



Features

- Adopt FRD 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

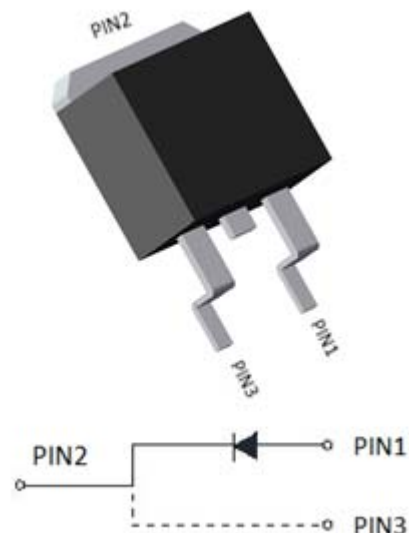
- **Package:** TO-263

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

TO-263



Maximum Ratings ($T_a=25^{\circ}\text{C}$ Unless otherwise specified)

TYPE	V_{RSM} V	V_{RRM} V
MUR15120B	1200	1200

Symbol	Test Conditions		Maximum Ratings	Unit
I_{FRMS}	$T_{VJ}=T_{VJM}$		25	A
I_{FAVM}	$T_C=100^{\circ}\text{C}$; rectangular, $d=0.5$		15	
I_{FRM}	$t_p<10\mu\text{s}$; rep. rating, pulse width limited by T_{VJM}		150	
I_{FSM}	$T_{VJ}=45^{\circ}\text{C}$	$t=10\text{ms}$ (50Hz), sine	150	A
I^2t	$T_{VJ}=45^{\circ}\text{C}$	$t=10\text{ms}$ (50Hz), sine	28	A^2s
		$t=8.3\text{ms}$ (60Hz), sine	27	
	$T_{VJ}=150^{\circ}\text{C}$	$t=10\text{ms}$ (50Hz), sine	21	
		$t=8.3\text{ms}$ (60Hz), sine	20	
T_{VJ}			-40...+150	$^{\circ}\text{C}$
T_{VJM}			150	
T_{stg}			-40...+150	
P_{tot}	$T_C=25^{\circ}\text{C}$		78	W
M_d	Mounting torque		0.4...0.6	Nm
Weight	typical		2	g

■Electrical Characteristics

Symbol	Test Conditions	Characteristic Values typ.	max.	Unit
I_R	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$ $T_{VJ}=25^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$ $T_{VJ}=125^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$		250 150 4	μA μA mA
V_F	$I_F=15\text{A}; T_{VJ}=150^{\circ}\text{C}$ $T_{VJ}=25^{\circ}\text{C}$		2.3 2.6	V
V_{TO}	For power-loss calculations only		1.65	V
r_T	$T_{VJ}=T_{VJM}$		46.2	$\text{m}\Omega$
R_{thJC} R_{thCK} R_{thJA}		0.5	1.6 60	K/W
t_{rr}	$I_F=1\text{A}; -di/dt=50\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$	50	60	ns
I_{RM}	$V_R=540\text{V}; I_F=15\text{A}; -di_F/dt=100\text{A}/\mu\text{s}; L \leq 0.05\mu\text{H}; T_{VJ}=100^{\circ}\text{C}$	6.5	7.2	A

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

PARAMETER		SYMBOL	UNIT	MUR15120B
Thermal Resistance	Between junction and case	$R_{\theta J-C}$	$^{\circ}\text{C}/\text{W}$	4.0
	Between junction and Air	$R_{\theta J-A}$	$^{\circ}\text{C}/\text{W}$	50

■Ordering Information (Example)

PREFERRED P/N	UNIT WEIGHT(g)	MINIIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MUR15120B	Approximate 1.43	50	1000	5000	Tube
MUR15120B	Approximate 1.43	800	800	8000	Reel

■Characteristics (Typical)

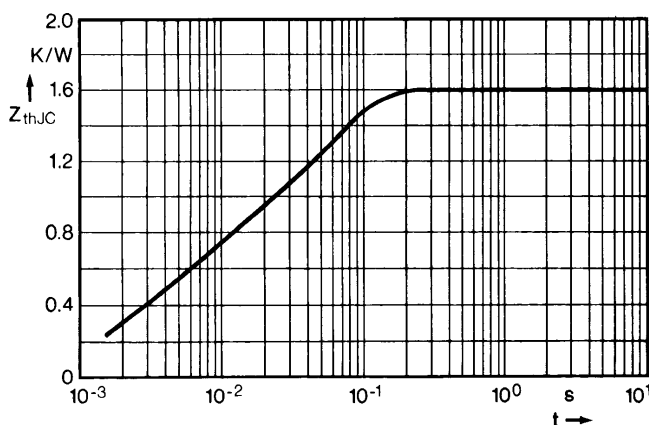


Fig. 7 Transient thermal impedance junction to case.

