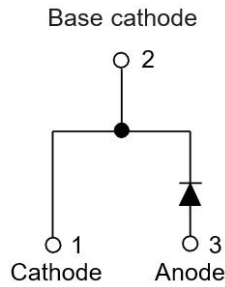
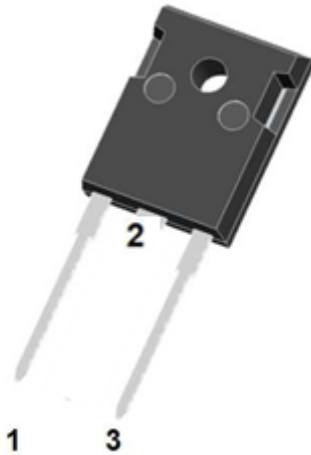


## Ultra-Fast Recovery Diodes 30A FRED



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

PARAMETER	SYMBOL	UNIT	MUR30120PL
Device marking code			MUR30120PL
Repetitive Peak Reverse Voltage	VRRM	V	1200
Average Rectified Output Current @60Hz half sine-wave, R-load, $T_c$ (FIG.1)	$I_o$	A	30
Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, $T_j=25^\circ\text{C}$	IFSM	A	210
Current Squared Time @ $1\text{ms} \leq t \leq 8.3\text{ms}$ $T_j=25^\circ\text{C}$	$I^2t$	$\text{A}^2\text{s}$ .	183
Single Pulse Avalanche Energy @ $T_p=40\mu\text{s}$ , $T_j=25^\circ\text{C}$ , $L=15\text{mH}$	EAS	mJ	2.7
Storage Temperature	$T_{\text{stg}}$	$^\circ\text{C}$	-55 ~ +175
Junction Temperature	$T_j$	$^\circ\text{C}$	-55 ~ +175
Typical Junction capacitance @4V, 1MHz	$C_j$	pF	97



# MUR30120PL-B1-W5094HF

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min	Typ	Max
Instantaneous forward voltage drop per diode	VFM	V	I <sub>FM</sub> =30.0A T <sub>j</sub> =25°C	-	2.8	3.3
			I <sub>FM</sub> =30.0A T <sub>j</sub> =125°C	-	2.1	2.8
DC reverse current at rated DC blocking voltage per diode	I <sub>RRM1</sub>	uA	V <sub>RM</sub> =V <sub>R</sub> RM T <sub>j</sub> =25°C	-	-	5.0
	I <sub>RRM2</sub>		V <sub>RM</sub> =V <sub>R</sub> RM T <sub>j</sub> =125°C	-	-	200
Reverse Recovery Time	T <sub>rr</sub>	ns	I <sub>F</sub> =0.5A I <sub>RM</sub> =1A I <sub>RR</sub> =0.25A T <sub>j</sub> =25°C	-	38	70
			T <sub>j</sub> =25°C	-	206	-
			T <sub>j</sub> =125°C	-	255	-
Peak recovery current	I <sub>RRM</sub>	A	T <sub>j</sub> =25°C	-	4.25	-
			T <sub>j</sub> =125°C	I <sub>F</sub> =30A di/dt=-200A/us V <sub>RM</sub> =960V	-	9.10
Reverse recovery charge	Q <sub>rr</sub>	nC	T <sub>j</sub> =25°C	-	434	-
			T <sub>j</sub> =125°C	-	1713	-

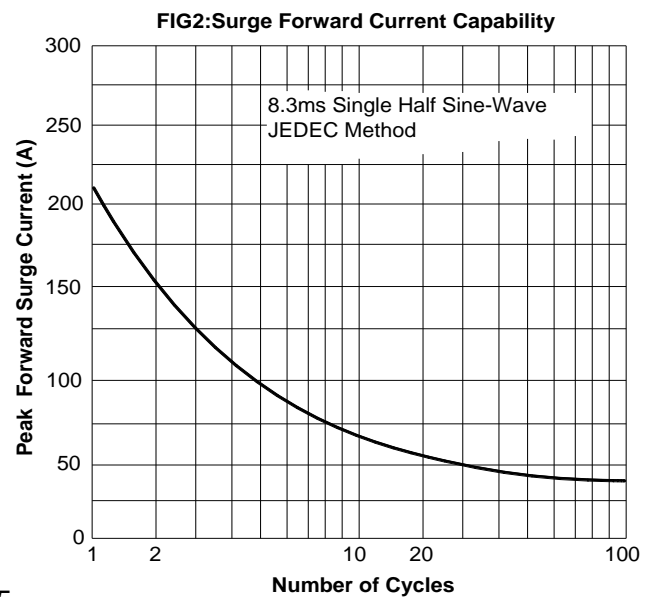
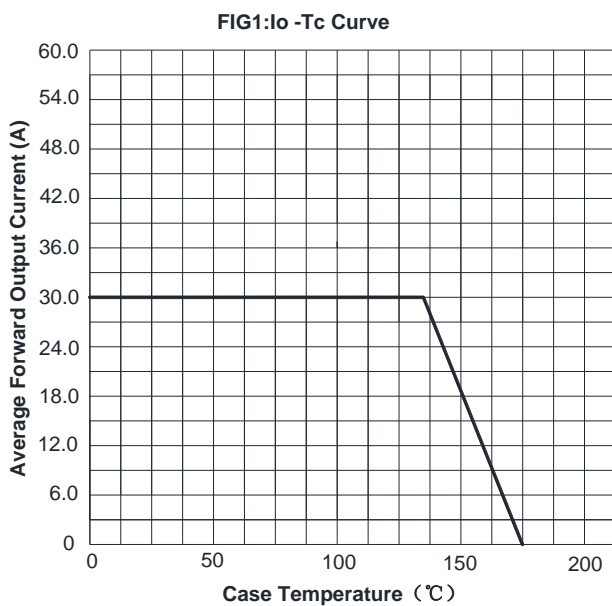
## ■Thermal Characteristics (T<sub>j</sub>=25°C Unless otherwise specified)

