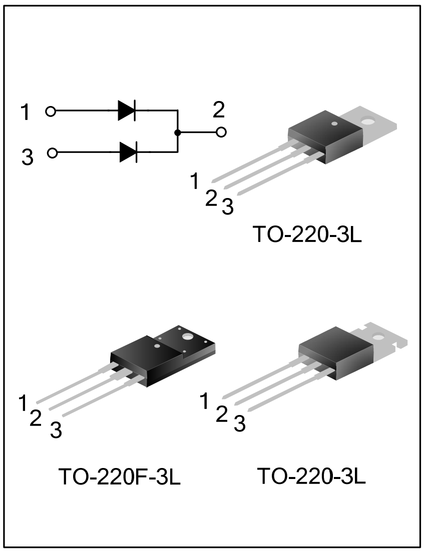
12A, 200V SUPER-FAST RECOVERY RECTIFIER

GENERAL DESCRIPTION

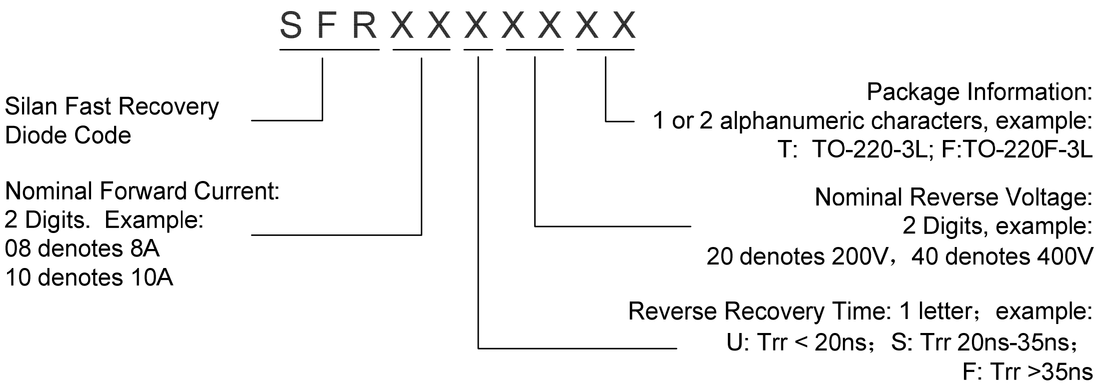
SFR12S20T/F is a Super-Fast Recovery Diode, fabricated in advanced silicon planar epitaxial technology. The process parameter and the device structure are fine tuned with optimized performance of forward voltage drop and reverse recovery time.
Accuracy epitaxial dope control, advanced planar junction terminal structure and the platinum doped life control, guarantee the best overall performance, ruggedness and reliability characteristics.
SFR12S20T/F is intended for use in the output rectification stage of SMPS, UPS, DC-DC converters as well as free-wheeling diode in low voltage inverters and chopper motor drivers.



FEATURES

- Ultrafast 35 Nanosecond Recovery Time
- Low Forward Voltage Drop
- Low Leakage Current
- 175 °C Operating Junction Temperature

NOMENCLATURE



ORDERING SPECIFICATIONS

Part No.	Package	Marking	Material	Packing
SFR12S20T	TO-220-3L	SFR12S20T	Pb free	Tube
SFR12S20F	TO-220F-3L	SFR12S20F	Pb free	Tube

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	SFR12S20T	Unit
Peak Repetitive Reverse Voltage		V_{RRM}	200	V
Average Rectified Forward Current	Per Leg Total Device	$I_{F(AV)}$	6.0 12	A
Non Repetitive Peak Surge Current	Per Leg	I_{FSM}	100	A
Operation Junction Temperature		T_J	-40～+175	°C
Storage Temperature		T_{stg}	-40～+175	°C

THERMAL CHARACTERISTICS（Per Leg）

Parameter	Symbol	SFR12S20T	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.5	°C/W

ELECTRICAL CHARACTERISTICS (Per Leg)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Instantaneous Forward Voltage (Note 1) (I_F=6.0 Amps, Tc=150°C) (I_F=6.0 Amps, Tc=25°C)	V_F	--	--	0.9 0.975	V
Maximum Instantaneous Reverse Current(Note 1) (Rated dc Voltage, Tc=150°C) (Rated dc Voltage, Tc=25°C)	I_R	--	--	250 5.0	μA
Maximum Reverse Recovery Time (I_F=0.5 Amp, I_R=1.0Amp, I_{REC}=0.25Amp)	trr	--	--	35	ns

Notes:

