

■ **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  
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 )

PARAMETER	SYMBOL	UNIT	MUR820
Device marking code			MUR820
Repetitive Peak Reverse Voltage	$V_{RRM}$	V	200
Average Rectified Output Current @60Hz sine wave, R-load, $T_c$ (FIG.1)	$I_o$	A	8
Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, $T_j=25^{\circ}\text{C}$	$I_{FSM}$	A	100
Current Squared Time @1ms $\leq t \leq 8.3$ ms $T_j=25^{\circ}\text{C}$ ,	$I^2t$	A <sup>2</sup> s	41
Storage Temperature	$T_{stg}$	$^{\circ}\text{C}$	-55 ~ +175
Junction Temperature	$T_j$	$^{\circ}\text{C}$	-55 ~ +175
Typical Junction capacitance @4V,1MHz	$C_j$	pF	70

■ **THERMAL CHARACTERISTICS** ( $T_a=25^{\circ}\text{C}$  Unless otherwise specified )

PARAMETER	SYMBOL	UNIT	MUR820	
Thermal Resistance	Between junction and case	$R_{\theta J-C}$	$^{\circ}\text{C}/\text{W}$	2.0
	Between junction and Air	$R_{\theta J-A}$	$^{\circ}\text{C}/\text{W}$	50

■ **PACKAGING INFORMATION**

PREFERRED P/N	UNIT WEIGHT(g)	MINIIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MUR820	Approximate 1.8	50	1000	5000	Tube

■ **ELECTRICAL CHARACTERISTICS** ( $T_a=25^\circ\text{C}$  Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min	Typ	Max
Instantaneous forward voltage drop per diode	$V_{FM}$	V	$I_{FM}=8.0A @T_j=25^\circ\text{C}$	-	0.90	1.0
			$I_{FM}=8.0A @T_j=150^\circ\text{C}$	-	0.78	0.9
DC reverse current at rated DC blocking voltage per diode	$I_{RRM1}$	uA	$V_{RM}=V_{RRM}$ $T_j=25^\circ\text{C}$	-	-	5
	$I_{RRM2}$		$V_{RM}=V_{RRM}$ $T_j=150^\circ\text{C}$	-	20	50
Reverse Recovery Time	$T_{RR}$	ns	$I_F=0.5A$ $I_{RM}=1A$ $I_{RR}=0.25A$ $T_j=25^\circ\text{C}$	-	25	35
			$T_j=25^\circ\text{C}$	-	20	-
			$T_j=125^\circ\text{C}$	-	35	-
Peak recovery current	$I_{RRM}$	A	$T_j=25^\circ\text{C}$	-	3.7	-
			$T_j=125^\circ\text{C}$	-	6.4	-
Reverse recovery charge	$Q_{rr}$	nC	$T_j=25^\circ\text{C}$	-	34	-
			$T_j=125^\circ\text{C}$	-	115	-

