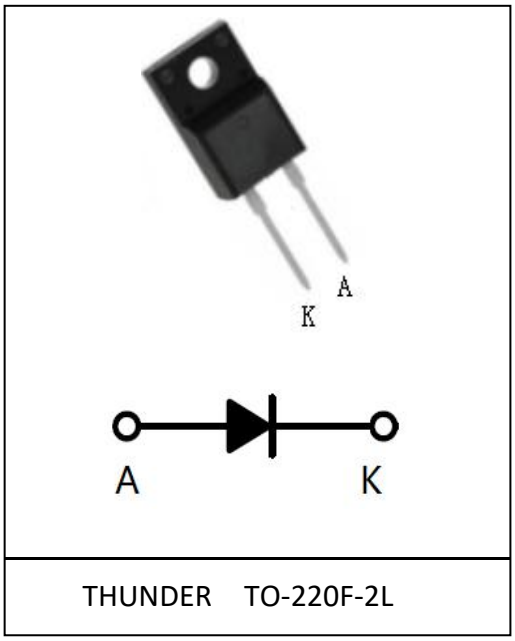
Thunder High Power Products

FRED
Ultrafast Soft Recovery Diode, 8A

Features:

- Ultrafast Recovery
- 175°C operating junction temperature
- High frequency operation
- Low power loss, less RFI and EMI
- Low I_R value
- High surge capacity
- Epitaxial chip construction

Product Summary	
V_R	1200 V
$I_{F(AV)}$	8A
t_{rr}	25 ns



THUNDER TO-220F-2L

Description/Applications

These diodes are optimized to less losses and EMI/RFI in high frequency power conditioning system. The soft recovery behavior of the diodes offers the need as snubber in most applications. These devices are ideally suited for HF welding power converters and other applications where the switching losses are not significant portion of the total losses.

Absolute Maximum Ratings

Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	V_{RRM}		1200	V
Continuous forward current	$I_{F(AV)}$	Tc =110°C	8	A
Single pulse forward current	I_{FSM}	Tc =25°C	80	
Maximum repetitive forward current	I_{FRM}	Square wave, 20kHZ	16	
Operating junction	Tj		175	°C
Storage temperatures	Tstg		-55 to +175	°C

Electrical characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ.	Max.	Units
Breakdown voltage Blocking voltage	V_{BR}, V_R	I_R=100μA	1200	—	—	V
Forward voltage (Per Diode)	V_F	I_F=8A	—	2.10	2.50	
		I_F=8A, Tj =125°C	—	1.95	2.50	
Reverse leakage current(Per Diode)	I_R	V_R= V_{RRM}	—	—	20	μA
		Tj=150°C, V_R=1200V	—	—	200	
Reverse recovery time(Per Diode)	t_{rr}	I_F=0.5A, I_R=1A, I_{RR}=0.25A	—	40	50	ns
		I_F=1A,V_R=30V, di/*dt* =200A/us	—	25	35	
Reverse recovery time	t_{rr}	I_F=8A,V_R=600V, di/*dt* =-200A/us, T_j=25℃	—	54	—	ns
		I_F=8A,V_R=600V, di/*dt* =-200A/us, T_j=125℃	—	112	—	ns
Reverse Recovery Charge	Q_{rr}	I_F=8A,V_R=600V, di/*dt* =-200A/us, T_j=25℃	—	310	—	nC
		I_F=8A,V_R=600V, di/*dt* =-200A/us, T_j=125℃	—	1800	—	nC
Peak Reverse Recovery Current	I_{RM}	I_F=8A,V_R=600V, di/*dt* =-200A/us, T_j=25℃	—	8	—	A
		I_F=8A,V_R=600V, di/*dt* =-200A/us, T_j=125℃	—	12	—	A

Thermal characteristics

Paramter	Symbol	Typ	Units
$R_{\theta JC}$	Junction-to-Case	2.5	℃/W

Electrical performance (typical)