1. Pulse Test: Pulse Width=300μS, Duty Cycle≤2.0%

TYPICAL CHARACTERISTICS

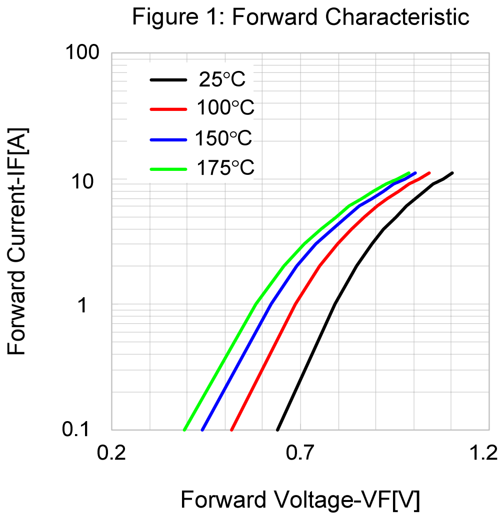


Figure 1: Forward Characteristic

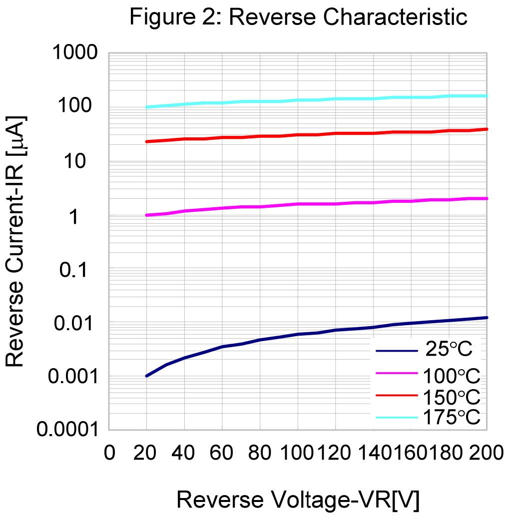


Figure 2: Reverse Characteristic

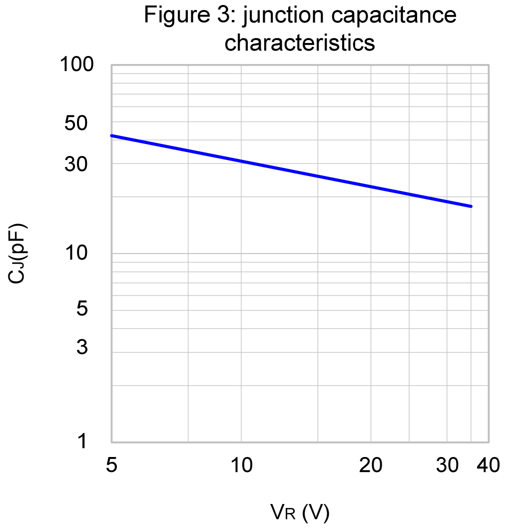
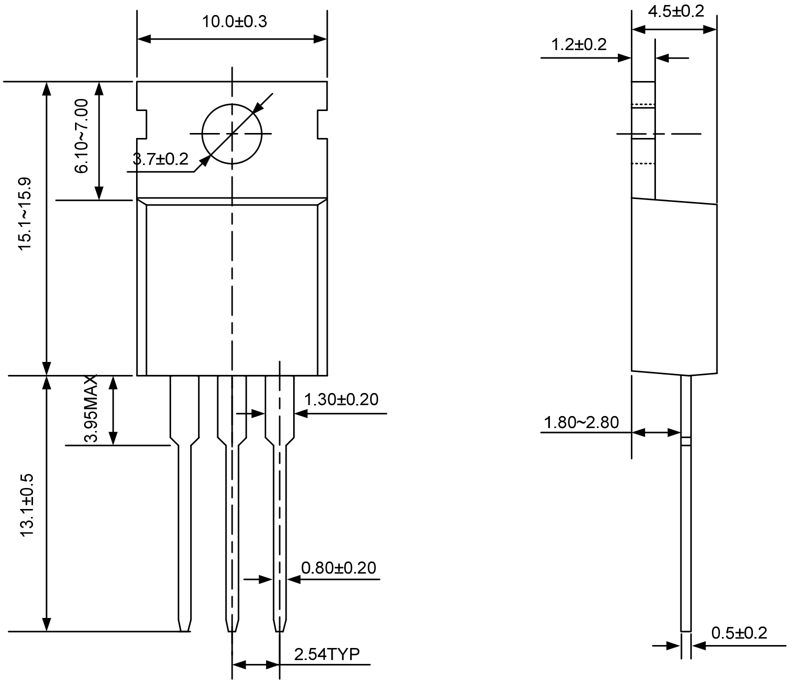