■ **CHARACTERISTICS (TYPICAL)**

FIG1:  $I_o$  - $T_c$  Curve

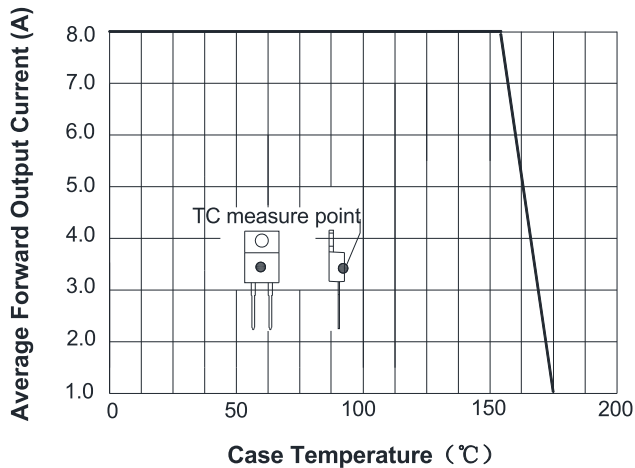


FIG2: Surge Forward Current Capability

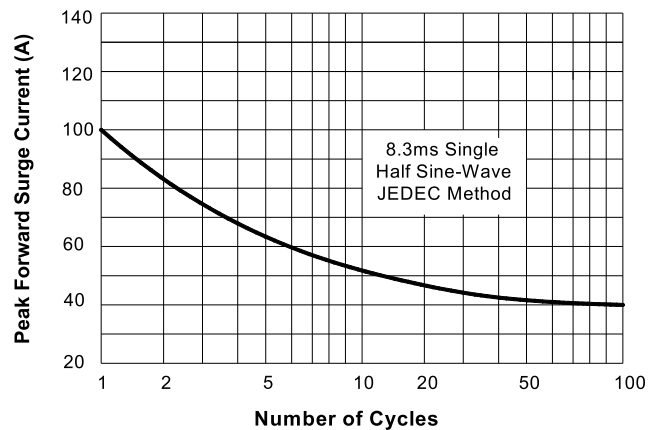


FIG3: Forward Voltage

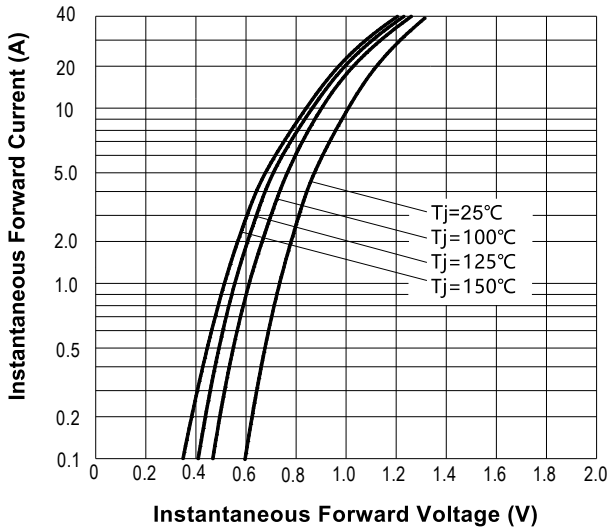


FIG.4: Instantaneous Reverse Characteristics

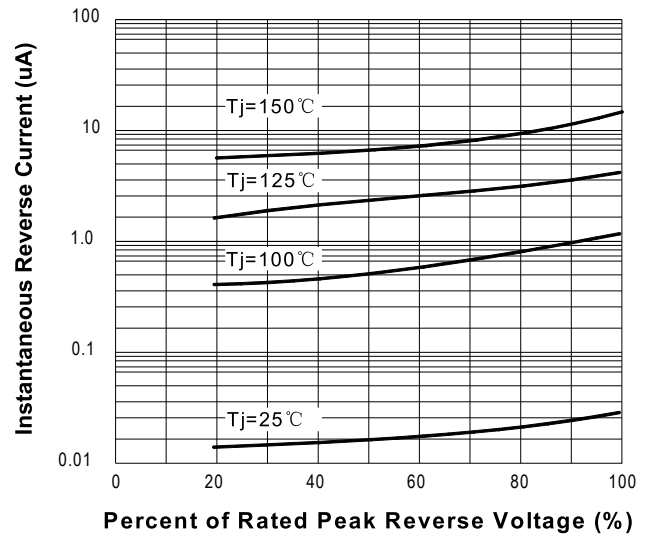
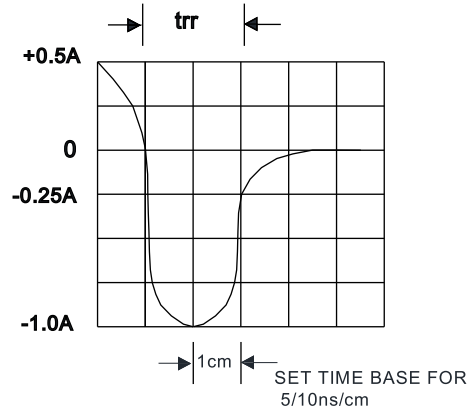
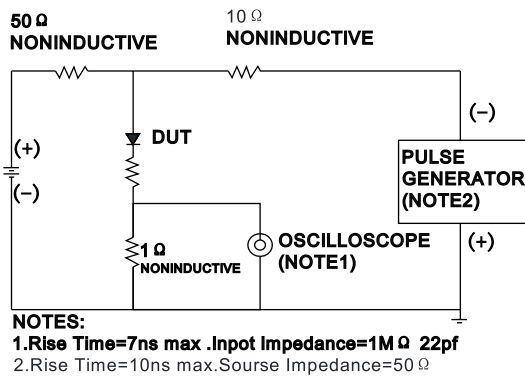
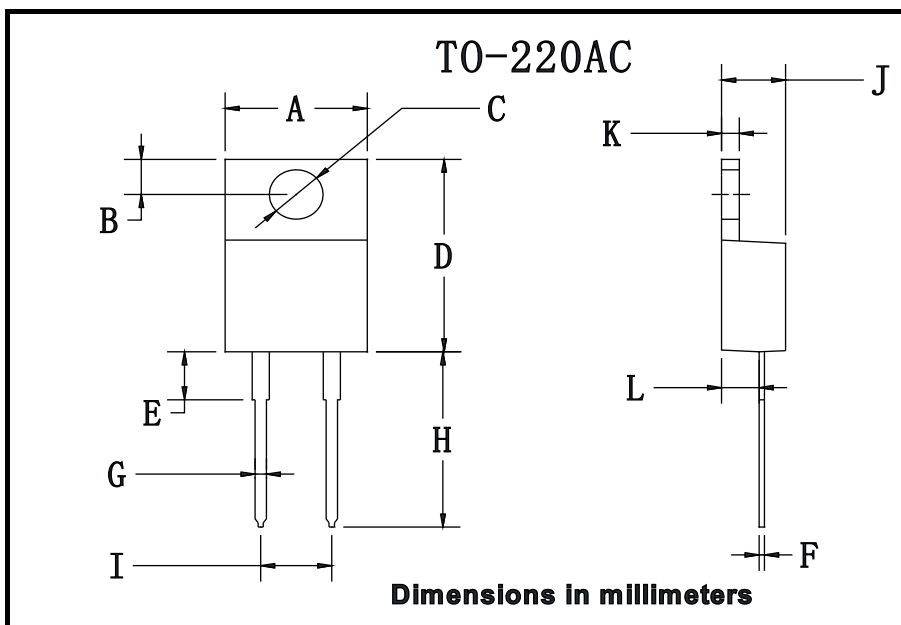


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



NOTES:  
1. Rise Time=7ns max . Inpot Impedance=1M $\Omega$  22pf  
2. Rise Time=10ns max. Source Impedance=50 $\Omega$

■ **OUTLINE DIMENSIONS**



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