

Ultra-Fast Recovery Diodes 10A 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

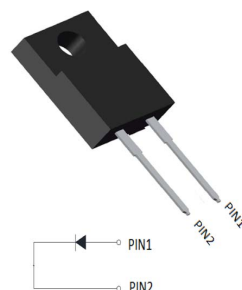
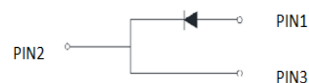
Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

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
- **Polarity:** As marked

■Maximum Ratings ($T_a=25^{\circ}\text{C}$ Unless otherwise specified)

TYPE	V_{RSM} V	V_{RRM} V
MUR10100	1000	1000
MUR10100F	1000	1000



Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS} I_{FAVM}	$T_c=115^{\circ}\text{C}$; rectangular, $d=0.5$	35 10	A
I_{FSM}	$T_{VJ}=45^{\circ}\text{C}$; $t_p=10\text{ms}$ (50Hz), sine	80	A
E_{AS}	$T_{VJ}=25^{\circ}\text{C}$; non-repetitive; $I_{AS}=8\text{A}$; $L=180\mu\text{H}$	6.9	mJ
I_{AR}	$V_A=1.25 \cdot V_R$ typ.; $f=10\text{kHz}$; repetitive	0.8	A
T_{VJ} T_{VJM} T_{stg}		-55...+175 175 -55...+150	$^{\circ}\text{C}$
P_{tot}	$T_c=25^{\circ}\text{C}$	60	W
M_d	mounting torque	0.4...0.6	Nm
Weight	typical	2	g

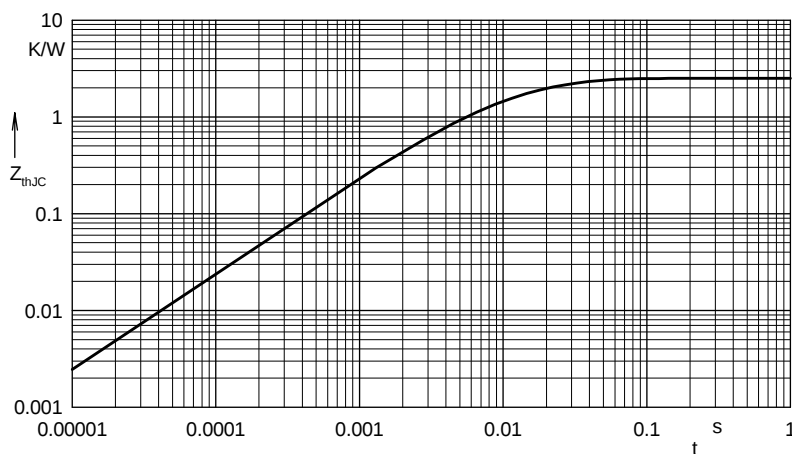
Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$ $T_{VJ}=150^{\circ}\text{C}; V_R=V_{RRM}$		60 0.25	μA mA
V_F	$I_F=10\text{A}; T_{VJ}=150^{\circ}\text{C}$ $T_{VJ}=25^{\circ}\text{C}$		1.8 2.2	V
R_{thJC} R_{thCH}		0.5	2.5	K/W
t_{rr}	$I_F=1\text{A}; -di/dt=50\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$	40	60	ns
I_{RM}	$V_R=100\text{V}; I_F=12\text{A}; -di_F/dt=100\text{A}/\mu\text{s}; T_{VJ}=100^{\circ}\text{C}$	4		A

■Thermal Characteristics ($T_a=25^{\circ}\text{C}$ Unless otherwise specified)

PARAMETER		SYMBOL	UNIT	MUR10100/MUR10100F
Thermal Resistance	Between junction and case	$R_{\theta J-C}$	$^{\circ}\text{C}/\text{W}$	4.0
	Between junction and Air	$R_{\theta J-A}$	$^{\circ}\text{C}/\text{W}$	50

■Ordering Information (Example)

PREFERRED P/N	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MUR10100/MUR10100F	Approximate 1.6	50	1000	5000	Tube

■Characteristics (Typical)

 Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	1.449	0.0052
2	0.558	0.0003
3	0.493	0.017

■ Characteristics (Typical)

