

**TO-220AC Ultra-Fast Recovery Rectifier Diodes**
**Features**

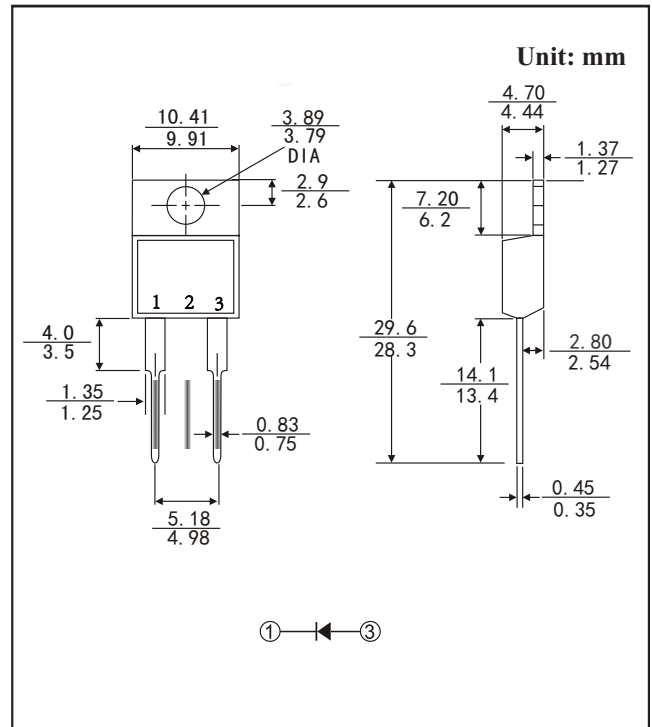
- Adopt FRED chip
- Low forward Voltage drop
- Fast reverse recovery time
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability

**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


**MAXIMUM RATINGS AND CHARACTERISTICS**

@ 25°C Ambient Temperature (unless otherwise noted)

PARAMETER	SYMBOL	UNIT	MUR2040
Device marking code			MUR2040
Repetitive Peak Reverse Voltage	$V_{RRM}$	V	400
Average Rectified Output Current @60Hz sine wave, R-load, $T_c$ (FIG.1)	$I_o$	A	20
Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, $T_j=25^\circ\text{C}$	$I_{FSM}$	A	120
Current Squared Time @1ms $\leq t \leq$ 8.3ms $T_j=25^\circ\text{C}$ ,	$I^2t$	A <sup>2</sup> s	60
Storage Temperature	$T_{stg}$	°C	-55 ~ +175
Junction Temperature	$T_j$	°C	-55 ~ +175
Typical Junction capacitance @4V,1MHz	$C_j$	pF	50
Mounting torque @recommend torque: 5kg·cm	Tor	kg·cm	8

**■Electrical Characteristics**

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min	Typ	Max
Instantaneous forward voltage drop per diode	$V_{FM}$	V	$I_{FM}=10.0A$ @ $T_j=25^\circ C$	-	-	1.30
			$I_{FM}=10.0A$ @ $T_j=150^\circ C$		0.9	1.0
DC reverse current at rated DC blocking voltage per diode	$I_{RRM1}$	uA	$V_{RM}=V_{RRM}$ $T_j=25^\circ C$	-	-	5
	$I_{RRM2}$		$V_{RM}=V_{RRM}$ $T_j=150^\circ C$	-	40	100
Reverse Recovery Time	$T_{rr}$	ns	$I_F=0.5A$ $I_{RM}=1A$ $I_{RR}=0.25A$ $T_j=25^\circ C$	-	25	35
			$T_j=25^\circ C$	-	33.5	-
			$T_j=125^\circ C$	-	54.8	-
Peak recovery current	$I_{RRM}$	A	$T_j=25^\circ C$	-	4.1	-
			$T_j=125^\circ C$	-	8.1	-
Reverse recovery charge	$Q_{rr}$	nC	$T_j=25^\circ C$	-	68.3	-
			$T_j=125^\circ C$	-	226.7	-

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

PARAMETER		SYMBOL	UNIT	MUR2040FCT
Thermal Resistance	Between junction and case	$R_{\theta J-C}$	$^\circ C/W$	5.0
Thermal Resistance	Between junction and Air	$R_{\theta J-A}$	$^\circ C/W$	50

