

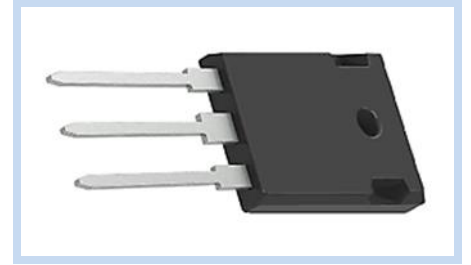
# Fast Recovery Rectifier 600V 30A TO-247

FRED3060CT247

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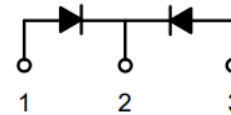
## FEATURES

- Optimized Performance Between  $V_F$  &  $T_R$
- 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-247AD, 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 $T_C=130^\circ\text{C}$	Per Leg	15	A
	Per Device	30	
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	$P_{TOT}$	125	W
Maximum Thermal Resistance	$R_{\theta JC}$	1.0	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	$^\circ\text{C}$

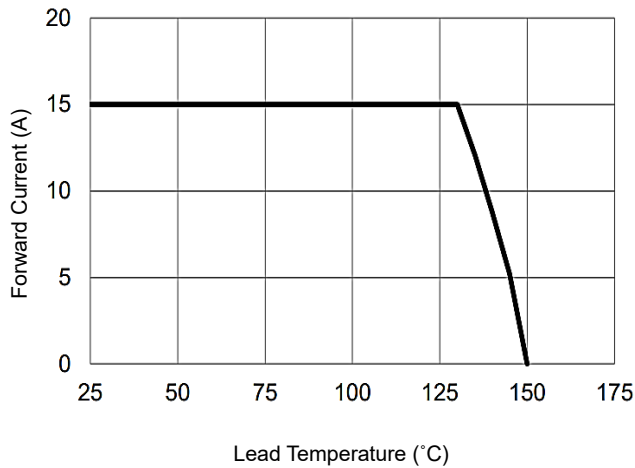
## ELECTRICAL CHARACTERISTICS FOR PER LEG

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	$\mu\text{A}$
	$V_R=600\text{V}, T_J=125^\circ\text{C}$		--	--	500	$\mu\text{A}$
Reverse Recovery Time	$I_F=0.5\text{A}, I_R=1\text{A}, I_{RR}=0.25\text{A}$	$T_{RR}$	--	--	40	nS
	$I_F=1\text{A}, V_R=30\text{V}, di/dt=300\text{A}/\mu\text{s}$		--	--	30	
Reverse Recovery Time		$T_{RR}$	--	42	65	nS
Peak Recovery Current	$I_F=15\text{A}, V_R=400\text{V}, di/dt=300\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	$I_{RRM}$	--	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	$I_F=15\text{A}, V_R=400\text{V}, di/dt=300\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$	$I_{RRM}$	--	7.4	--	A
Reverse Recovery Charge		$Q_{RR}$	--	320	--	nC
Softness factor = $t_b/t_a$		$S$	--	0.4	--	--

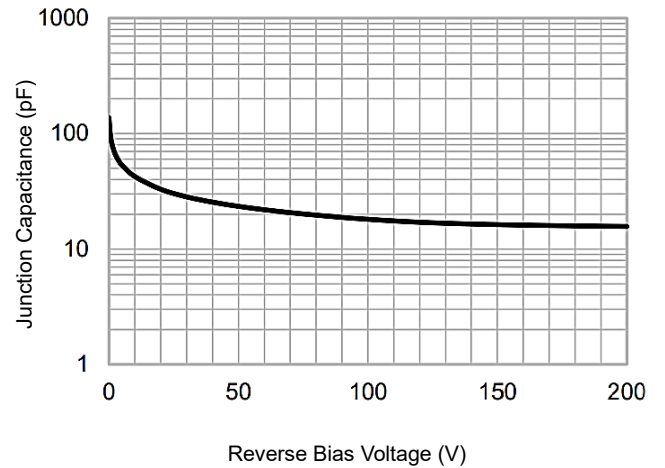
Notes:  $T_C=25^\circ\text{C}$  unless otherwise noted

