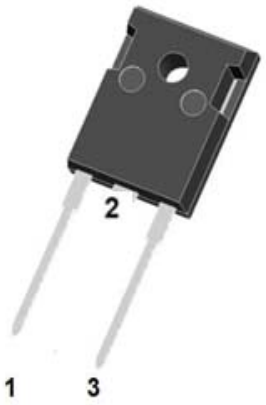
MUR60120P

Ultra-Fast Recovery Diodes 60A FRED Pt

Features

- Adopt FRED 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

TO-247AC

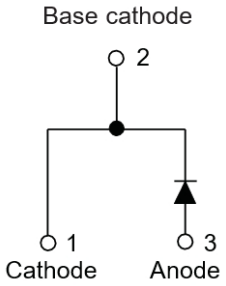


Typical Applications

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

Mechanical Data

- **Package**: TO-247AC
  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



TYPE	V_{RSM} V	V_{RRM} V
MUR60120	1200	1200

Symbol	Test Conditions		Maximum Ratings	Unit
I_{FRMS} I_{FAVM} I_{FRM}	$T_{VJ}=T_{VJM}$ $T_C=60^oC$; rectangular, d=0.5 t_P<10us; rep. rating, pulse width limited by T_{VJM}		100 52 800	A
I_{FSM}	$T_{VJ}=45^oC$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	500 540	A
	$T_{VJ}=150^oC$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	450 480	
I^2t	$T_{VJ}=45^oC$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	1250 1200	A^2s
	$T_{VJ}=150^oC$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1000 950	
T_{VJ} T_{VJM} T_{stg}			-40...+150 150 -40...+150	^oC
P_{tot}	$T_C=25^oC$		189	W
M_d	Mounting torque		0.8...1.2	Nm
Weight	typical		6	g

■Electrical Characteristics

Symbol	Test Conditions	Characteristic Values typ.	max.	Unit
I_R	T_{VJ}=25°C; V_R=V_{RRM} T_{VJ}=25°C; V_R=0.8·V_{RRM} T_{VJ}=125°C; V_R=0.8·V_{RRM}		2.2 0.5 14	mA
V_F	I_F=60A; T_{VJ}=150°C T_{VJ}=25°C		2.0 2.55	V
V_{TO}	For power-loss calculations only		1.65	V
r_T	T_{VJ}=T_{VJM}		8.3	mΩ
R_{thJC} R_{thCK} R_{thJA}		0.25	0.66 35	K/W
t_{rr}	I_F=1A; -di/dt=200A/us; V_R=30V; T_{VJ}=25°C	40	60	ns
I_{RM}	V_R=540V; I_F=60A; -di$_F$/dt=480A/us; L≤0.05uH; T_{VJ}=100°C	32	36	A

■Thermal Characteristics （Tj=25℃ Unless otherwise specified）

PARAMETER		SYMBOL	UNIT	MUR60120P
Thermal Resistance	Between junction and case	$R_{\theta J\text{-}C}$	℃/W	1.0
	Between junction and Air	$R_{\theta J\text{-}A}$	℃/W	50

■ Characteristics(Typical)

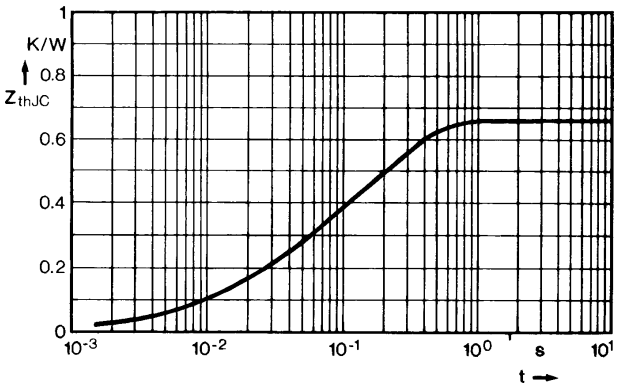


Fig. 7 Transient thermal impedance junction to case.

