

## Ultra-Fast Recovery Diodes 30A FRED



### 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

### Typical Applications

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

### Mechanical Data

- **Package:** TO-220AC Inner-Insulated (W5038)  
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<sub>j</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURI3060L
Device marking code			MURI3060L
Repetitive Peak Reverse Voltage	VRRM	V	600
Average Rectified Output Current @60Hz sine wave, R-load, T <sub>c</sub> (FIG.1)	I <sub>O</sub>	A	30
Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, T <sub>a</sub> =25°C	I <sub>FSM</sub>	A	250
Current Squared Time @1ms≤t≤8.3ms T <sub>j</sub> =25°C,	I <sup>2</sup> t	A <sup>2</sup> s	260
Single Pulse Avalanche Energy @ T <sub>p</sub> =40uS, T <sub>j</sub> =25°C, L=15mH	EAS	mJ	150
Storage Temperature	T <sub>stg</sub>	°C	-55 ~ +175
Junction Temperature	T <sub>j</sub>	°C	-55 ~ +175
Junction capacitance @4V,1MHz	C <sub>j</sub>	pF	145



# MURI3060L

## ■ Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min	Typ	Max
Instantaneous forward voltage drop per diode	$V_{FM}$	V	$I_{FM}=30.0A @ T_j=25^{\circ}C$	-	2.1	2.5
			$I_{FM}=30.0A @ T_j=125^{\circ}C$	-	1.6	2.0
DC reverse current at rated DC blocking voltage per diode	$I_{RRM1}$	uA	$V_{RM}=V_{RRM}$ $T_j=25^{\circ}C$	-	-	5.0
	$I_{RRM2}$		$V_{RM}=V_{RRM}$ $T_j=125^{\circ}C$	-	-	200.0
Reverse Recovery Time	$T_{rr}$	ns	$I_F=0.5A I_{RM}=1A$ $I_{RR}=0.25A T_j=25^{\circ}C$	-	27.0	50.0
			$T_j=25^{\circ}C$	-	58.0	-
			$T_j=125^{\circ}C$	-	92.0	-
Peak recovery current	$I_{RRM}$	A	$T_j=25^{\circ}C$	-	3.25	-
			$T_j=125^{\circ}C$	$I_F=30A$ $di/dt=-200A/us$ $V_{RM}=400V$	-	9.8
Reverse recovery charge	$Q_{rr}$	nC	$T_j=25^{\circ}C$	-	95.0	-
			$T_j=125^{\circ}C$	-	450.0	-

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

PARAMETER		SYMBOL	UNIT	MURI3060L
Thermal Resistance	Between junction and case	$R_{\theta J-C}$	$^{\circ}C/W$	1.5
	Between junction and Air	$R_{\theta J-A}$	$^{\circ}C/W$	30.0

## ■ Ordering Information (Example)

PREFERRED P/N	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MURI3060L	Approximate 1.8	50	1000	5000	Tube

## ■ Characteristics(Typical)

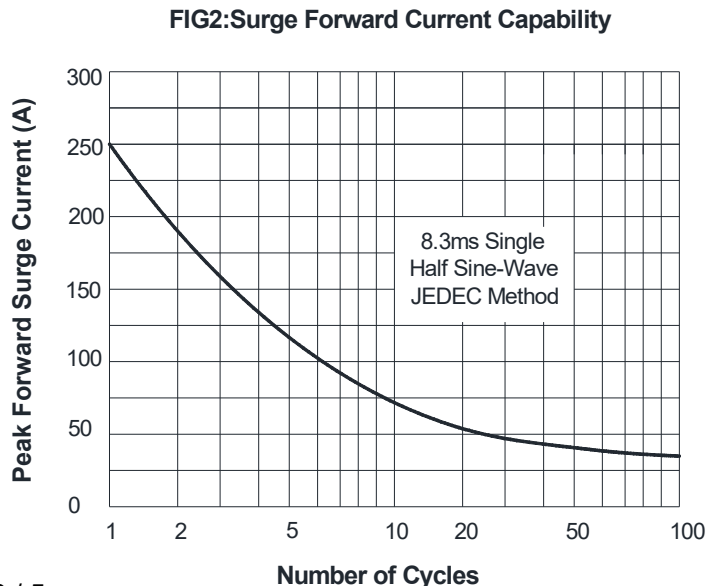
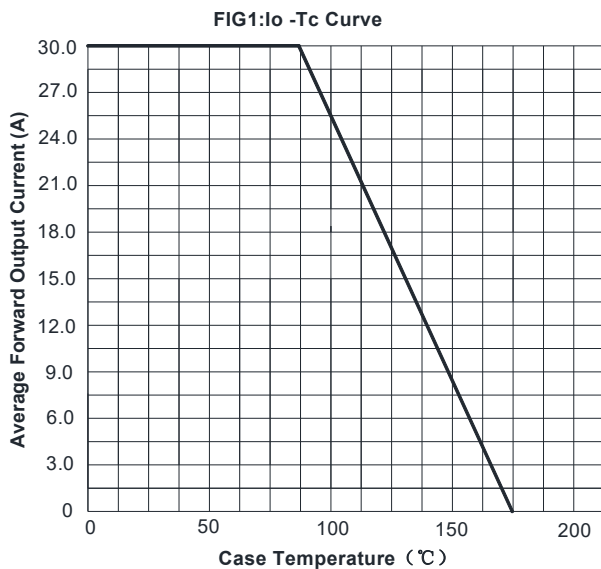