**CHARACTERISTIC CURVES**

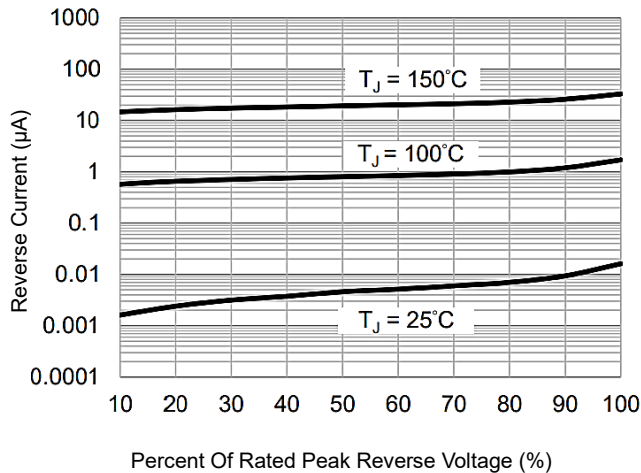
Forward Current Derating Curve



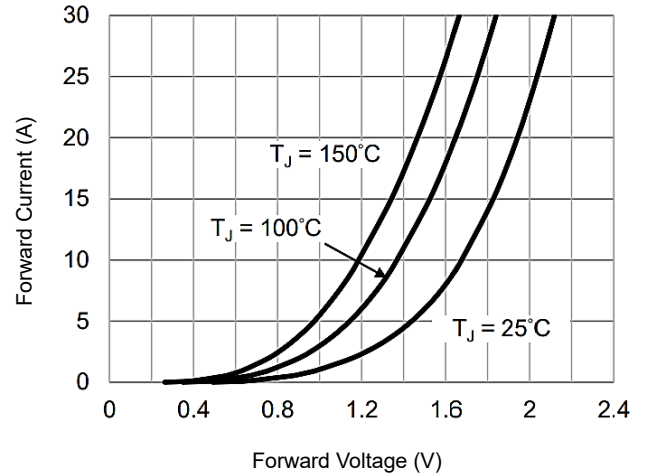
Typical Junction Capacitance



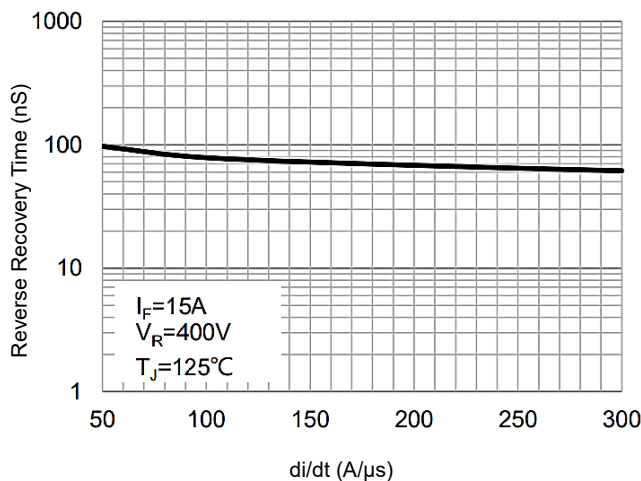
Typical Reverse Characteristics



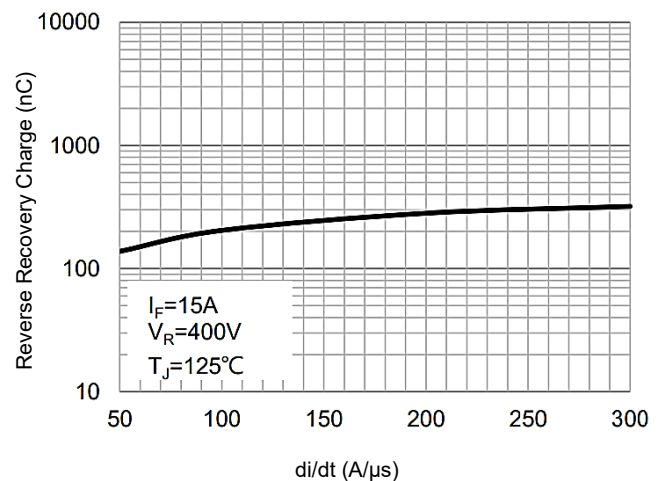
Typical Forward Characteristics



Typical Reverse Recovery Time



Typical Reverse Recovery Charge



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## 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
b1	2.91	3.39
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	5.44 BSC	
e1	5.44 BSC	
E	15.75	16.13
E1	13.46	14.16
E2	4.32	5.49
L	19.75	20.32
L1	3.70	4.40
p	3.56	3.65
p1	7.15 REF	
Q	5.39	6.20
S	6.04	6.30

Notes: Pin 1&3: Anode; Pin 2: Cathode

