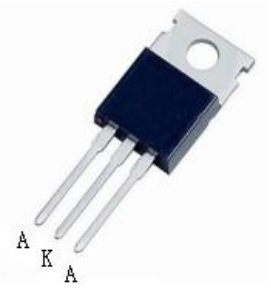
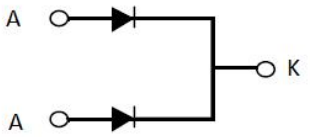
FRED
Ultrafast Soft Recovery Diode, 16A

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





THUNDER TO-220C

Product Summary	
V_R	1200 V
$I_{F(AV)}$	2*8A
t_{rr}	25ns

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. These devices are ideally suited for 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	16	A
Single pulse forward current	I_{FSM}	Tc =25°C	160	
Maximum repetitive forward current	I_{FRM}	Square wave, 20kHZ	10	
Operating junction	Tj		175	°C
Storage temperatures	Tstg		-55 to +175	°C

Electrical characteristics (Ta=25°Cunless 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	2.70	
		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	

Thermal characteristics

Paramter	Symbol	Typ	Units
Junction-to-Case	$R_{\theta JC}$	0.8	℃/W

Electrical performance (typical)

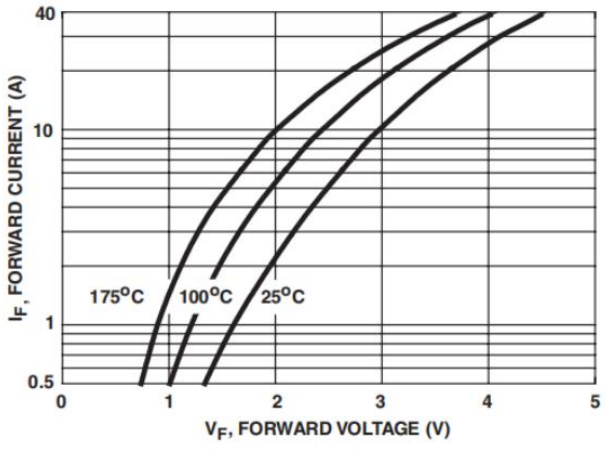


FIGURE 1. FORWARD CURRENT vs FORWARD VOLTAGE