FIG3: Forward Voltage

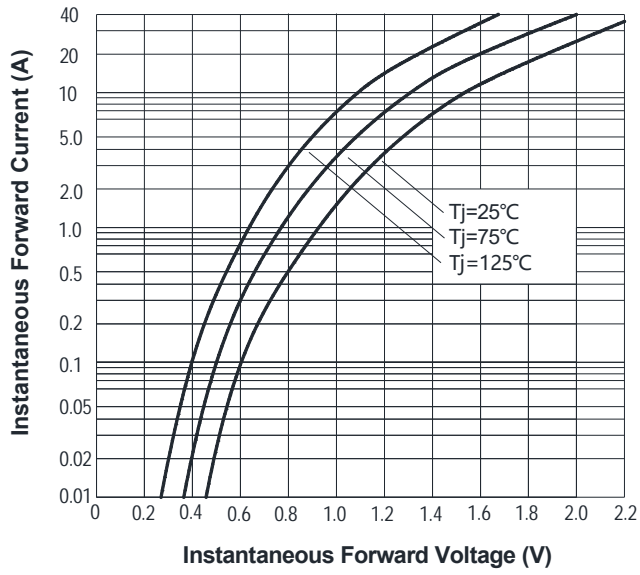


FIG.4: Instantaneous Reverse Characteristics

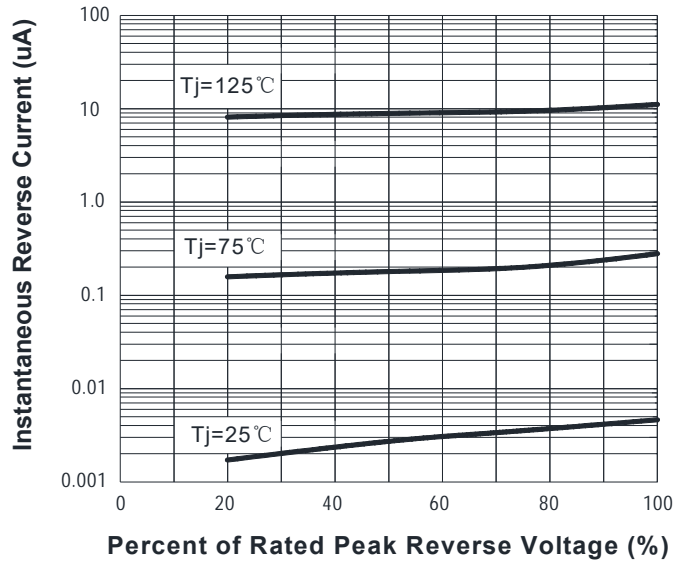
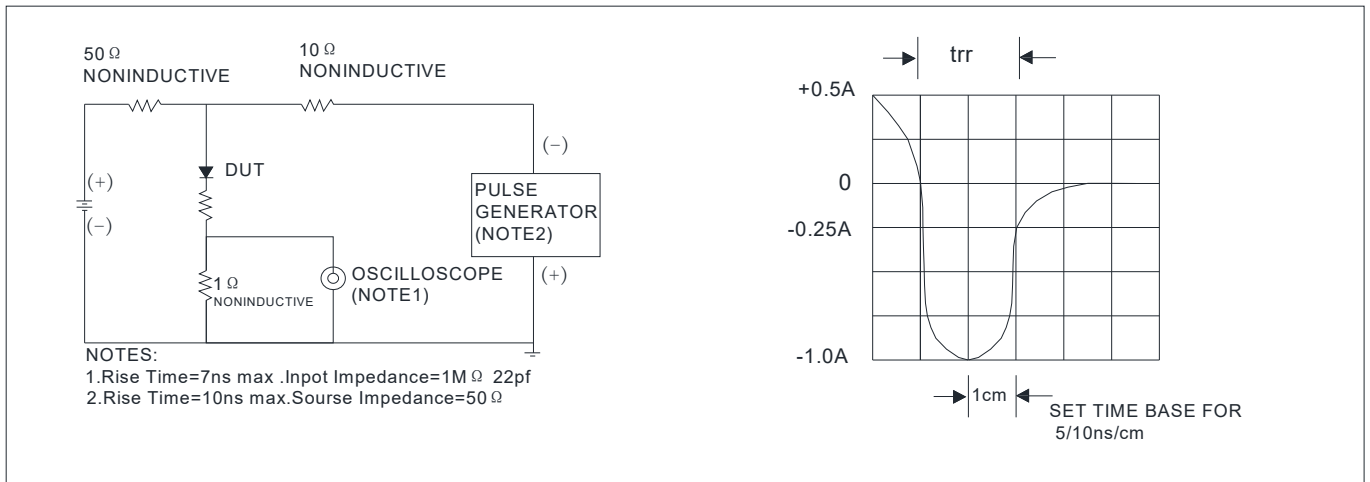


