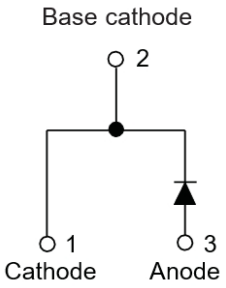
Ultra-Fast Recovery Diodes 30A FRED





Features

- High frequency operation
- High surge forward current capability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Solder dip 275 °C max. 7 s, per JESD 22-B106

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

■Maximum Ratings (Tj=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MUR30120PL
Device marking code			MUR30120PL
Repetitive Peak Reverse Voltage	V_{RRM}	V	1200
Average Rectified Output Current @60Hz half sine-wave, R-load, Tc(FIG.1)	I_O	A	30
Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, Tj=25℃	I_{FSM}	A	210
Current Squared Time @1ms≤t≤8.3ms Tj=25℃	I^2t	A^2s.	183
Single Pulse Avalanche Energy @ Tp=40uS, Tj=25℃,L=15mH	EAS	mJ	2.7
Storage Temperature	Tstg	℃	-55 ~ +175
Junction Temperature	Tj	℃	-55 ~ +175
Typical Junction capacitance @4V,1MHz	Cj	pF	97

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
instantaneous forward voltage drop per diode	VFM	V	IFM=30.0A Tj=25℃		-	2.8	3.3
			IFM=30.0A Tj=125℃		-	2.1	2.8
DC reverse current at rated DC blocking voltage per diode	IRRM1	uA	VRM=VRRM Tj=25℃		-	-	5.0
	IRRM2		VRM=VRRM Tj=125℃		-	-	200
Reverse Recovery Time	Trr	ns	I_F=0.5A I_{RM}=1A I_{RR}=0.25A Tj=25℃		-	38	70
			Tj=25℃	I_F=30A di/dt=-200A/us V_{RM}=960V	-	206	-
			Tj=125℃		-	255	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	4.25	-
			Tj=125℃		-	9.10	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	434	-
			Tj=125℃		-	1713	-

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

PARAMETER		SYMBOL	UNIT	MUR30120PL
Thermal Resistance	Between junction and case	$R_{\theta J\text{-}C}$	℃/W	0.4

■Ordering Information (Example)

PREFERED P/N	UNIT WEIGHT(g)	MINIIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MUR30120PL	Approximate 6.0	30	360	1800	Tube

■Characteristics (Typical)