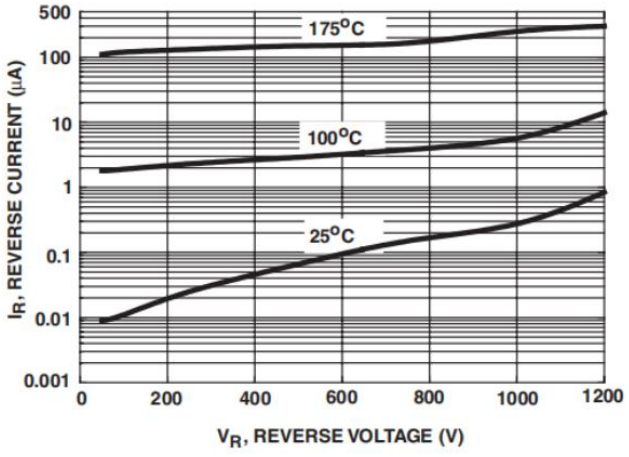


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

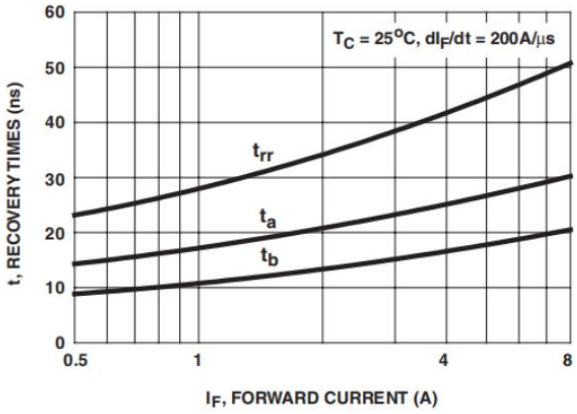


FIGURE 3. t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT

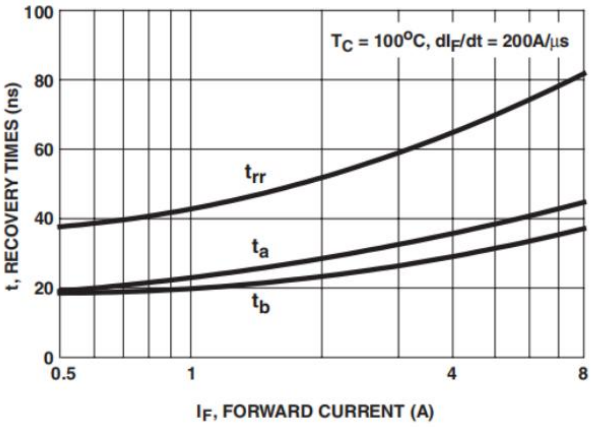


FIGURE 4. t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT

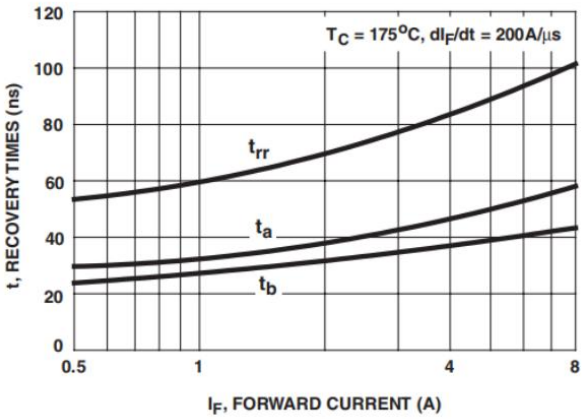


FIGURE 5. t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT

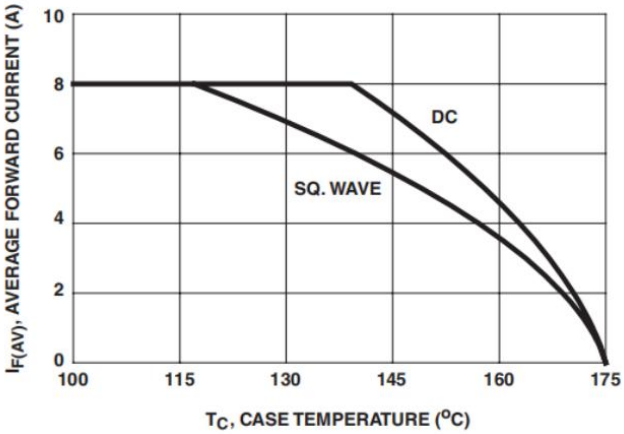


FIGURE 6. CURRENT DERATING CURVE

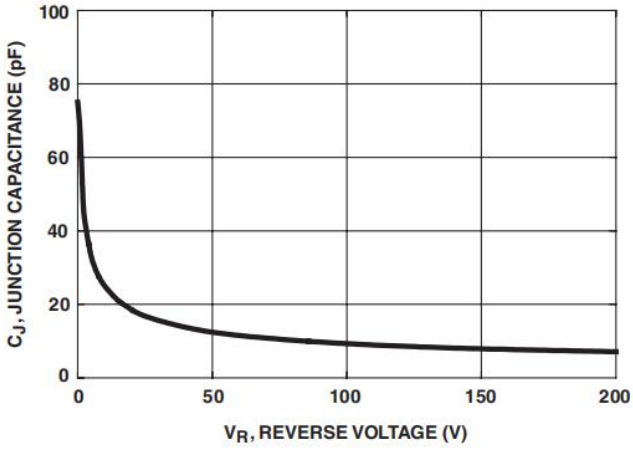
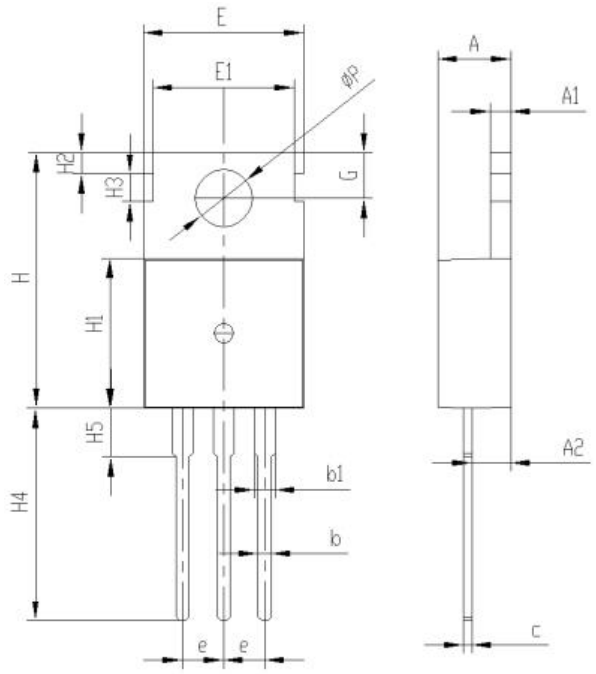


FIGURE 7. JUNCTION CAPACITANCE vs REVERSE VOLTAGE

Package Information

TO-220C PACKAGE



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.30	4.70
A1	1.17	1.37
A2	2.20	2.60
b	0.60	1.00
b1	1.17	1.37
b2	1.90	2.30
c	0.30	0.70
e	2.34	2.74
E	9.70	10.1
E1	8.50	8.90
H	15.5	15.9
H1	9.00	9.40
H2	1.10	1.50
H3	1.50	1.90
H4	12.58	13.58
H5	2.80	3.20
G	2.60	3.00
ΦP	3.40	3.80

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