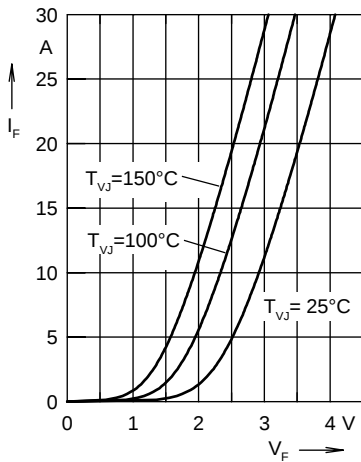


Fig. 1 Forward current I_F versus V_F

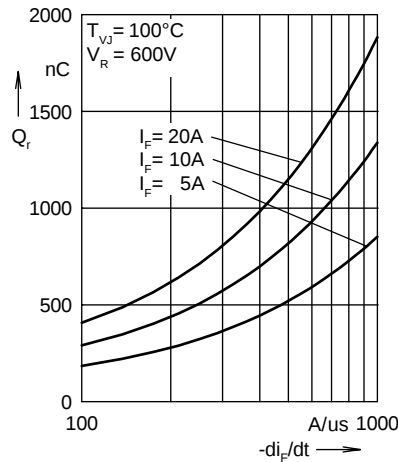


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

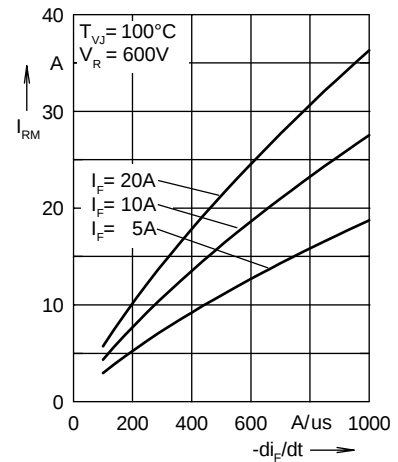


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

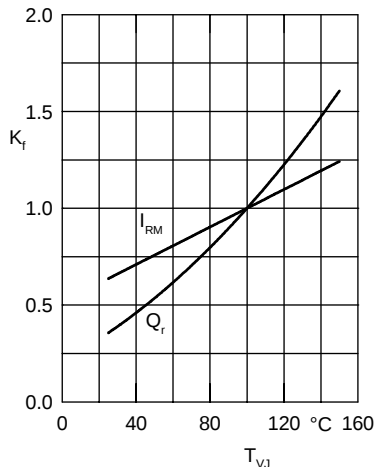


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

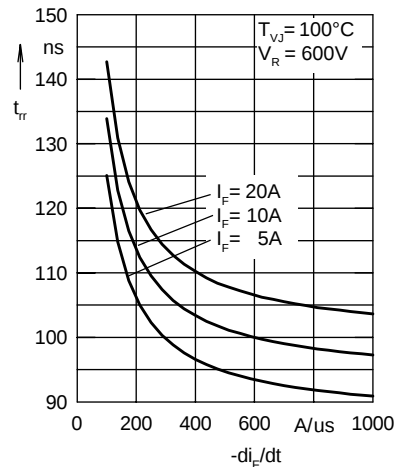


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