PARAMETER		SYMBOL	UNIT	MUR30120PL
Thermal Resistance	Between junction and case	R <sub>θJ-C</sub>	°CW	0.4

## ■Ordering Information (Example)

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

## ■Characteristics (Typical)





# MUR30120PL-B1-W5094HF

FIG3: Forward Voltage

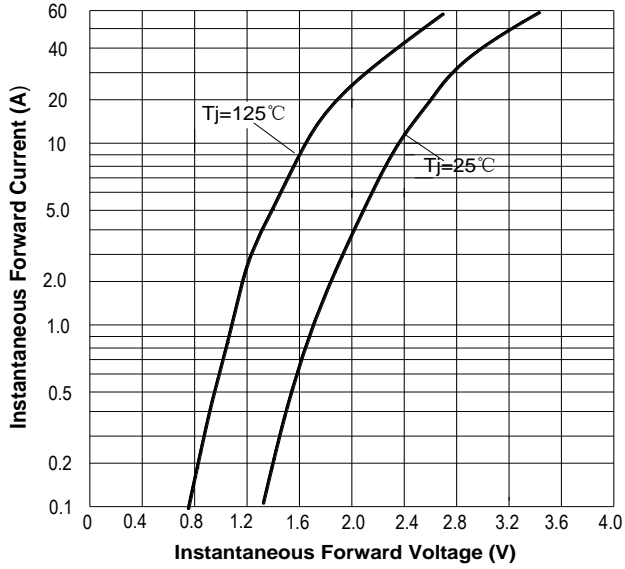


FIG4: Typical Reverse Characteristics

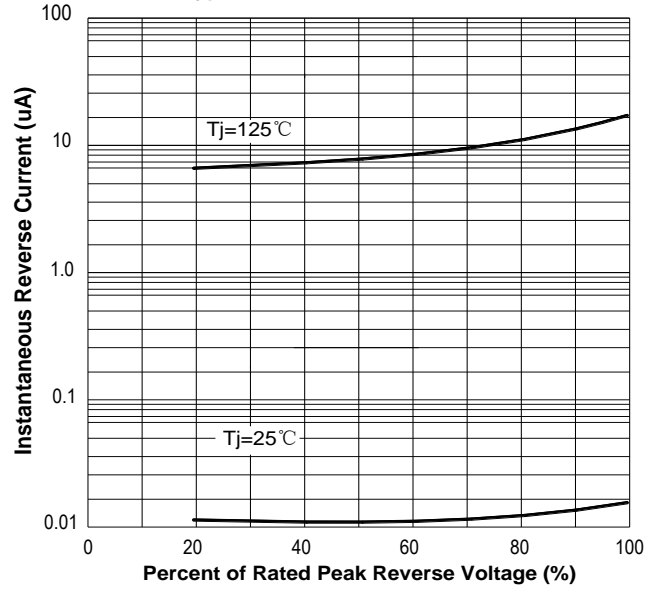
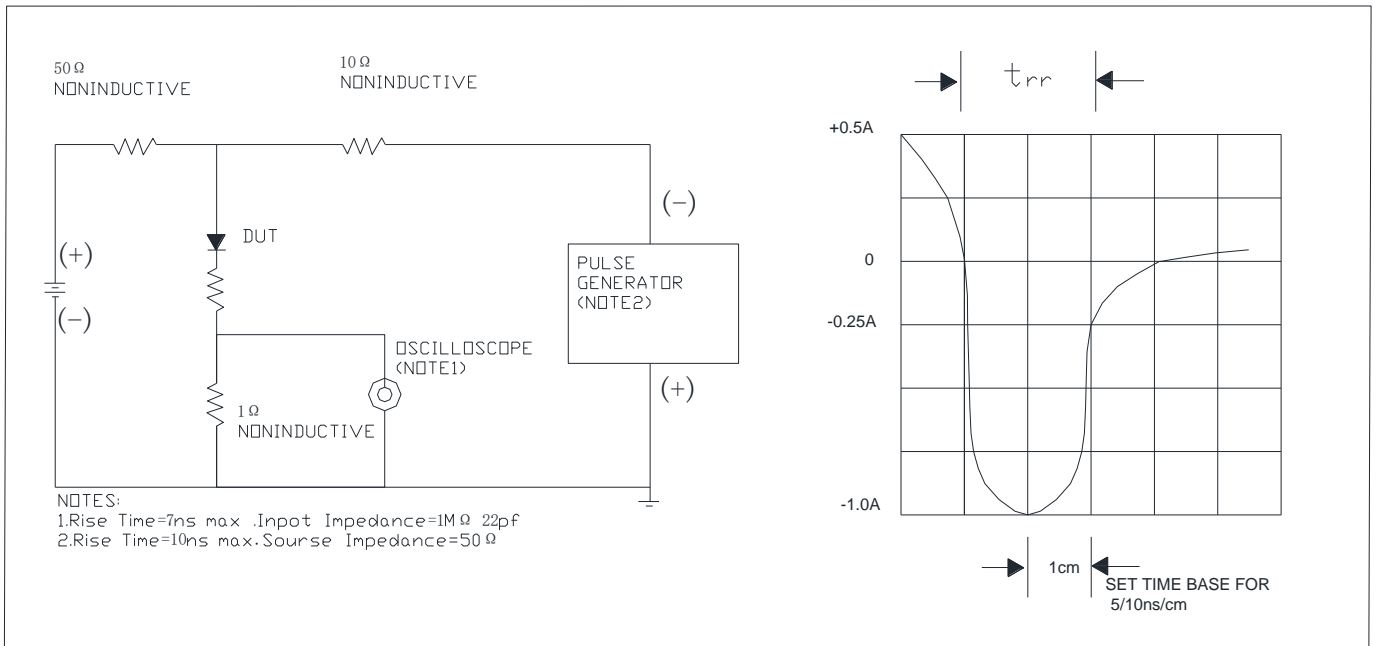


