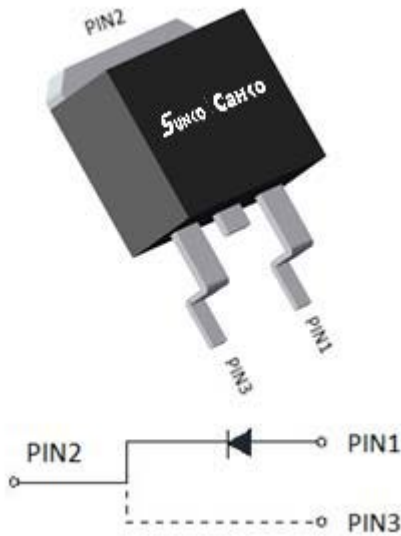


Ultra-Fast Recovery Diodes 30A FRED



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-263
Molding compound meets UL 94 V-0 flammability rating, -
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** As marked

■ Maximum Ratings (T_j=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURB30120L
Device marking code			MURB30120L
Repetitive Peak Reverse Voltage	V _{RRM}	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°C	I _{FSM}	A	210
Current Squared Time @1ms≤t≤8.3ms T _j =25°C	I ² t	A ² s.	183
Single Pulse Avalanche Energy @ T _p =40us, T _j =25°C, L=15mH	E _{AS}	mJ	2.7
Storage Temperature	T _{stg}	°C	-55 ~ +175
Junction Temperature	T _j	°C	-55 ~ +175
Typical Junction capacitance @4V, 1MHz	C _j	pF	97

MURB30120L

■Electrical Characteristics (T_j=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	Min	Typ	Max	
instantaneous forward voltage drop per diode	V _{FM}	V	I _{FM} =30.0A T _j =25°C	-	2.8	3.3	
			I _{FM} =30.0A T _j =125°C	-	2.1	2.8	
DC reverse current at rated DC blocking voltage per diode	I _{RRM1}	uA	V _{RM} =V _{RRM} T _j =25°C	-	-	5.0	
	I _{RRM2}		V _{RM} =V _{RRM} T _j =125°C	-	-	200	
Reverse Recovery Time	T _{rr}	ns	I _F =0.5A I _{RM} =1A I _{RR} =0.25A T _j =25°C	-	38	70	
			T _j =25°C	-	185	-	
			T _j =125°C	-	272	-	
Peak recovery current	I _{RRM}	A	T _j =25°C	I _F =30A di/dt=-200A/us V _{RM} =400V	-	5.4	-
			T _j =125°C		-	12.6	-
Reverse recovery charge	Q _{rr}	nC	T _j =25°C		-	509	-
			T _j =125°C		-	1722	-

■Thermal Characteristics (T_j=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURB30120L	
Thermal Resistance	Between junction and case	R _{θJ-C}	°C/W	1.3
	Between junction and Air	R _{θJ-A}	°C/W	50

■Ordering Information (Example)

PREFERRED P/N	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MURB30120L	Approximate 1.43	50	2000	8000	Tube
MURB30120L	Approximate 1.43	1000	2000	10000	Reel

■ Characteristics (Typical)

