_{FRM}	Repetitive Peak Surge Current (20kHz Square Wave)	60	A
I_{FSM}	Nonrepetitive Peak Surge Current for Per Diode (Halfwave 1 Phase 60Hz)	120	A
T_J	Operating Junction Temperature Range	-55 to +150	℃
T_{STG}	Storage Temperature Range	-55 to +150	℃

ELECTRICAL SPECIFICATIONS (T_J = 25 ℃ unless otherwise specified for Per Diode)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_R	Cathode to Anode Breakdown Voltage	I_R = 100μA	600			
V_F	Diode Forward Voltage	I_F=15A T_C=25℃		1.45	1.65	V
	Diode Forward Voltage	I_F=15A T_C=125℃		1.30	1.50	V
I_{RM}	Maximum Reverse Leakage Current	V_R=600V T_C=25℃			10	μA
		V_R=600V T_C=125℃			200	μA

DYNAMIC RECOVERY CHARACTERISTICS

(T_J = 25 ℃ unless otherwise specified for Per Diode)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I_{RRM}	Diode Peak Reverse Recovery Current	V_{DD}=100V;I_F=1A; dif/dt=200A/μs; See **Fig.4**		3.3		A
Qrr	Reverse recovery charge (Area Under the Curve Defined by I_{RRM} and trr).			48		nc
trr	Diode Reverse Recovery Time			32	40	ns
S	S= tb/ta			0.7		
I_{RRM}	Diode Peak Reverse Recovery Current	V_{DD}=300V;I_F=15A; dif/dt=500A/μs; See **Fig.4**		9.2		A
Qrr	Reverse recovery charge (Area Under the Curve Defined by I_{RRM} and trr).			265		nc
trr	Diode Reverse Recovery Time			50		ns
S	S= tb/ta			1.35		

Fig.1 Forward Current vs Forward Voltage(Per Diode)

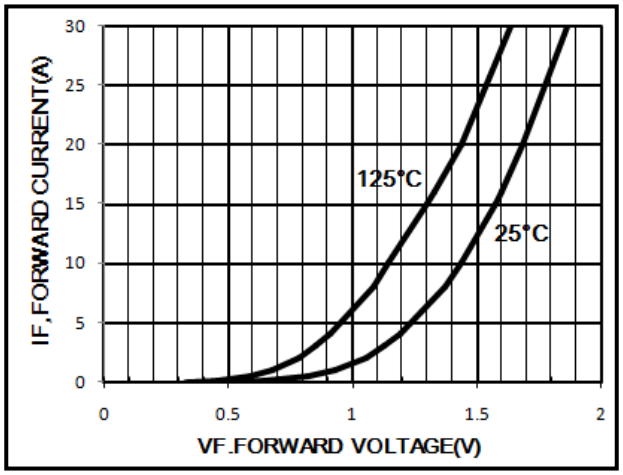
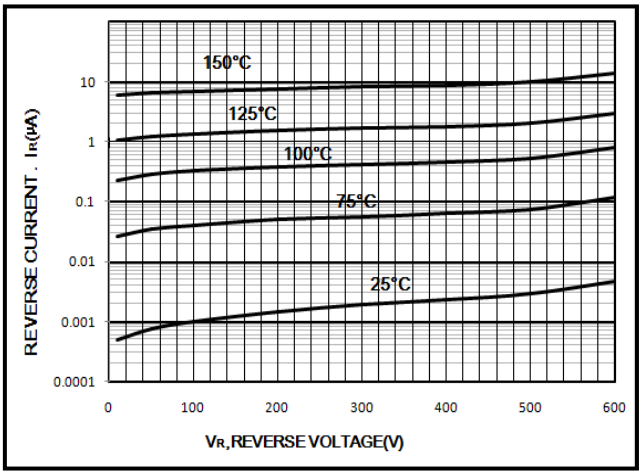


Fig.2 Reverse Current vs Reverse Voltage



ig.3 trr Test Circuit

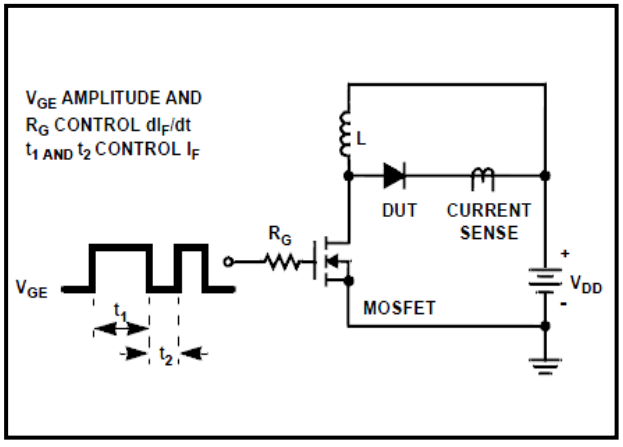


Fig.4 trr Waveforms and Definitions