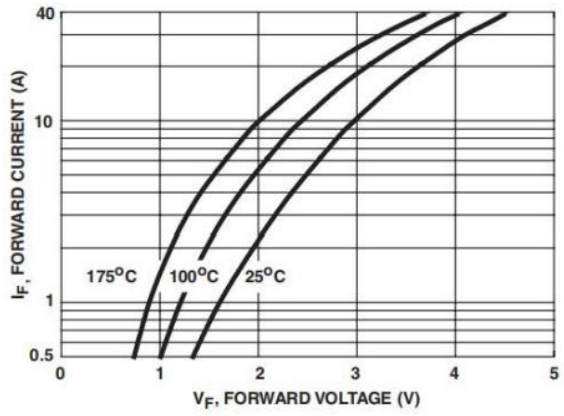


FIGURE 1. FORWARD CURRENT vs FORWARD VOLTAGE

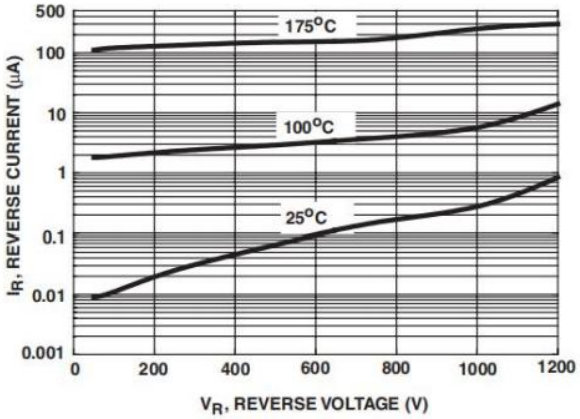


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

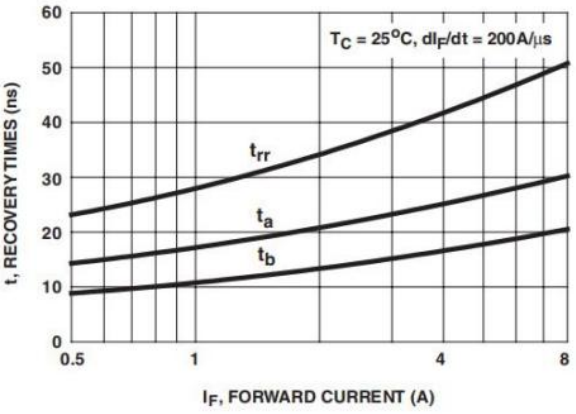


FIGURE 3. t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT

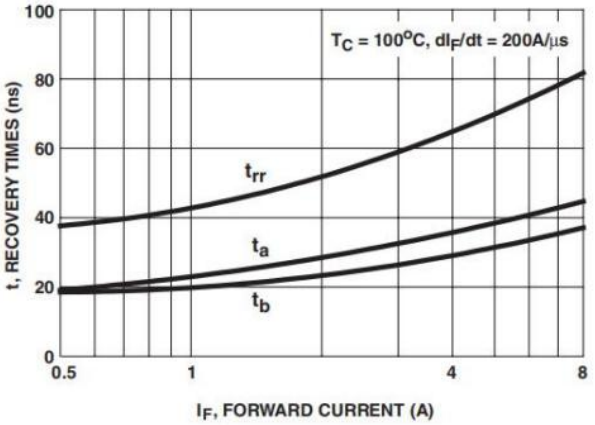


FIGURE 4. t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT

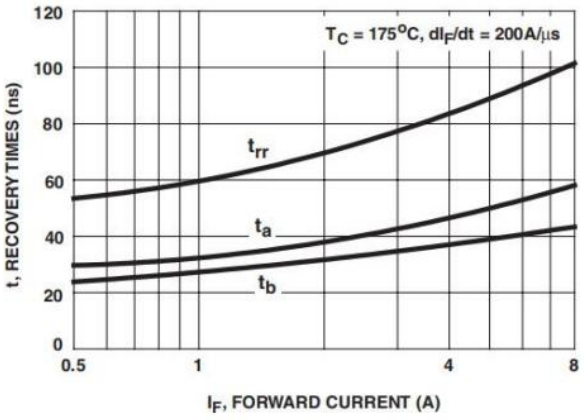


FIGURE 5. t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT

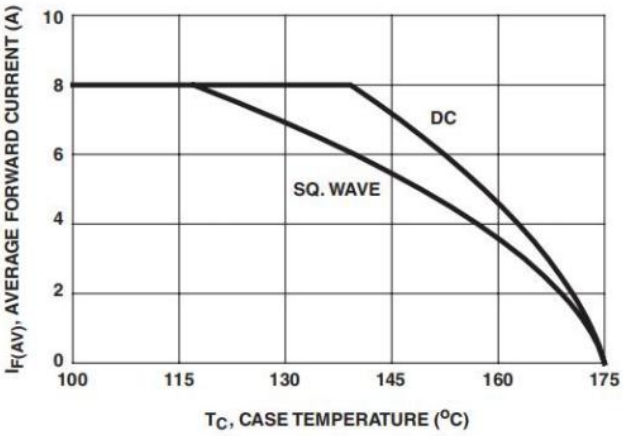
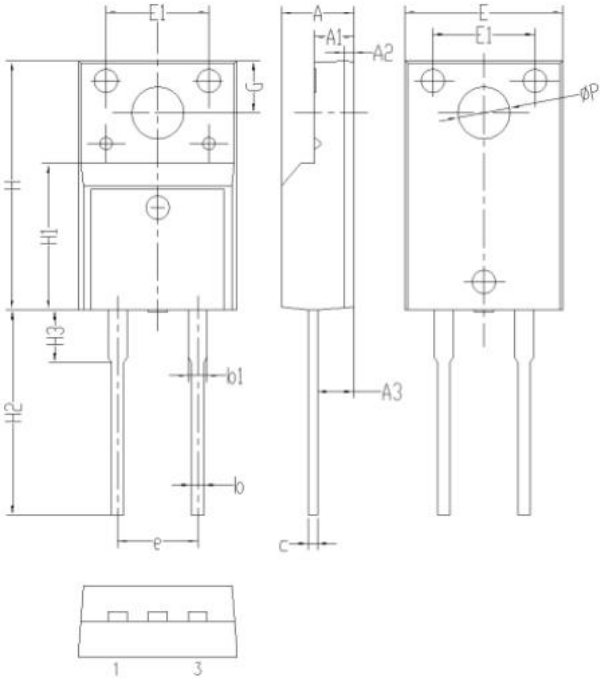


FIGURE 6. CURRENT DERATING CURVE

Package Information

TO-220F-2L PACKAGE



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.35	4.75
A1	2.30	2.70
A2	0.40	0.80
A3	2.10	2.50
b	0.60	1.00
b1	1.00	1.40
c	0.30	0.70
e	4.60	5.40
E	9.80	10.2
E1	6.30	6.70
H	15.6	16.0
H1	8.80	9.20
H2	12.9	13.5
H3	3.10	3.50
G	3.10	3.50
ΦP	3.10	3.50

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