## RATINGS AND CHARACTERISTIC CURVES

FIG1:  $I_o$  -Tc Curve

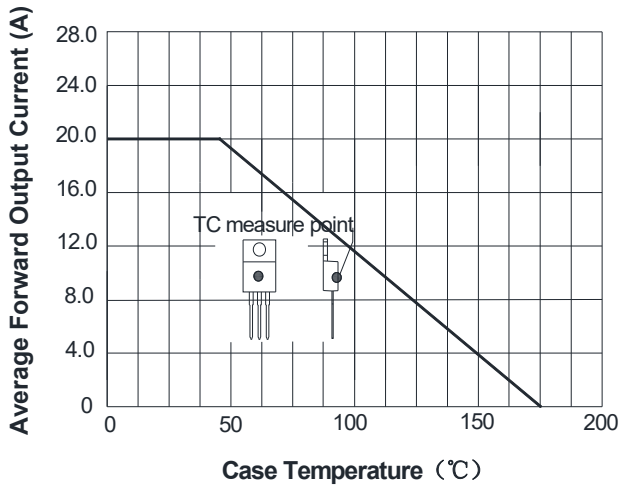


FIG2: Surge Forward Current Capability

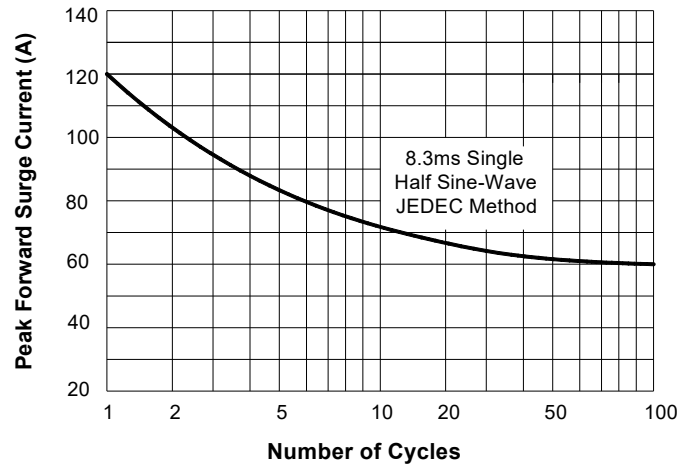


FIG3: Forward Voltage

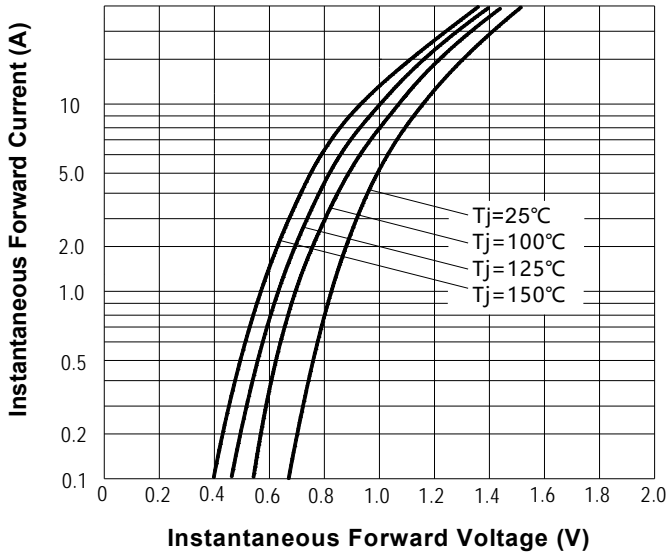


FIG.4: Instantaneous Reverse Characteristics

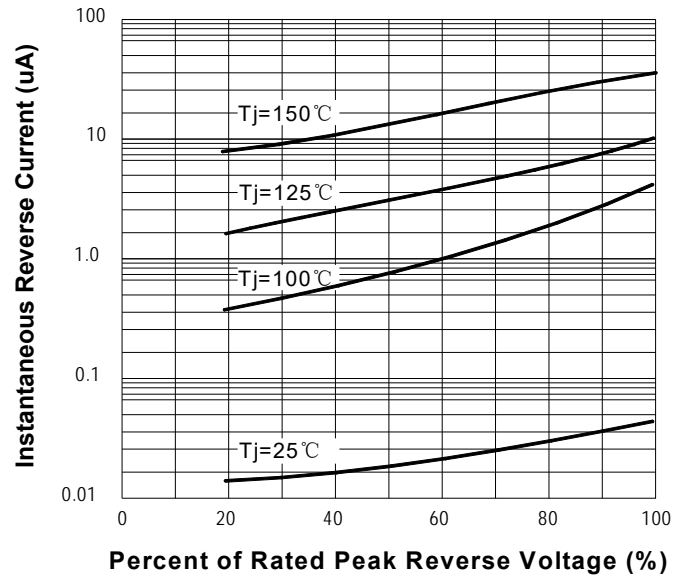


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