FIG1:Io -Tc Curve

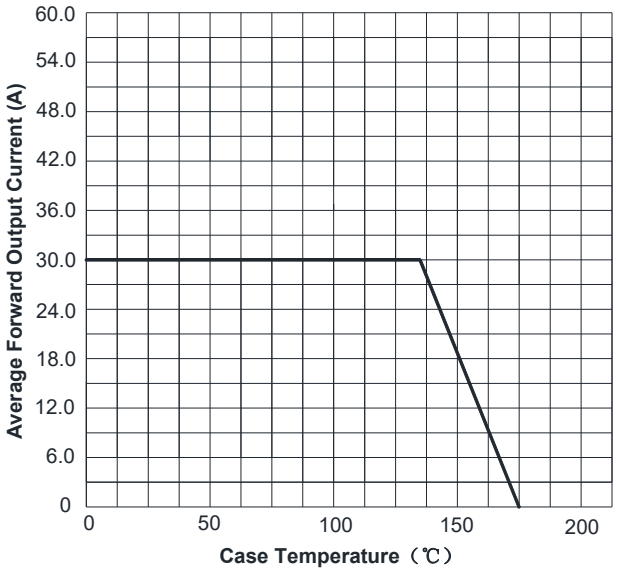


FIG2:Surge Forward Current Capability

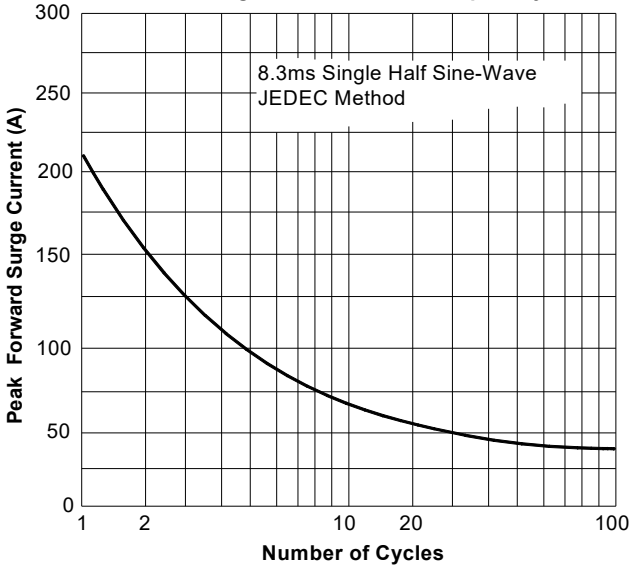


FIG3: Forward Voltage

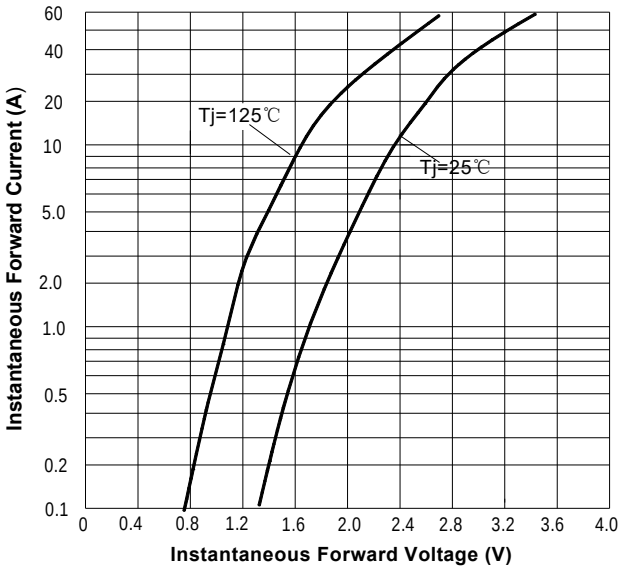


FIG4: Typical Reverse Characteristics

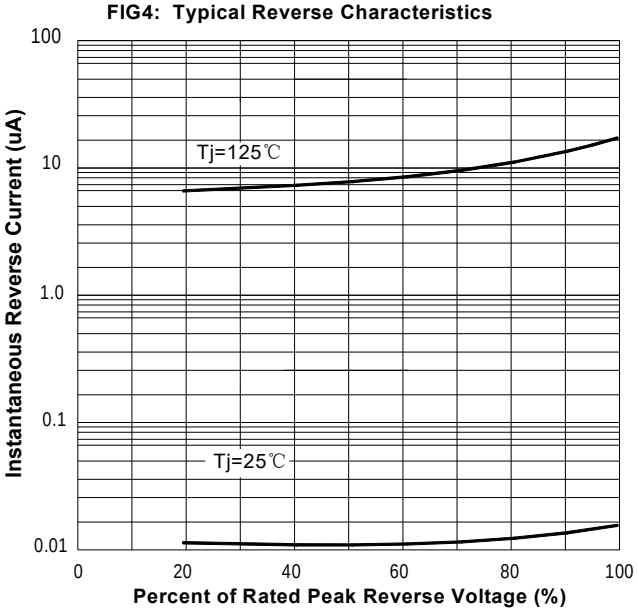
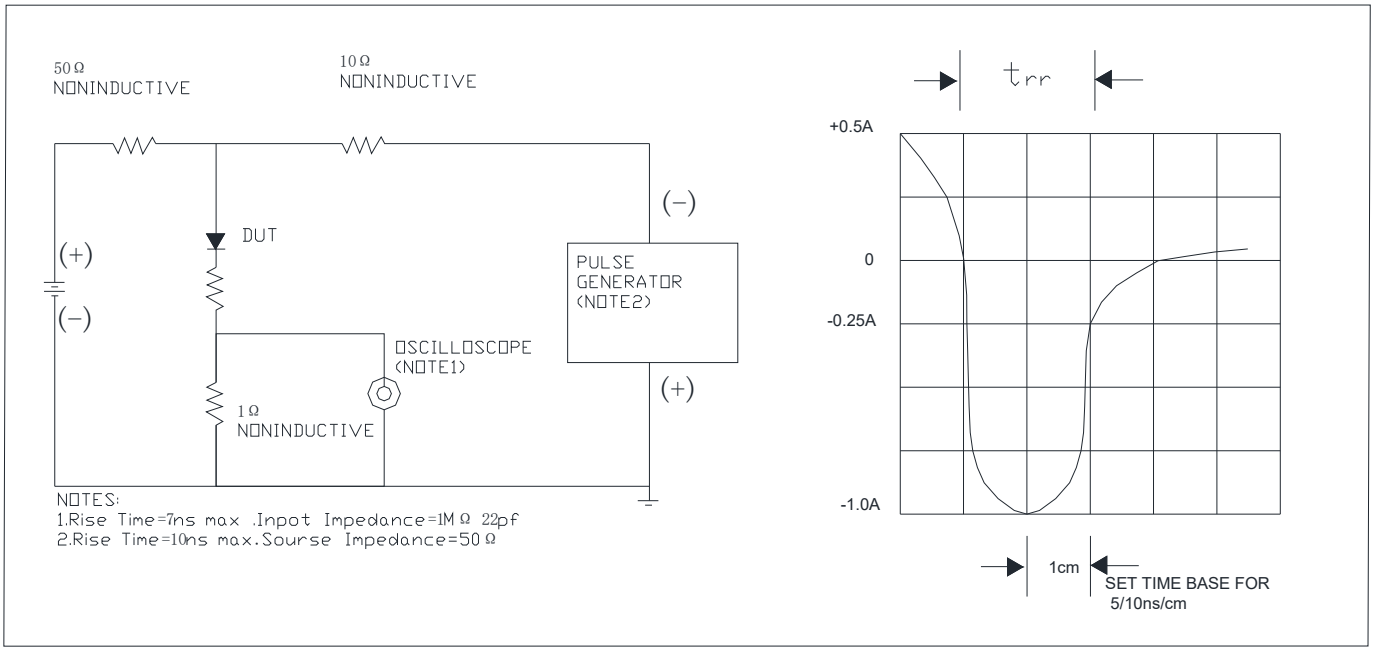
