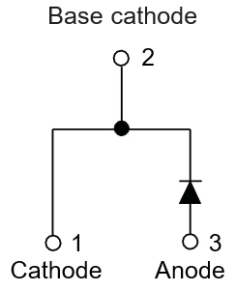


## Ultra-Fast Recovery Diodes 30A FRED



### 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-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 (T<sub>j</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURU3060P
Device marking code			MURU3060P
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>j</sub> =25°C	IFSM	A	460
Current Squared Time @1ms≤t≤8.3ms T <sub>j</sub> =25°C,	I <sup>2</sup> t	A <sup>2</sup> s	878
Storage Temperature	T <sub>stg</sub>	°C	-55 ~ +175
Junction Temperature	T <sub>j</sub>	°C	-55 ~ +175
Typical Junction capacitance @4V,1MHz	C <sub>j</sub>	pF	135



# MURU3060P

## ■Electrical Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min	Typ	Max	
Instantaneous forward voltage drop per diode	$V_{FM}$	V	$I_{FM}=30.0A @T_J=25^{\circ}C$	-	1.37	1.55	
			$I_{FM}=30.0A @T_J=125^{\circ}C$	-	1.18	1.35	
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	
Reverse Recovery Time	$T_{rr}$	ns	$I_F=0.5A$ $I_{RM}=1A$ $I_{RR}=0.25A$ $T_J=25^{\circ}C$	-	30	45	
			$T_J=25^{\circ}C$	-	63	-	
			$T_J=125^{\circ}C$	-	100	-	
Peak recovery current	$I_{RRM}$	A	$T_J=25^{\circ}C$	$I_F=30A$ $di/dt=-200A/us$ $V_{RM}=400V$	-	4.67	-
			$T_J=125^{\circ}C$		-	12.78	-
Reverse recovery charge	$Q_{rr}$	nC	$T_J=25^{\circ}C$	-	148	-	
			$T_J=125^{\circ}C$	-	640	-	

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

PARAMETER		SYMBOL	UNIT	MURU3060P
Thermal Resistance	Between junction and case	$R_{\theta J-C}$	$^{\circ}C/W$	1.0
	Between junction and Air	$R_{\theta J-A}$	$^{\circ}C/W$	40