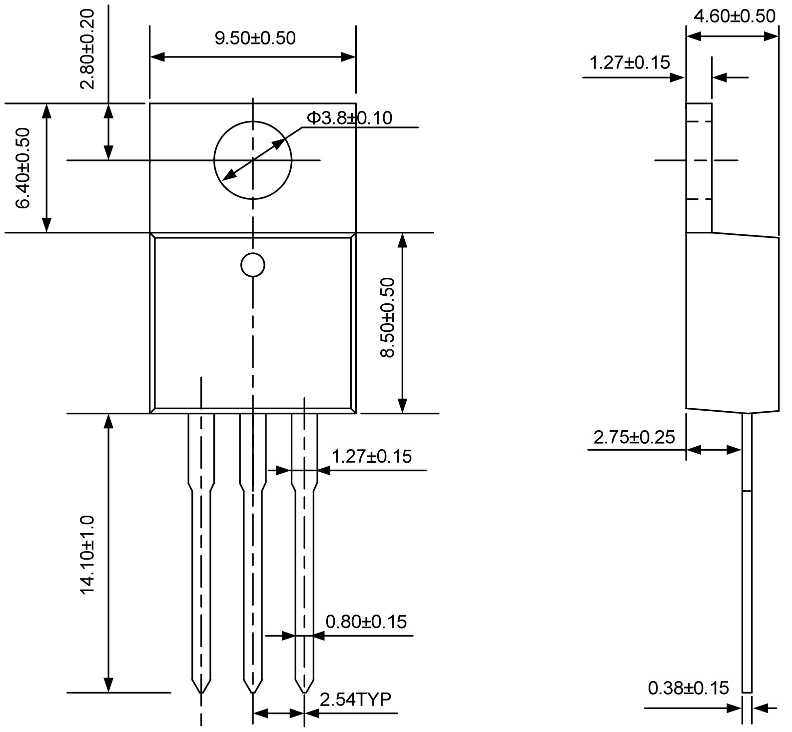
Figure 3: junction capacitance characteristics

PACKAGE OUTLINE

TO-220-3L **UNIT: mm**

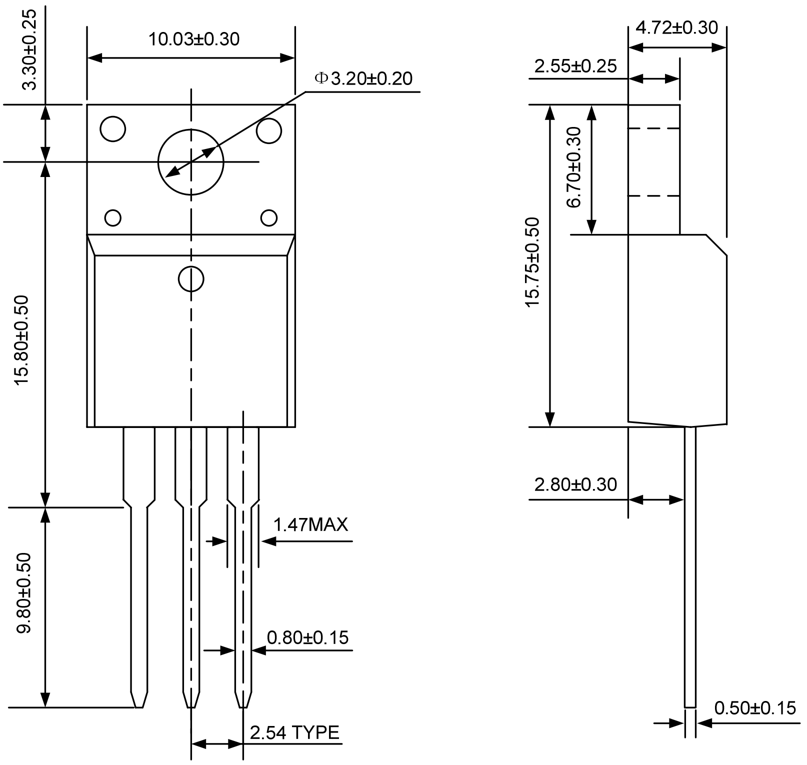


TO-220-3L **UNIT: mm**



PACKAGE OUTLINE (continued)

TO-220F-3L **UNIT: mm**



ATTACHMENT

Revision History

Date	REV	Description	Page
2010.08.24	1.0	Original	
2010.10.21	1.1	Modify the template of Datasheet	