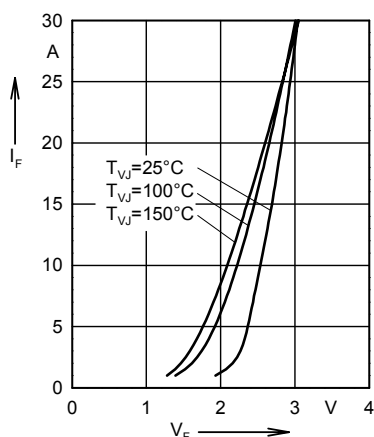


Fig. 1 Forward current versus voltage drop.

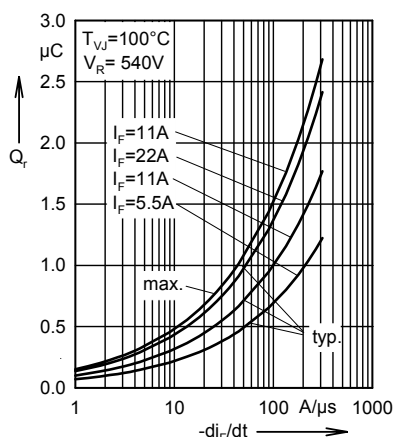


Fig. 2 Recovery charge versus $-di_F/dt$.

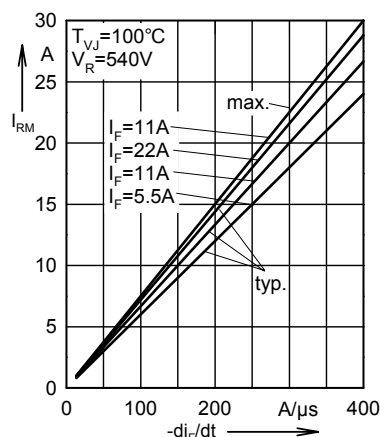


Fig. 3 Peak reverse current versus $-di_F/dt$.

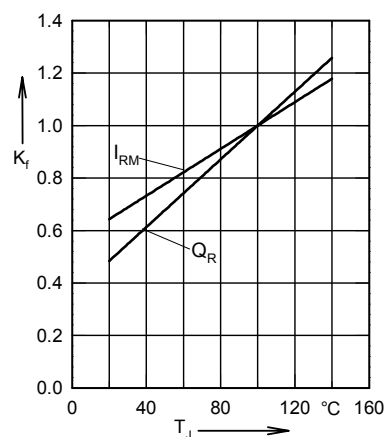


Fig. 4 Dynamic parameters versus junction temperature.

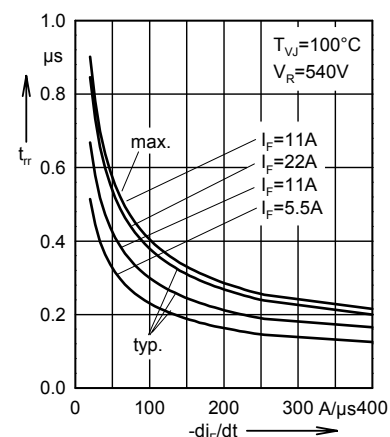


Fig. 5 Recovery time versus $-di_F/dt$.

