

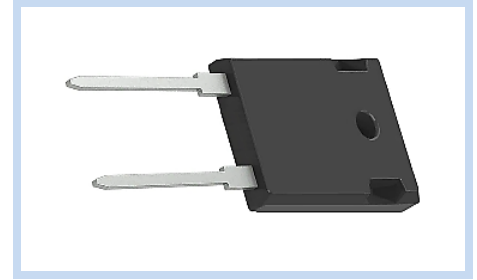
Fast Recovery Rectifier 1200V 30A TO-247-2

FRED30120ST2472

MERITEK

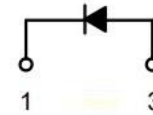
FEATURES

- 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-247-2, Molded Plastic
- Flammability Rating: UL94V-0
- Terminals: Solderable per MIL-STD-750, Method 2026



MAXIMUM RATINGS

Parameter	Symbol	Value	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	1200	V
Maximum DC Blocking Voltage	V_{DC}	1200	
Average Forward Rectified Current at $T_L=95^\circ\text{C}$	$I_{F(AV)}$	30	A
Repetitive Peak Surge Current, 8.3ms, Sine-Wave, D=0.5	I_{FRM}	60	
Peak Forward Surge Current, 8.3ms Single Half-Sine-Wave Superimposed on Rated Load	I_{FSM}	190	
Maximum Power Dissipation	P_{TOT}	139	W
Maximum Thermal Resistance	$R_{\theta JC}$	0.9	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$

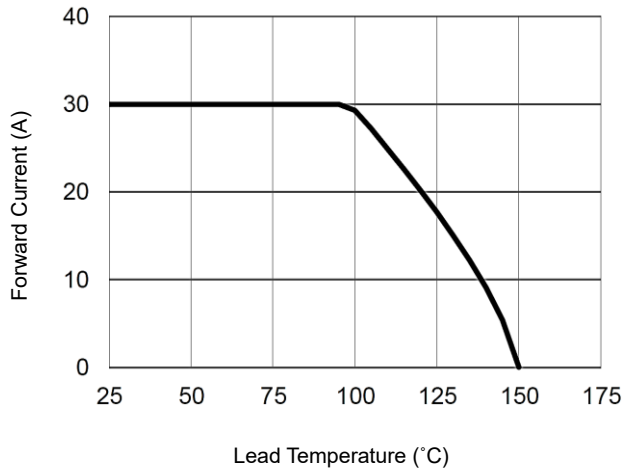
ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Symbol	Min	Typ.	Max	Unit
Instantaneous Forward Voltage	$I_F=30\text{A}, T_J=25^\circ\text{C}$	V_F	--	3.0	3.5	V
	$I_F=30\text{A}, T_J=125^\circ\text{C}$		--	2.2	--	
Reverse Leakage Current	$V_R=1200\text{V}, T_J=25^\circ\text{C}$	I_R	--	--	250	μA
	$V_R=1200\text{V}, T_J=125^\circ\text{C}$		--	--	1	mA
Reverse Recovery Time	$I_F=0.5\text{A}, I_R=1\text{A}, I_{RR}=0.25\text{A}$	T_{RR}	--	--	50	nS
	$I_F=1\text{A}, V_R=30\text{V}, di/dt=300\text{A}/\mu\text{s}$		--	--	40	
Reverse Recovery Time		T_{RR}	--	135	200	nS
Peak Recovery Current	$I_F=30\text{A}, V_R=400\text{V}, di/dt=300\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	I_{RRM}	--	5.2	--	A
Reverse Recovery Charge		Q_{RR}	--	360	--	nC
Softness factor = t_b/t_a		S	--	3.4	--	--
Reverse Recovery Time		T_{RR}	--	200	--	nS
Peak Recovery Current	$I_F=30\text{A}, V_R=400\text{V}, di/dt=300\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$	I_{RRM}	--	12	--	A
Reverse Recovery Charge		Q_{RR}	--	1460	--	nC
Softness factor = t_b/t_a		S	--	2.05	--	--

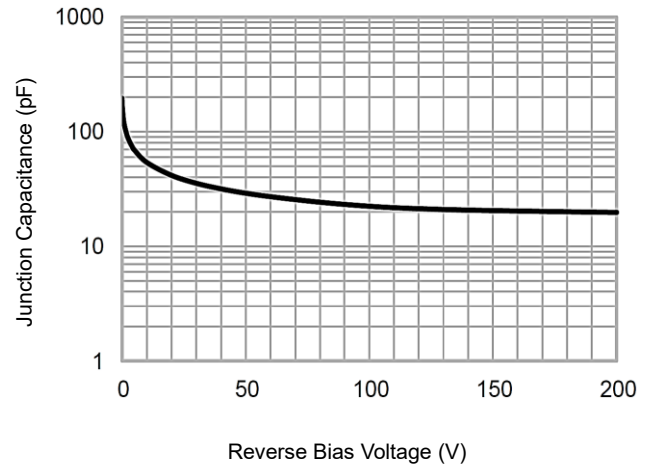
Notes: $T_C=25^\circ\text{C}$ unless otherwise noted