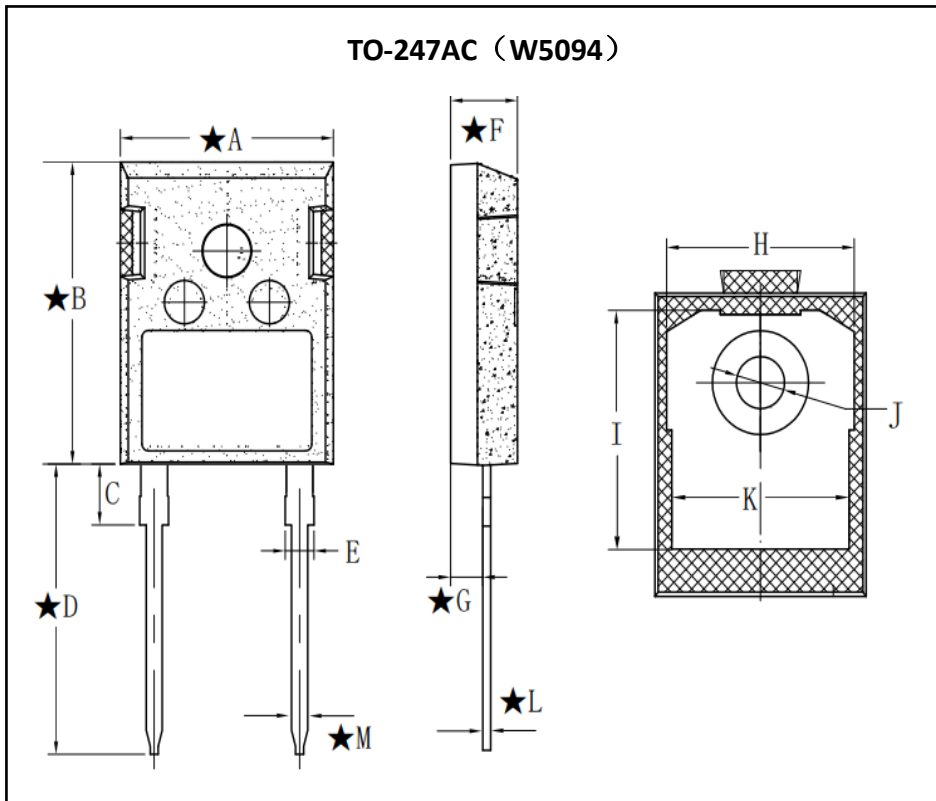
FIG.5 Diagram of circuit and Testing wave form of reverse recovery time





# MUR30120PL-B1-W5094HF

## ■ Outline Dimensions



TO-247AC		
Dim	Min	Max
A	15.72	16.12
B	20.7	21.1
C	4.02	4.42
D	19.9	20.3
E	2.0	2.3
F	4.8	5.2
G	2.3	2.5
H	TYP 14.02	
I	TYP 16.55	
J	3.5	3.7
K	TYP 13.26	
L	0.58	0.62
M	1.15	1.25



## MUR30120PL-B1-W5094HF

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