

Ultra-Fast Recovery Diodes 30A FRD Pt

Features

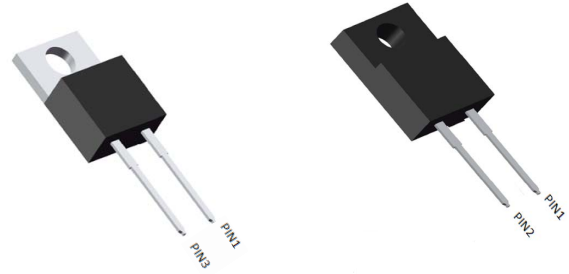
- Adopt FRD chip
- Low forward Voltage drop
- Fast reverse recovery time
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability

Typical Applications

Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

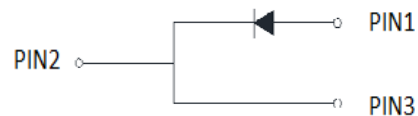
Mechanical Data

- **Package:** TO-220AC ITO-220AC
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102



TO-220AC
RHRP3060

ITO-220AC
RHRP3060F



■Maximum Ratings (T_a=25°C Unless otherwise specified)

	V _{RSM} V	V _{RRM} V
RHRP3060	600	600
RHRP3060F	600	600

Symbol	Test Conditions	Maximum Ratings	Unit
I _{FRMS}	T _{VJ} =T _{VJM}	60	A
I _{FAVM}	T _C =85°C; rectangular, d=0.5	30	
I _{FRM}	t _p <10us; rep. rating, pulse width limited by T _{VJM}	375	
I _{FSM}	T _{VJ} =45°C t=10ms (50Hz), sine t=8.3ms (60Hz), sine	300 320	A
	T _{VJ} =150°C t=10ms(50Hz), sine t=8.3ms(60Hz), sine	260 280	
I ² t	T _{VJ} =45°C t=10ms (50Hz), sine t=8.3ms (60Hz), sine	450 420	A ² s
	T _{VJ} =150°C t=10ms(50Hz), sine t=8.3ms(60Hz), sine	340 320	
T _{VJ} T _{VJM} T _{stg}		-40...+150 150 -40...+150	°C
P _{tot}	T _C =25°C	125	W
M _d	Mounting torque	0.8...1.2	Nm
Weight	typical	6	g

■ Characteristics (Typical)

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I _R	T _{VJ} =25°C; V _R =V _{R_{RRM}}		100	uA
	T _{VJ} =25°C; V _R =0.8·V _{R_{RRM}}		50	uA
	T _{VJ} =125°C; V _R =0.8·V _{R_{RRM}}		7	mA
V _F	I _F =30A; T _{VJ} =150°C T _{VJ} =25°C		1.5 1.7	V
V _{TO}	For power-loss calculations only		1.01	V
r _T	T _{VJ} =T _{VJM}		7.1	mΩ
R _{thJC} R _{thCK} R _{thJA}		0.25	1 35	K/W
t _{rr}	I _F =1A; -di/dt=100A/us; V _R =30V; T _{VJ} =25°C	40	55	ns
I _{RM}	V _R =350V; I _F =30A; -di _F /dt=240A/us; L<0.05uH; T _{VJ} =100°C	10	11	A

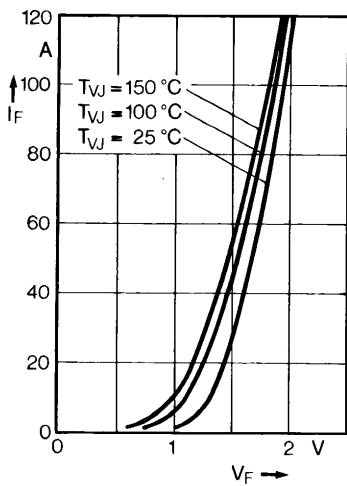


Fig. 1 Forward current versus voltage drop.