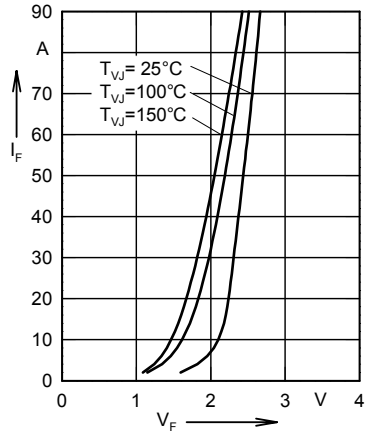


Fig. 1 Forward current versus voltage drop.

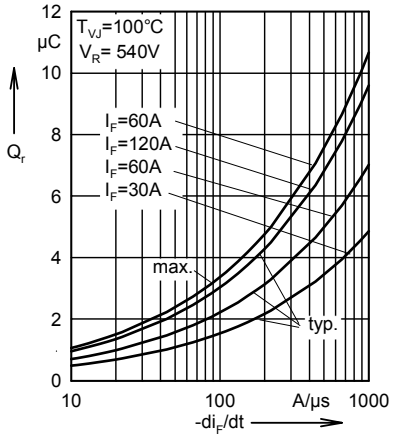


Fig. 2 Recovery charge versus $-di_F/dt$.

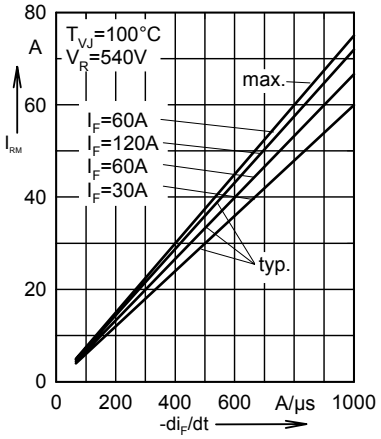


Fig. 3 Peak reverse current versus $-di_F/dt$.

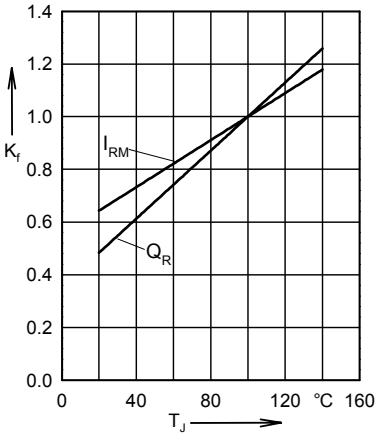


Fig. 4 Dynamic parameters versus junction temperature.

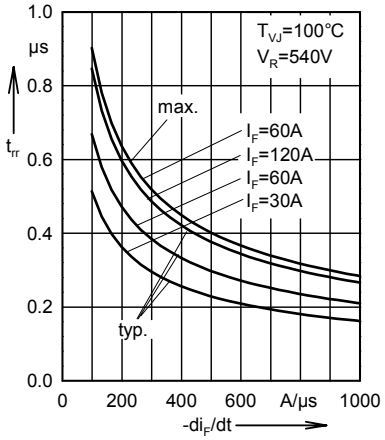


Fig. 5 Recovery time versus $-di_F/dt$.