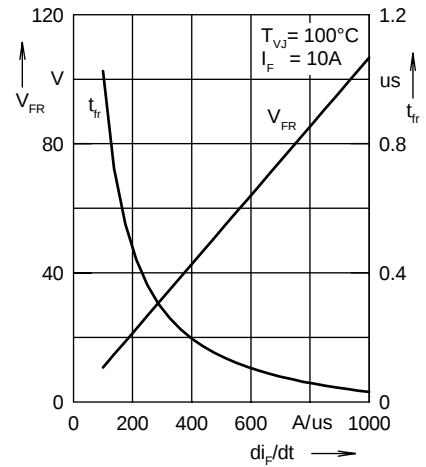
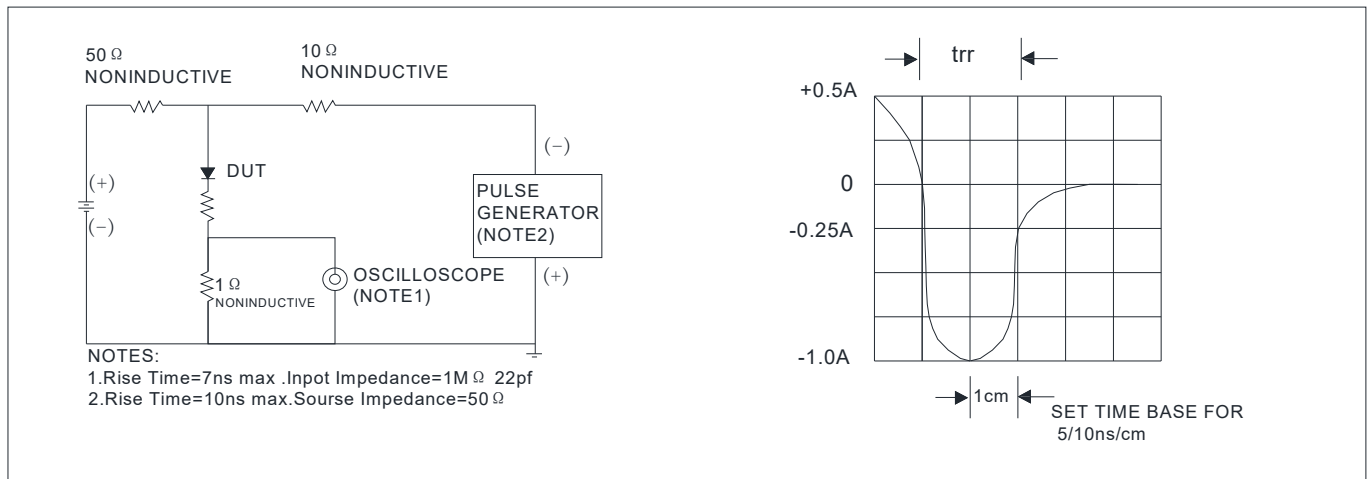
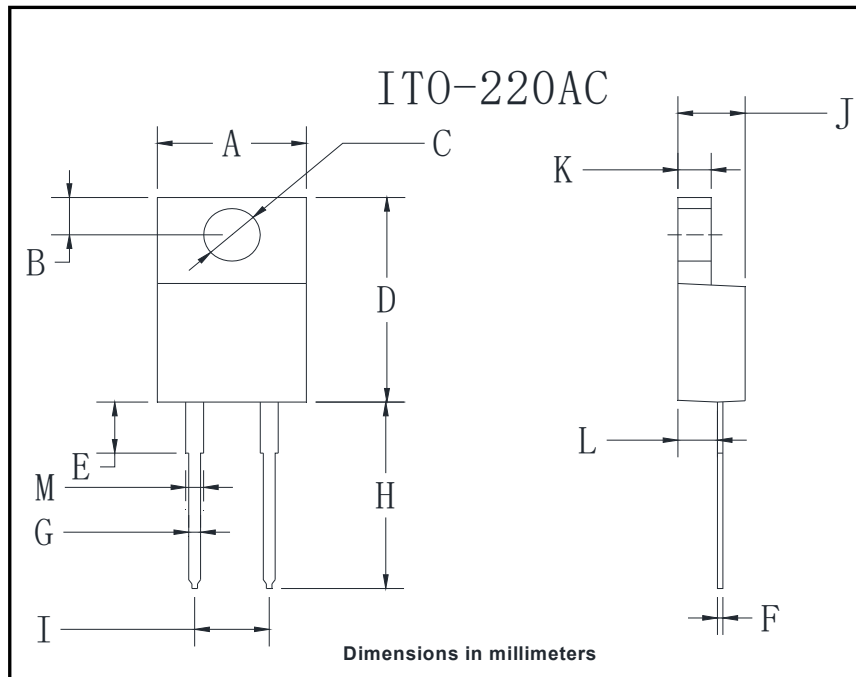


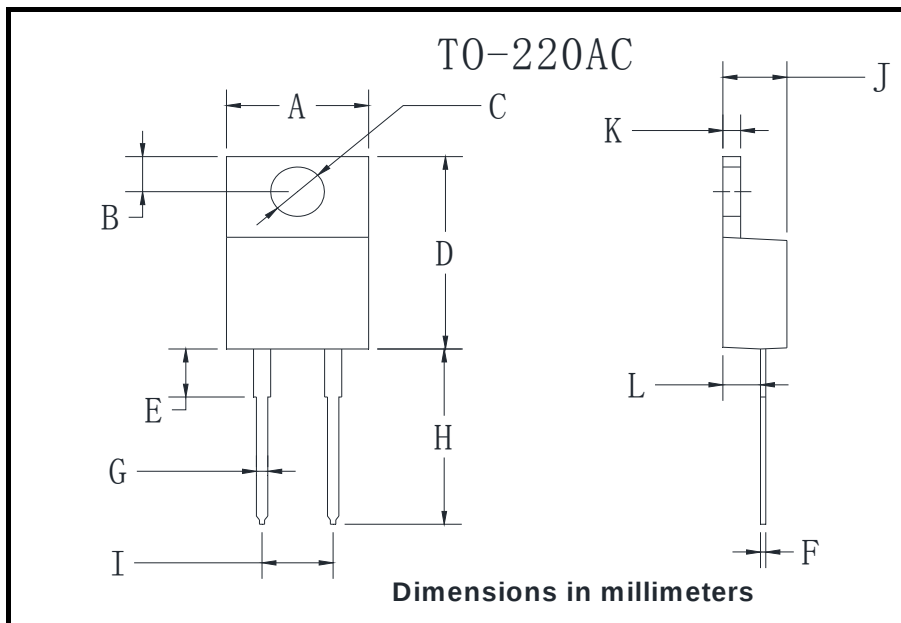
Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

FIG.5: Diagram of circuit and Testing wave form of reverse recovery time





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

Packge	Packing	Box Size L×W×H(mm)	Quatity(pcs/box)	Carton Size L×W×H(mm)	Quatity(pcs/carton)
ITO-220AC	50pcs/Tube	558×148×38	1000	565×225×170	5000