

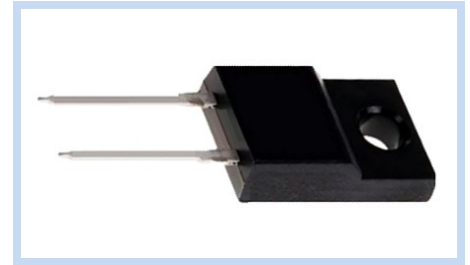
Fast Recovery Rectifier 600V 15A TO-220F

FRED1560ST220F

MERITEK

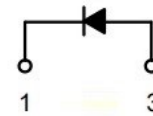
FEATURES

- Optimized Performance Between VF & TR
- Soft Recovery Characteristic
- Reduced EMI and Improved Performance
- Improved Thermal Performance
- Application: Rectifiers in Switching Mode Power, UPS, PV Inverter, EV Charging Station, and Welder



MECHANICAL DATA

- Case: TO-220F, Molded Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026



MAXIMUM RATINGS

Parameter	Symbol	Value	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	600	V
Maximum DC Blocking Voltage	V_{DC}	600	
Average Forward Rectified Current at $T_L=105^\circ\text{C}$	$I_{F(AV)}$	15	A
Repetitive Peak Surge Current, 8.3ms, Sine-Wave, D=0.5	I_{FRM}	30	
Peak Forward Surge Current, 8.3ms Single Half-Sine-Wave Superimposed on Rated Load	I_{FSM}	140	
Maximum Power Dissipation	P_{TOT}	57	W
Maximum Thermal Resistance	$R_{\theta JC}$	2.2	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$

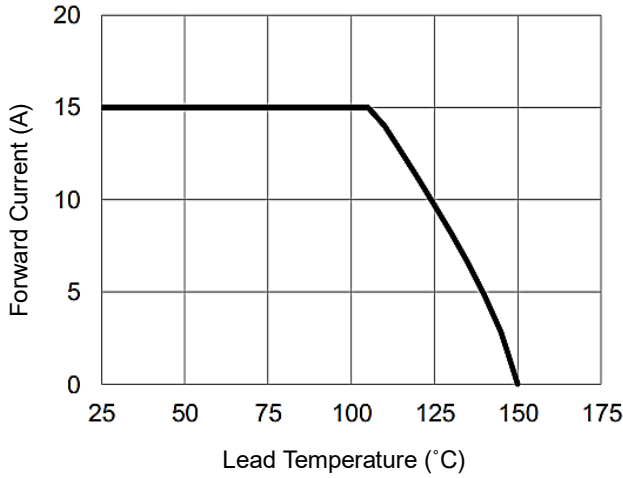
ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Symbol	Min	Typ.	Max	Unit
Instantaneous Forward Voltage	$I_F=15\text{A}, T_J=25^\circ\text{C}$	V_F	--	1.8	2.3	V
	$I_F=15\text{A}, T_J=125^\circ\text{C}$		--	1.45	--	
Reverse Leakage Current	$V_R=600\text{V}, T_J=25^\circ\text{C}$	I_R	--	--	100	μA
	$V_R=600\text{V}, T_J=125^\circ\text{C}$		--	--	500	μA
Reverse Recovery Time	$I_F=0.5\text{A}, I_R=1\text{A}, I_{RR}=0.25\text{A}, T_J=25^\circ\text{C}$	T_{RR}	--	--	40	nS
	$I_F=1\text{A}, V_R=30\text{V}, di/dt=300\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$		--	--	30	
Reverse Recovery Time	$I_F=15\text{A}, V_R=400\text{V}, di/dt=300\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	T_{RR}	--	42	65	nS
Peak Recovery Current		I_{RRM}	--	3.3	--	A
Reverse Recovery Charge		Q_{RR}	--	70	--	nC
Softness factor = t_b/t_a		S	--	1.65	--	--
Reverse Recovery Time		T_{RR}	--	62	--	nS
Peak Recovery Current		I_{RRM}	--	7.4	--	A
Reverse Recovery Charge		Q_{RR}	--	320	--	nC
Softness factor = t_b/t_a		S	--	0.4	--	--

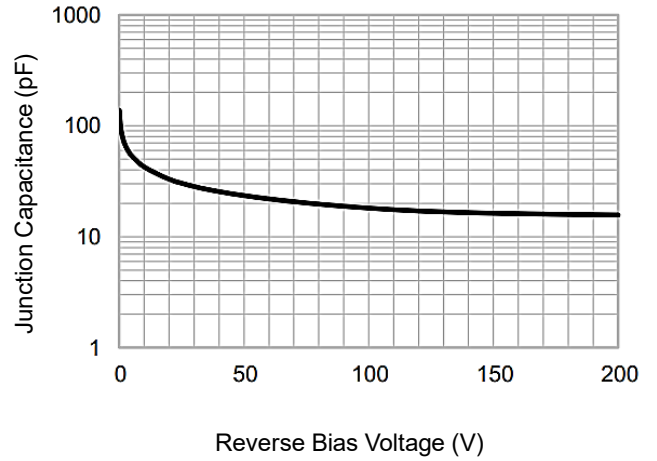
Notes: $T_C=25^\circ\text{C}$ unless otherwise noted