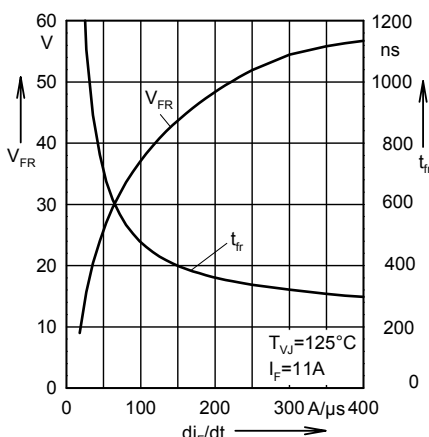
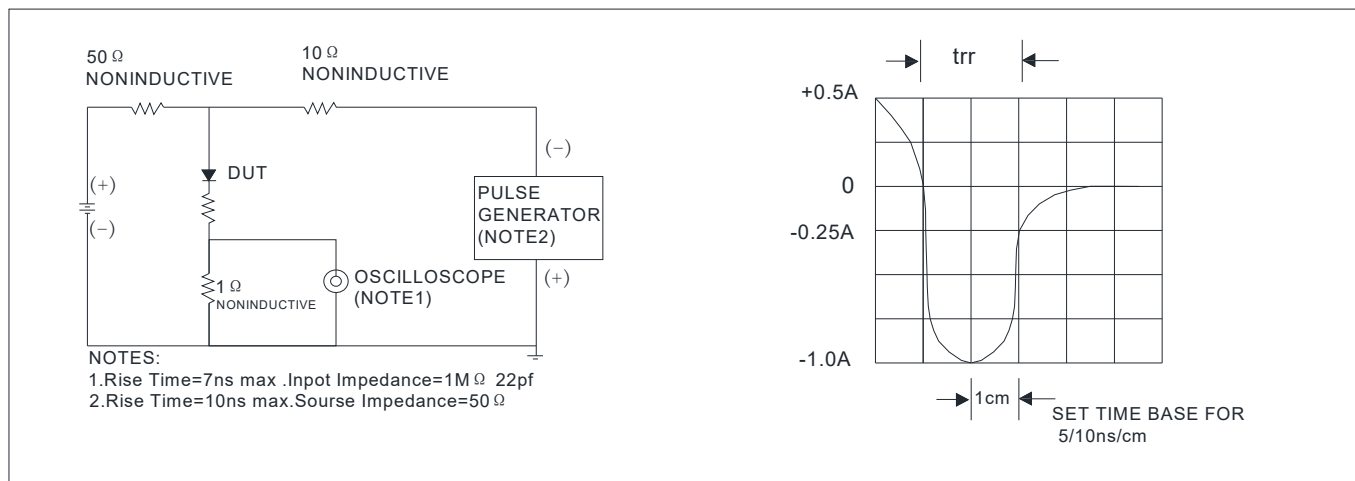
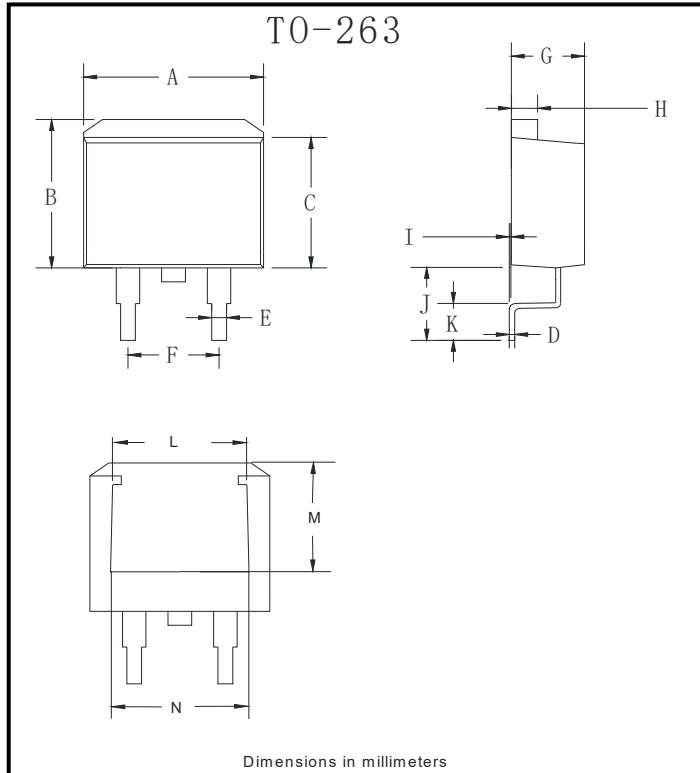


Fig. 6 Peak forward voltage versus di_F/dt .

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

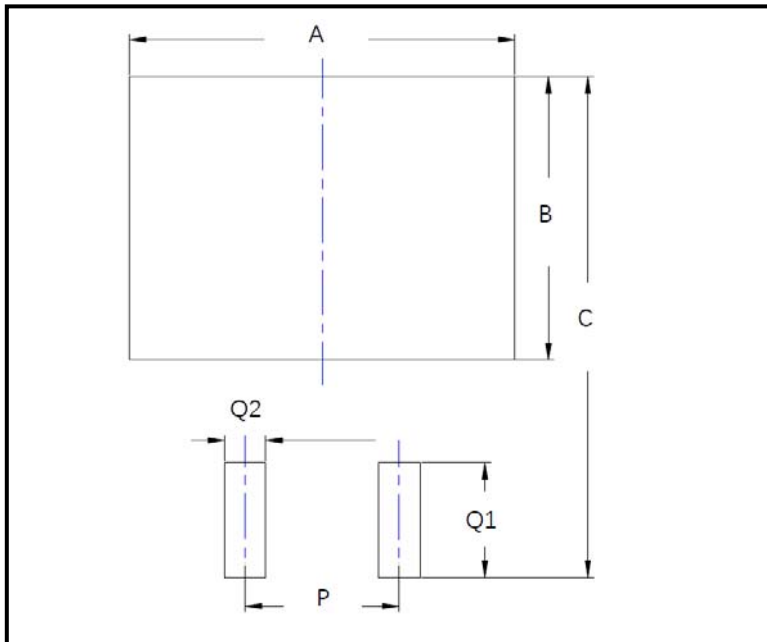


■ Outline Dimensions



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

Package type	Units					Dimension		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-263	0.8K	1	0.8K	6	4.8K	13"×16	335×335×40	370×370×440