CHARACTERISTIC CURVES

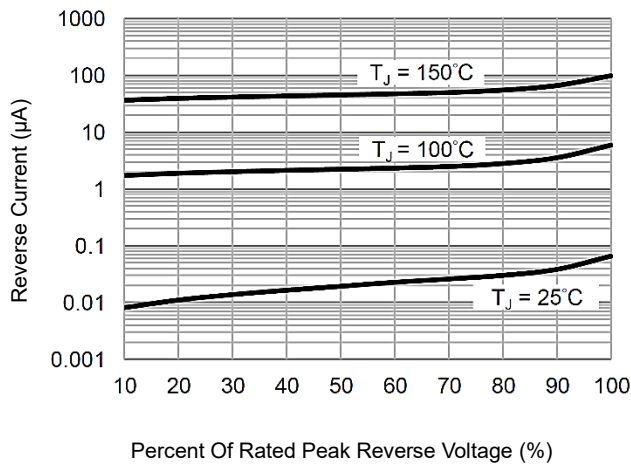
Forward Current Derating Curve



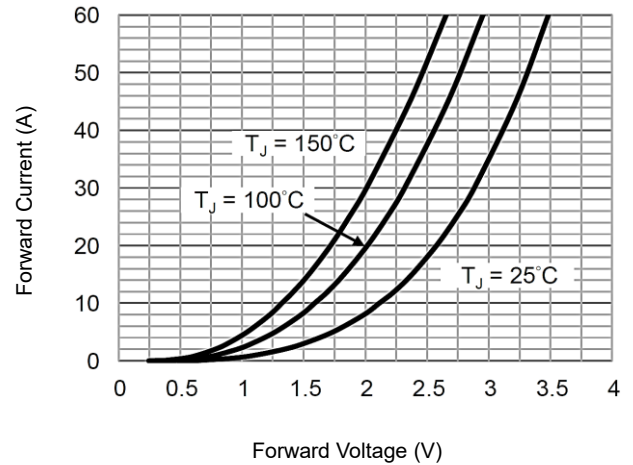
Typical Junction Capacitance



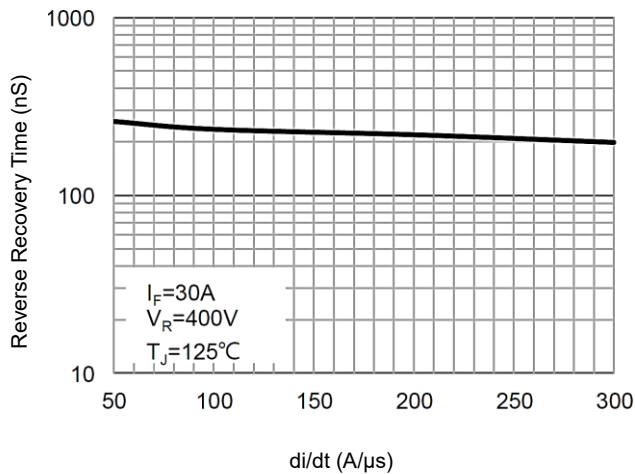
Typical Reverse Characteristics



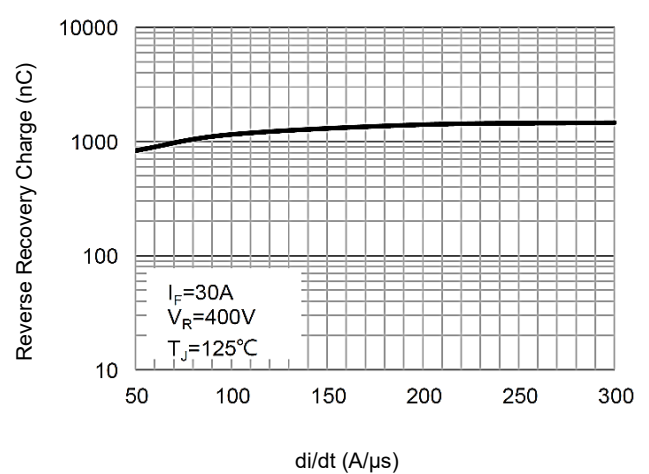
Typical Forward Characteristics



Typical Reverse Recovery Time



Typical Reverse Recovery Charge



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DIMENSIONS

Item	Min (mm)	Max (mm)
A	4.83	5.21
A1	2.29	2.55
A2	1.50	2.49
b	1.12	1.33
b2	1.91	2.39
c	0.50	0.69
D	20.80	21.30
D1	16.25	17.65
D2	0.51	1.35
E	15.73	16.13
E1	13.46	14.16
E2	4.32	5.49
e1	10.88 BSC.	
L	19.75	20.32
L1	3.70	4.40
p	3.56	3.65
p1	7.15 REF.	
Q	6.04	6.30
S	5.39	6.20

Notes: Pin 1: Cathode; Pin 3: Anode