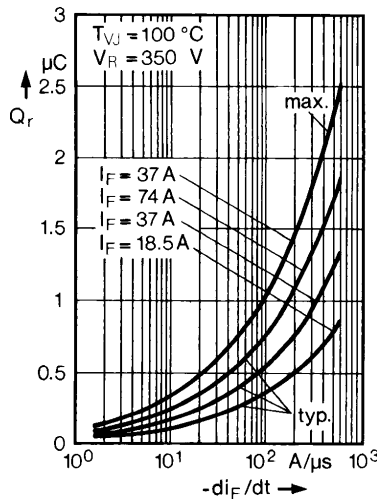


Fig. 2 Recovery charge versus -di_F/dt.

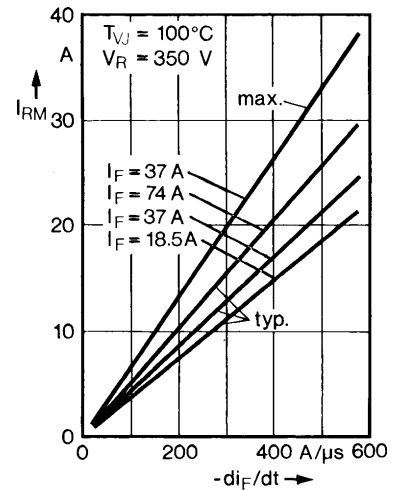


Fig. 3 Peak reverse current versus -di_F/dt.

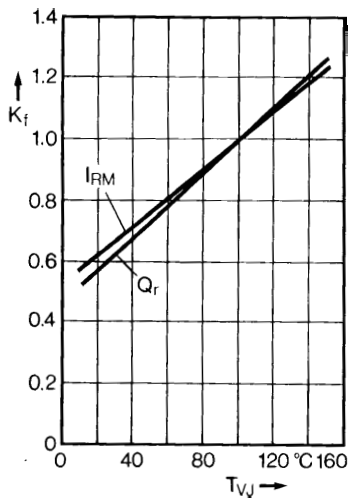


Fig. 4 Dynamic parameters versus junction temperature.

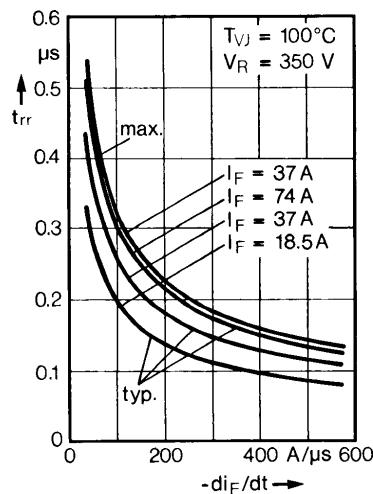


Fig. 5 Recovery time versus -di_F/dt.