FIG1: I_o -T_c Curve

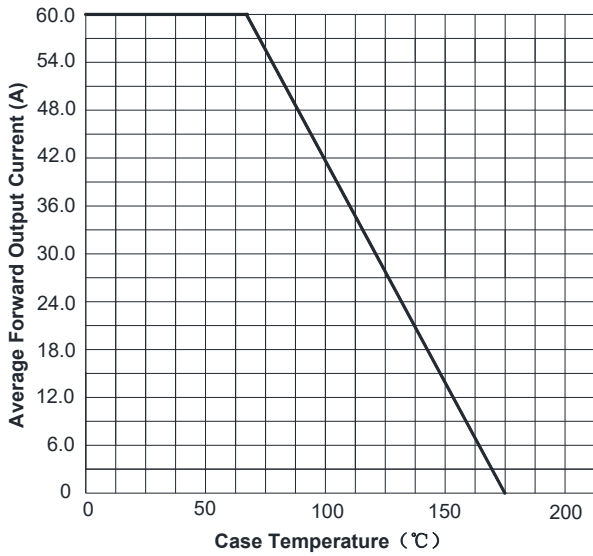


FIG2: Surge Forward Current Capability

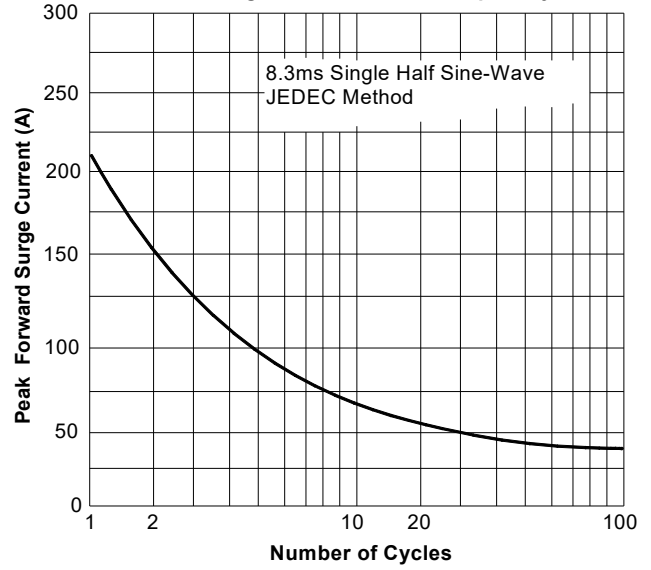


FIG3: Forward Voltage

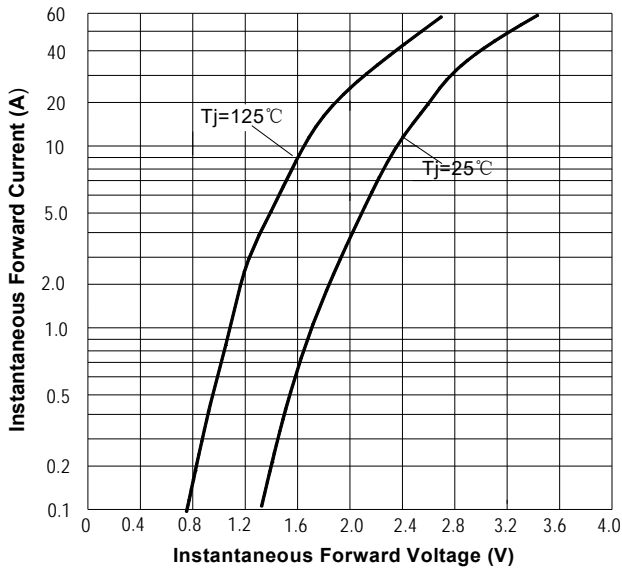


FIG4: Typical Reverse Characteristics

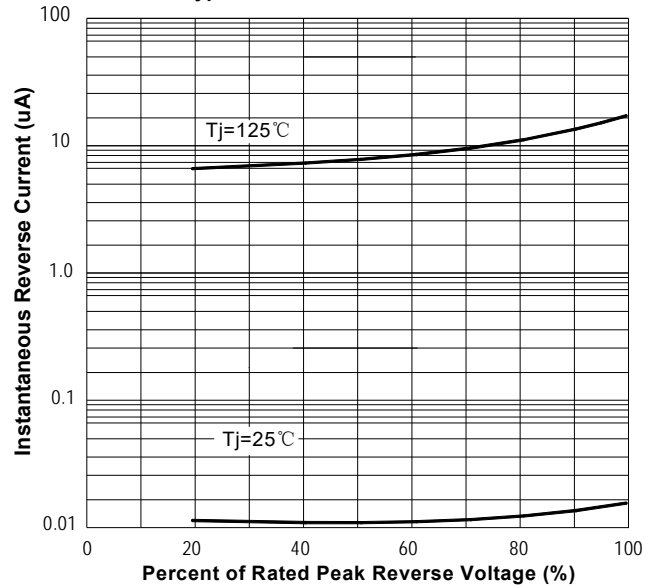
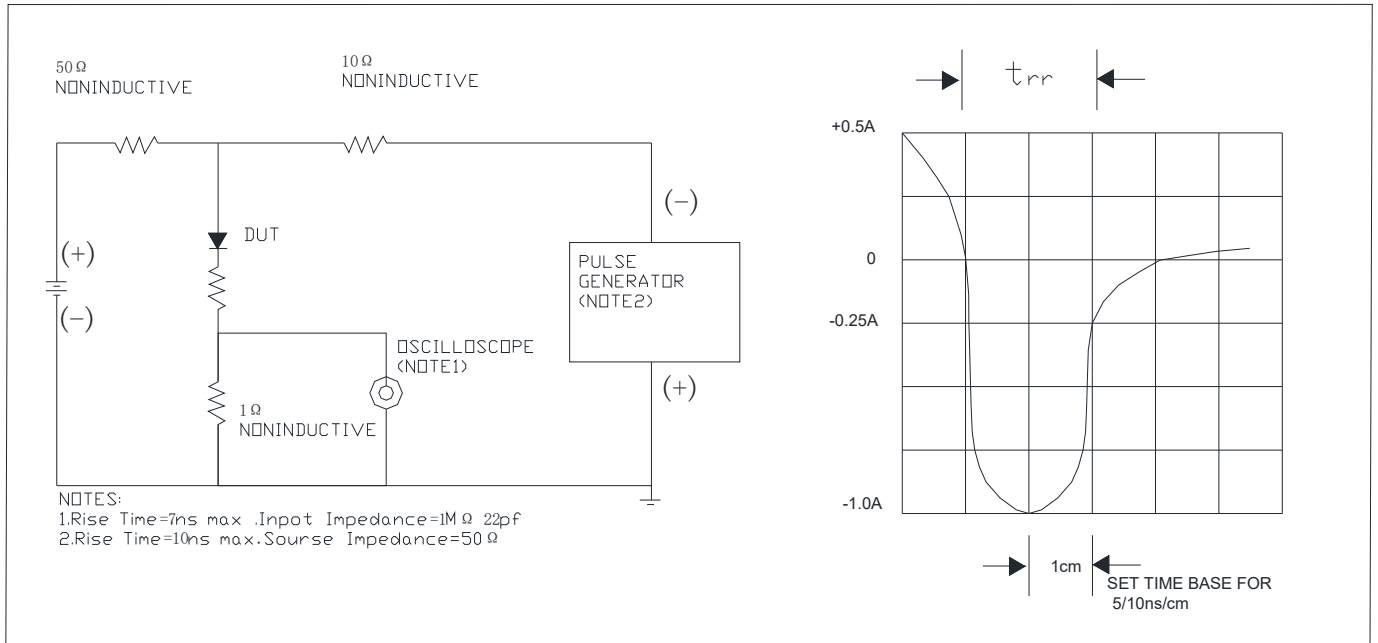
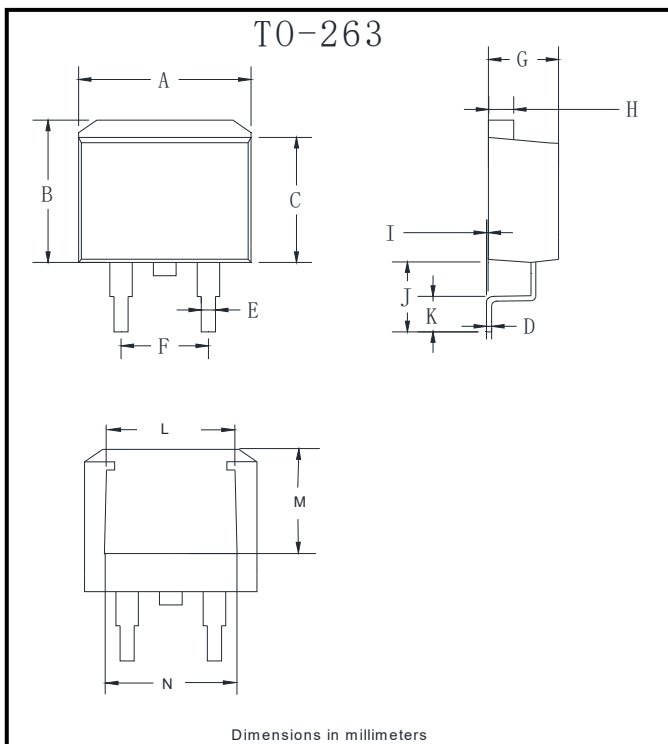