CHARACTERISTIC CURVES

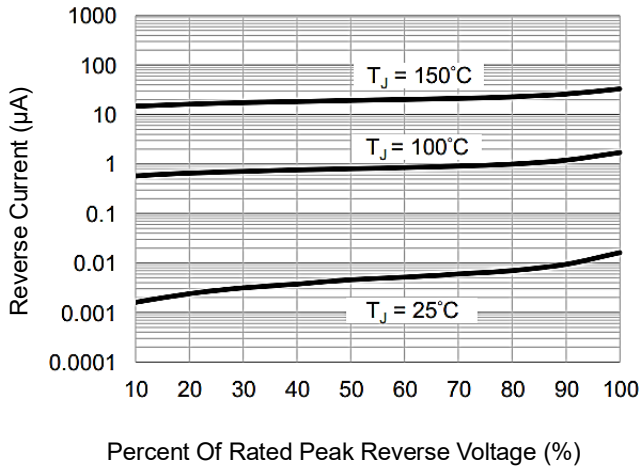
Forward Current Derating Curve



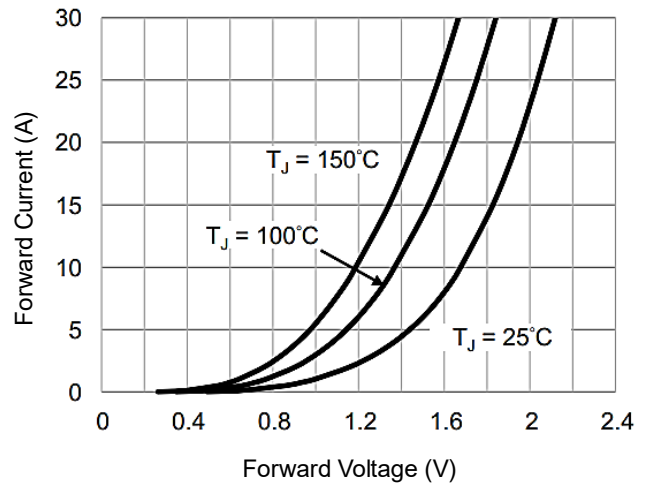
Typical Junction Capacitance



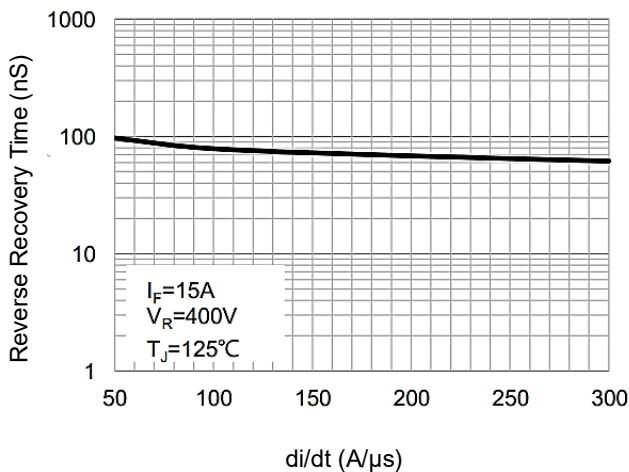
Typical Reverse Characteristics



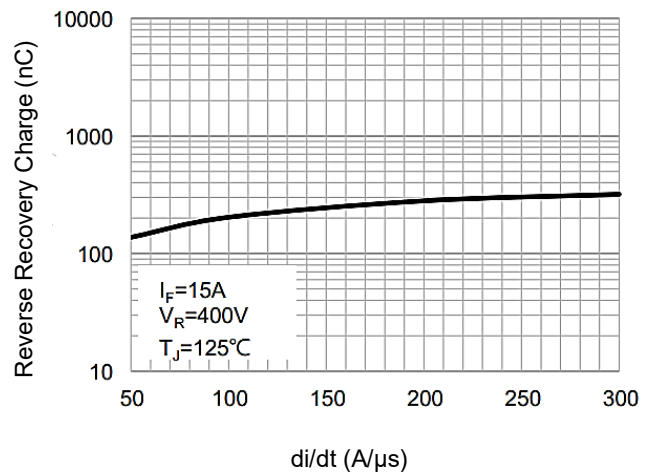
Typical Forward Characteristics



Typical Reverse Recovery Time



Typical Reverse Recovery Charge



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FRED1560ST220F

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DIMENSIONS

Item	Min (mm)	Max (mm)
A	4.20	4.80
A1	2.90	3.30
A2	2.50	2.90
b	0.50	0.70
b2	1.00	1.40
c	0.57	0.67
D	14.80	15.40
E	9.7	10.30
e1	5.10 BSC	
H1	6.30	6.90
L	13.00	13.8
L1	3.50	4.50
P	3.00	3.40
Q	2.55	2.85

Notes: Pin 1: Cathode; Pin 3: Anode