## ■ Characteristics(Typical)

FIG1:  $I_o$ - $T_c$  Curve

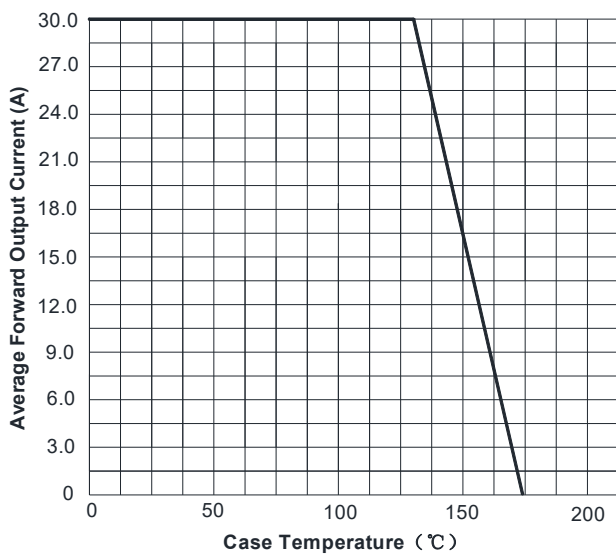
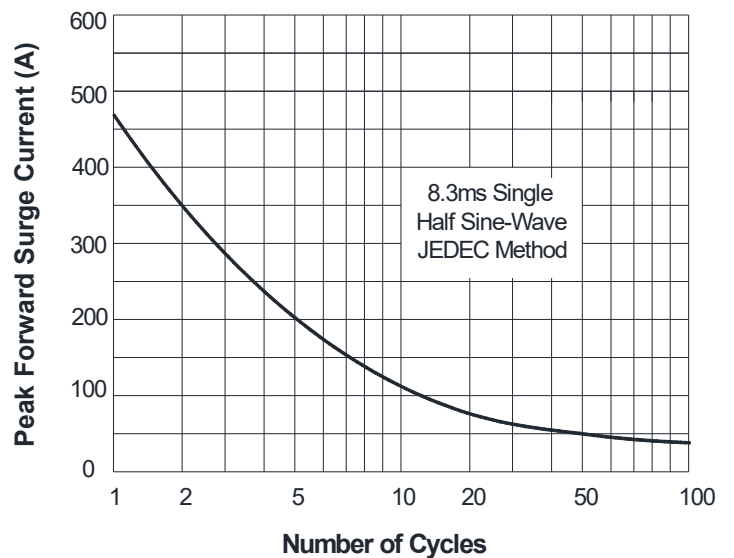
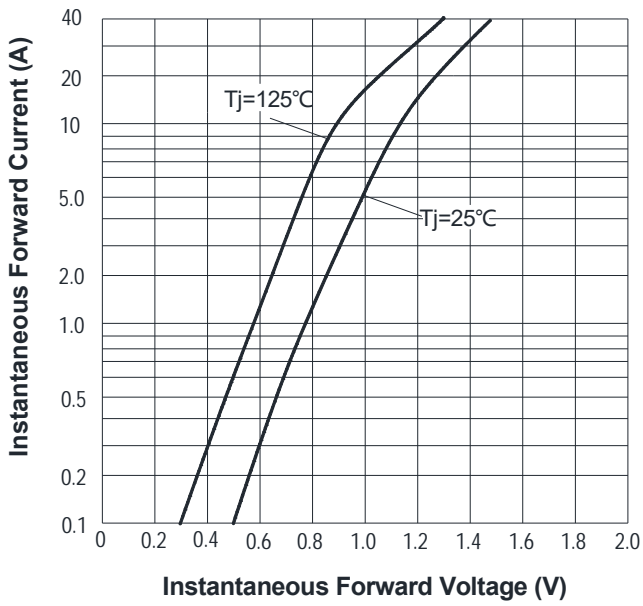