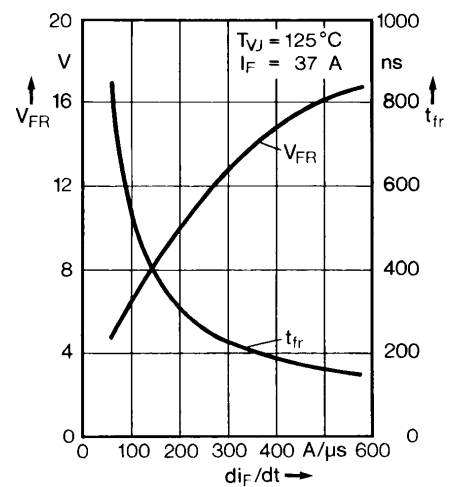
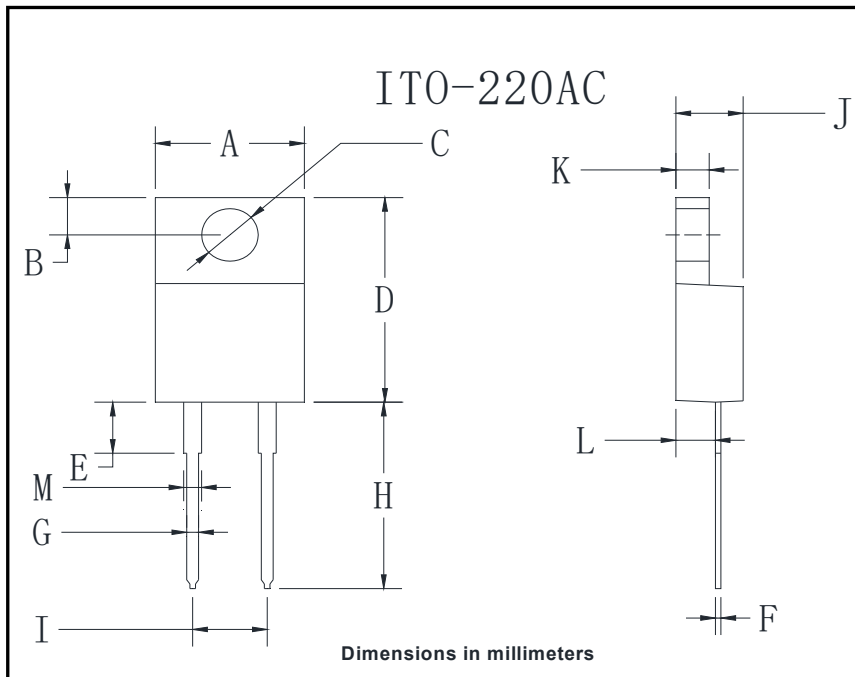
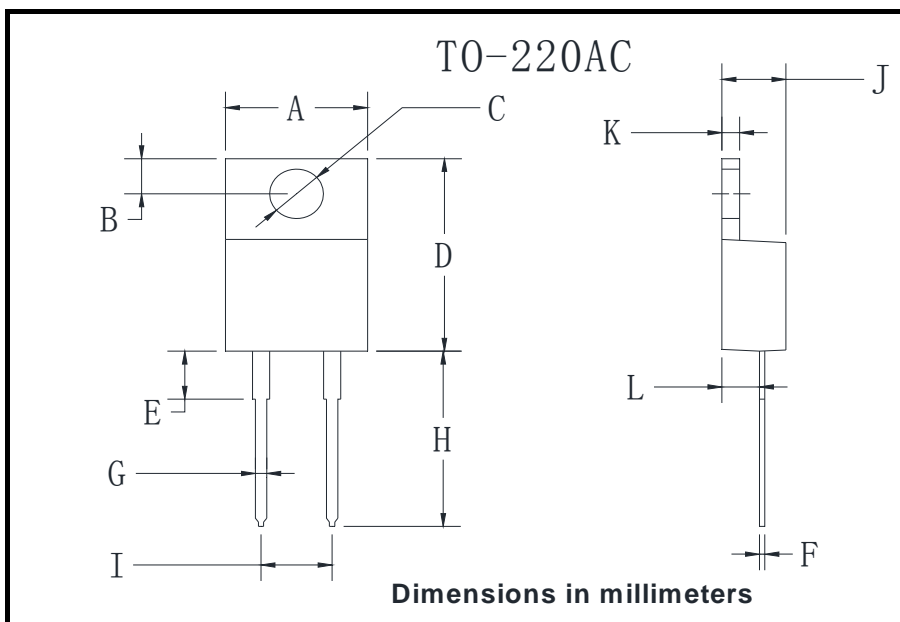


Fig. 6 Peak forward voltage versus di_F/dt.

■ Outline Dimensions



ITO-220AC		
Dim	Min	Max
A	9.8	10.2
B	2.25	2.75
C	2.95	3.45
D	14.75	15.25
E	3.5	4.1
F	0.45	0.75
G	0.45	0.75
H	13.35	14.15
I	4.97	5.23
J	4.3	4.8
K	2.5	2.74
L	2.58	2.82
M	1.03	1.43



TO- 220AC		
Dim	Min	Max
A	9.95	10.35
B	2.55	2.95
C	3.75	4.05
D	14.95	15.25
E	3.75	4.25
F	0.26	0.5
G	0.68	0.94
H	13.3	13.9
I	4.86	5.26
J	4.38	4.78
K	1.14	1.4
L	2.37	2.79

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