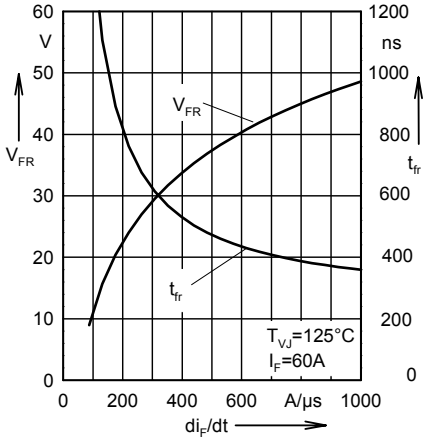
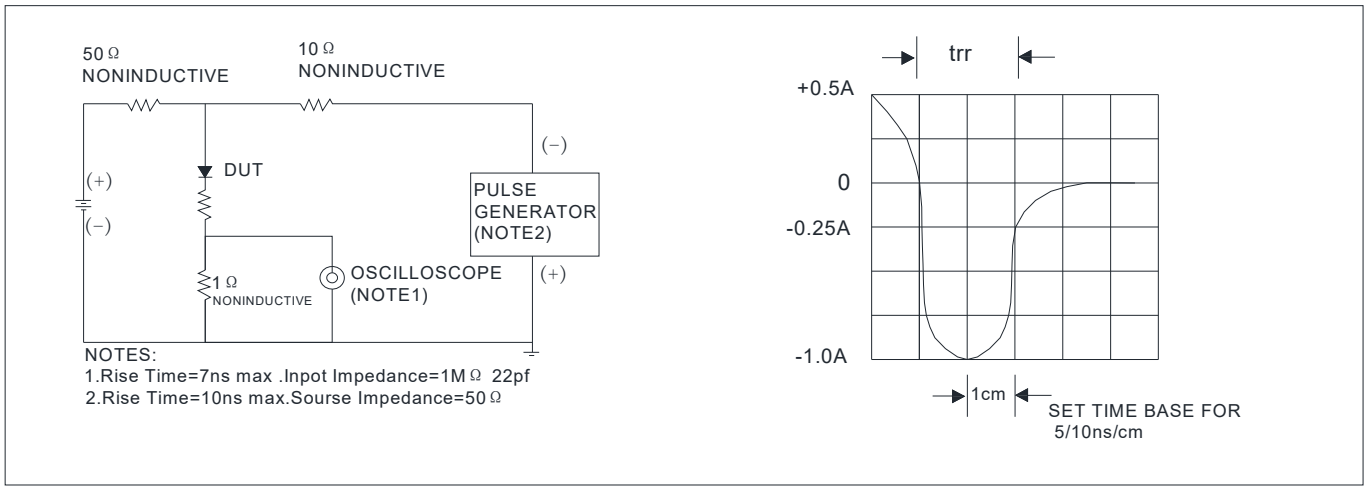
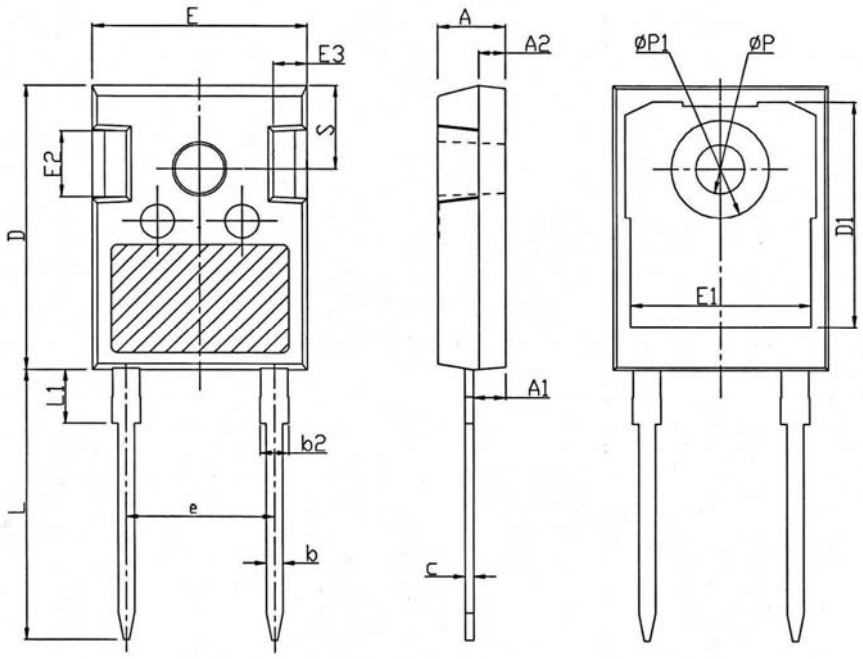


Fig. 6 Peak forward voltage versus di_F/dt.

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



■ Outline Dimensions



TO247-AC		
Dim	Min	Max
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.11	1.36
b2	1.91	2.21
c	0.51	0.75
D	20.70	21.30
D1	16.25	16.85
E	15.50	16.10
E1	13.00	13.60
E2	4.80	5.20
E3	2.30	2.70
e	10.88 TYP	
L	19.62	20.22
L1	-	4.30
φP	3.40	3.80
φP1	-	7.30
S	6.15 TYP	