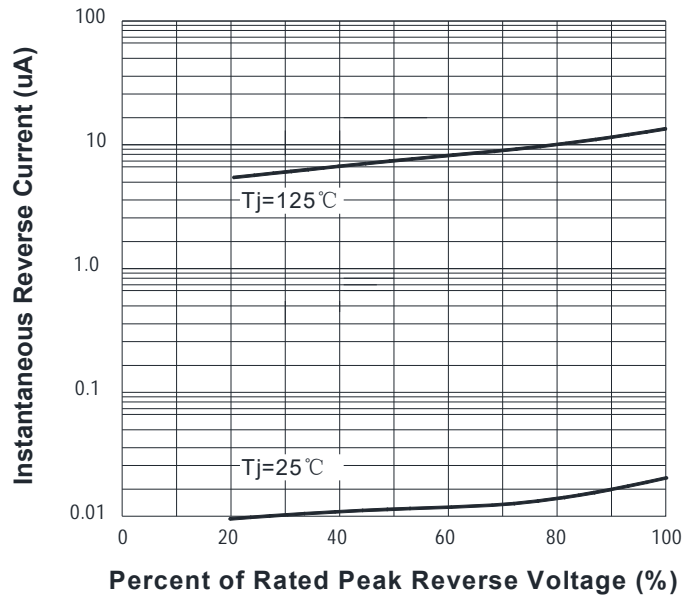
FIG2: Surge Forward Current Capability



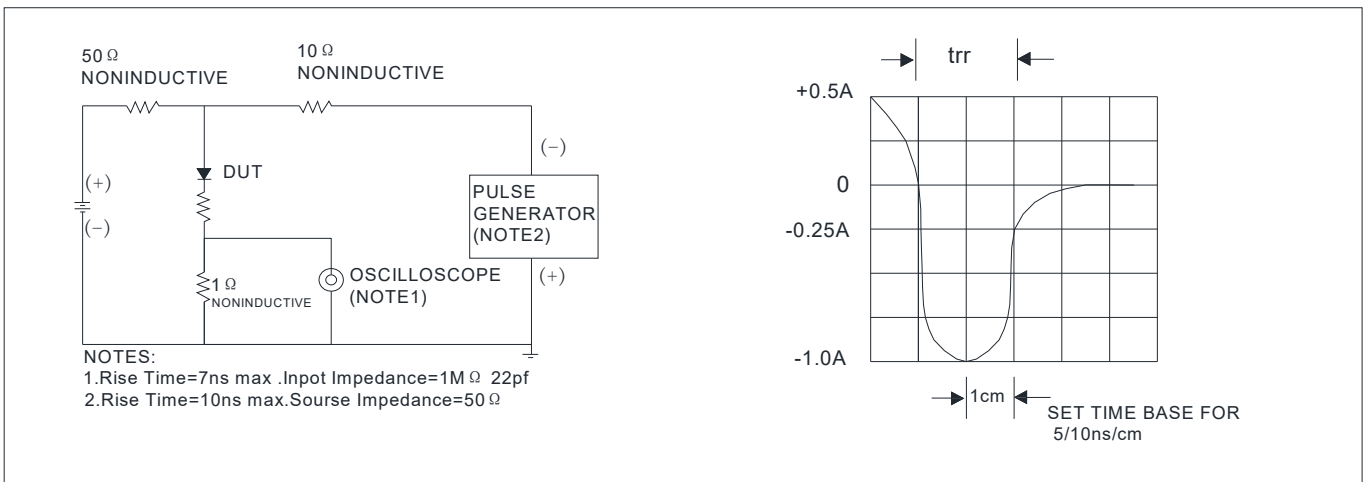
**FIG3: Forward Voltage**



**FIG.4: Instantaneous Reverse Characteristics**



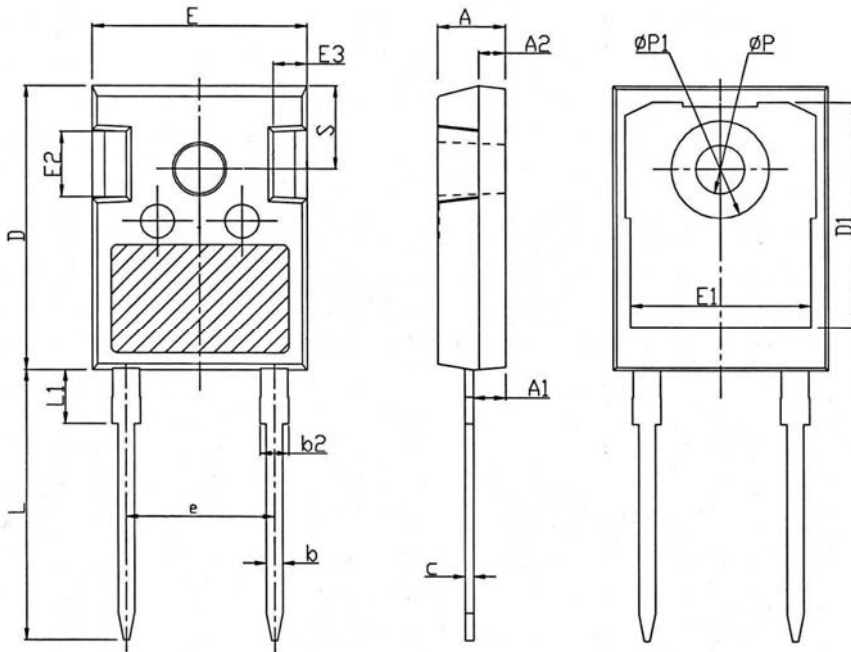
**FIG.5: Diagram of circuit and Testing wave form of reverse recovery time**





# MURU3060P

## ■ Outline Dimensions



TO-247AC		
Dim	Min	Max
A	4.90	5.10
A1	2.31	2.51
A2	1.90	2.10
b	1.16	1.26
b2	1.96	2.06
c	0.59	0.66
D	20.90	21.10
D1	16.25	16.85
E	15.50	16.10
E1	13.10	13.50
E2	4.40	4.60
E3	2.40	2.60
e	10.88 TYP	
L	19.80	20.10
L1	-	4.30
φP	3.40	3.60
φP1	-	7.40
S	5.60	6.00

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