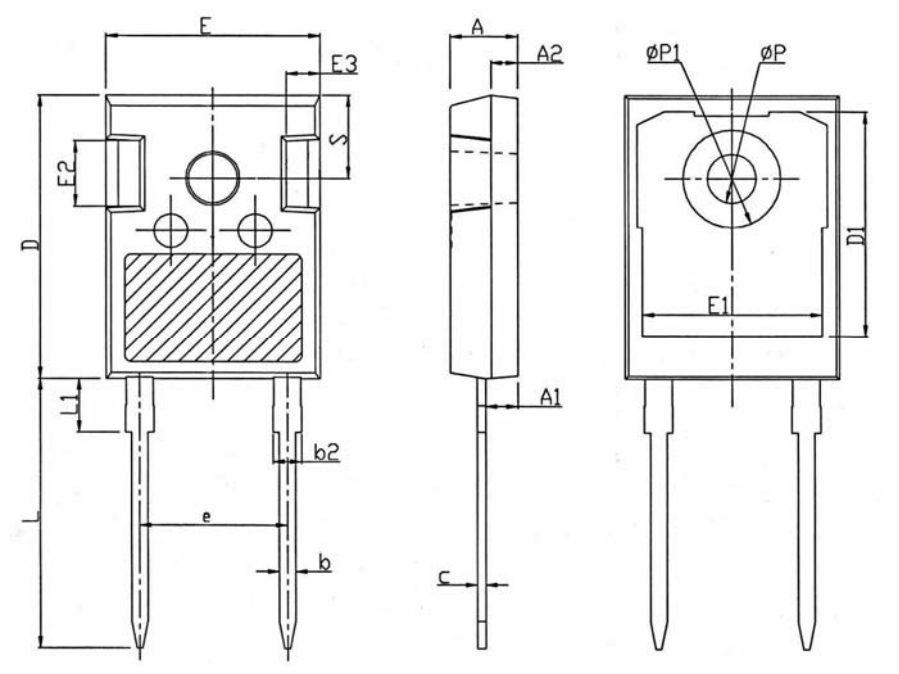


FIG.5 Diagram of circuit and Testing wave form of reverse recovery time



■Outline Dimensions



TO-247AC		
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	10.88BSC	
L	19.62	20.22
L1	-	4.30
ϕP	3.40	3.80
ϕP1	-	7.30
S	6.15BSC	

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