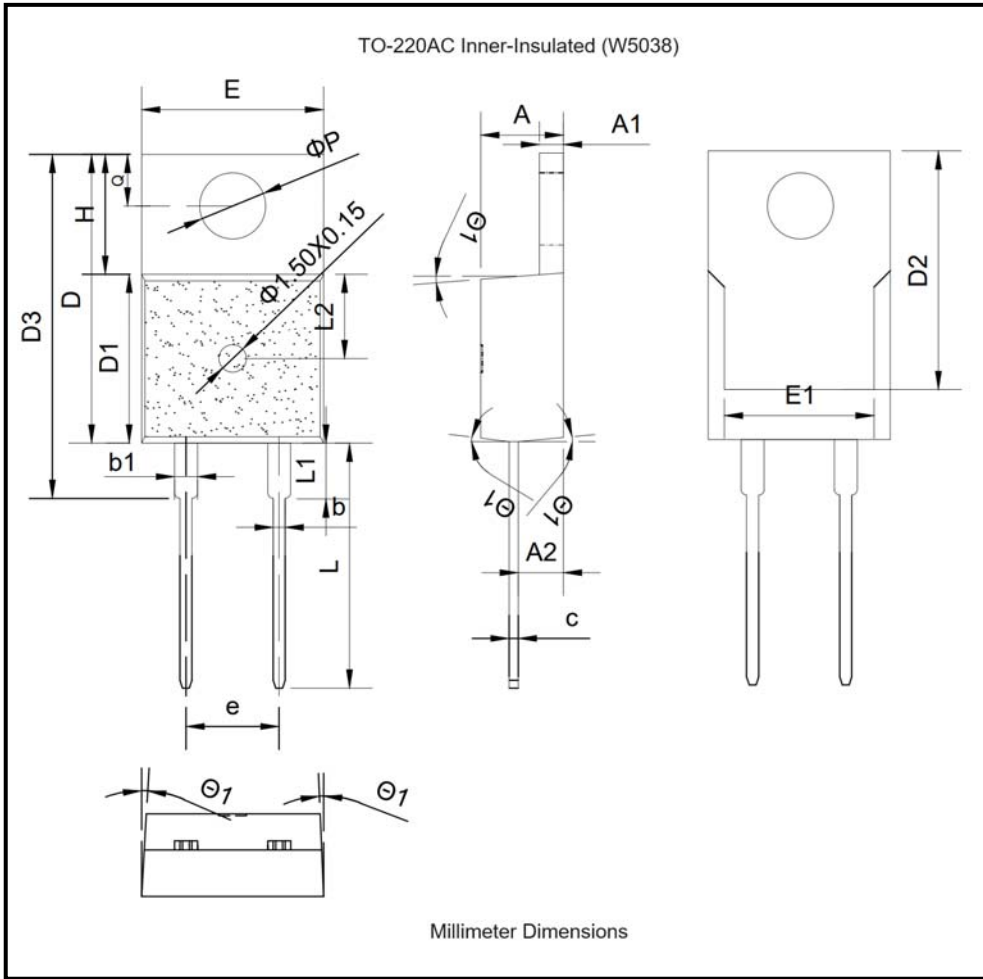
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time





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## ■ Outline Dimensions



TO-220AC		
Dim	Min	Max
A	4.40	4.60
A1	1.25	1.35
A2	2.30	2.50
b	0.70	0.90
b1	1.25	1.42
c	0.45	0.55
D	15.50	16.00
D1	9.10	9.30
D2	12.90	13.30
D3	18.45	19.15
E	9.80	10.15
E1	7.40	7.80
e	TYP 5.08	
H	6.40	6.60
L	13.00	13.45
L1	/	3.40
L2	4.50	4.80
L3	1.10	1.50
ΦP	3.65	3.85
Q	2.65	2.85
θ1	2°	7°



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