FIG.5 Diagram of circuit and Testing wave form of reverse recovery time

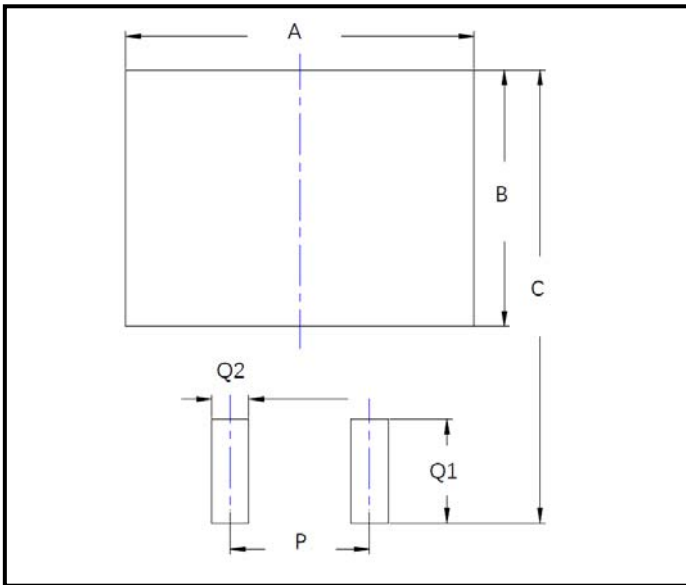


■ Outline Dimensions



TO-263		
Dim	Min	Max
A	9.5	11.5
B	9.7	10.5
C	8.4	9.0
D	0.28	0.64
E	0.68	0.94
F	4.55	5.6
G	4.04	5.10
H	1.14	1.4
I	0	0.2
J	4.9	6.05
K	1.79	2.79
L	7.3	7.9
M	6.2	6.8
N	7.6	8.2

■ Suggested Pad Layout



Dim	Millimeters
A	12.7
B	9.4
C	16.6
P	5.08
Q1	3.8
Q2	1.35

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