

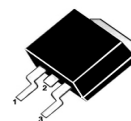


Features

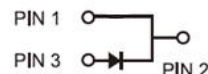
- Adopt FRD chip
- Low forward Voltage drop
- Fast reverse recovery time
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability

Typical Applications

Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.



TO-263/B



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

Maximum Ratings (T_a=25°C Unless otherwise specified)

TYPE	V _{RSM} V	V _{RRM} V
MSR1560B	600	600

Symbol	Test Conditions	Maximum Ratings	Unit
I _{FRMS} I _{FAVM} I _{FRM}	T _{VJ} =T _{VJM} T _C =100°C; rectangular, d=0.5 t _p <10us; rep. rating, pulse width limited by T _{VJM}	25 15 150	A
I _{FSM}	T _{VJ} =45°C t=10ms (50Hz), sine	150	A
I ² t	T _{VJ} =45°C t=10ms (50Hz), sine t=8.3ms (60Hz), sine T _{VJ} =150°C t=10ms(50Hz), sine t=8.3ms(60Hz), sine	50 50 36 37	A ² s
T _{VJ} T _{VJM} T _{stg}		-55...+175 175 -55...+175	°C
P _{tot}	T _C =25°C	62	W
M _d	Mounting torque	0.4...0.6	Nm
Weight		2	g

■Electrical Characteristics

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	$T_{VJ}=25^{\circ}\text{C}; V_R=V_{RRM}$		1	μA
	$T_{VJ}=25^{\circ}\text{C}; V_R=0.8 \cdot V_{RRM}$		25	μA
	$T_{VJ}=125^{\circ}\text{C}; V_R=V_{RRM}$		11	mA
V_F	$I_F=15\text{A}; T_{VJ}=125^{\circ}\text{C}$ $T_{VJ}=25^{\circ}\text{C}$		1.00 1.59	V
V_{TO}	For power-loss calculations only		1.12	V
r_T	$T_{VJ}=T_{VJM}$		23.2	$\text{m}\Omega$
R_{thJC} R_{thCK} R_{thJA}		0.5	2 60	K/W
t_{rr}	$I_F=1\text{A}; -di/dt=50\text{A}/\mu\text{s}; V_R=30\text{V}; T_{VJ}=25^{\circ}\text{C}$	-	30	ns
I_{RM}	$V_R=350\text{V}; I_F=15\text{A}; -di/dt=100\text{A}/\mu\text{s}; L \leq 0.05\mu\text{H}; T_{VJ}=100^{\circ}\text{C}$	4	4.4	A

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

PARAMETER		SYMBOL	UNIT	MSR1560B
Thermal Resistance	Between junction and case	$R_{\theta J-C}$	$^{\circ}\text{C}/\text{W}$	2.5
	Between junction and Air	$R_{\theta J-A}$	$^{\circ}\text{C}/\text{W}$	50

■Ordering Information (Example)

PREFERRED P/N	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MSR1560B	Approximate 1.6	50	1000	5000	Tube

■Characteristics (Typical)

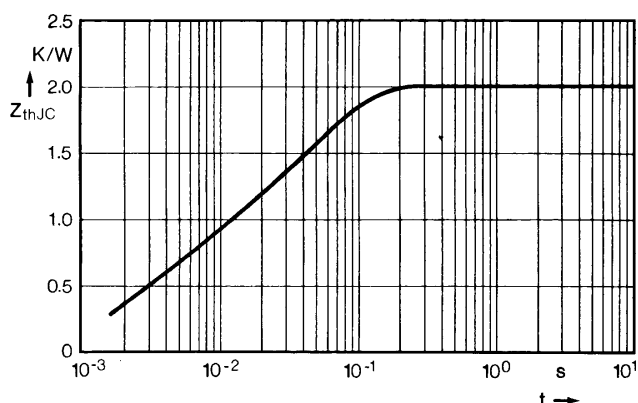


Fig. 7 Transient thermal impedance junction to case.

■ Characteristics (Typical)

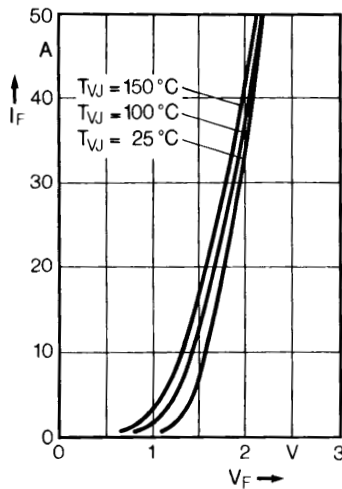


Fig. 1 Forward current versus voltage drop.

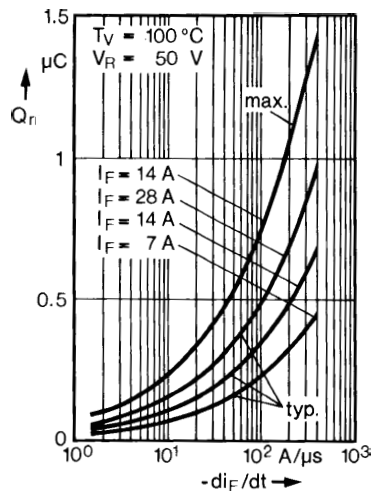


Fig. 2 Recovery charge versus $-di_F/dt$.

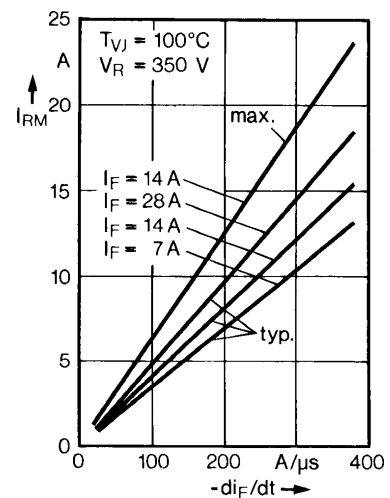


Fig. 3 Peak reverse current versus $-di_F/dt$.

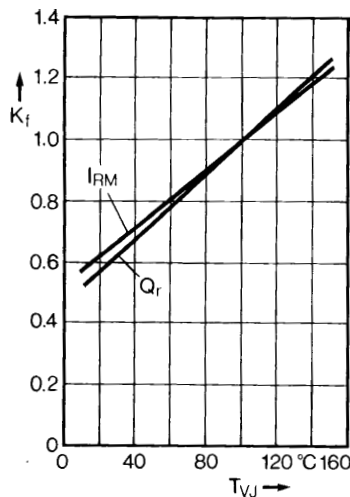


Fig. 4 Dynamic parameters versus junction temperature.

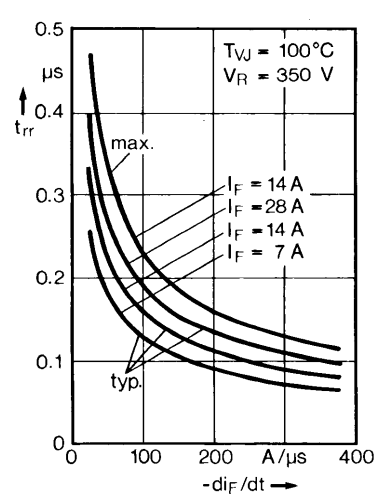


Fig. 5 Recovery time versus $-di_F/dt$.

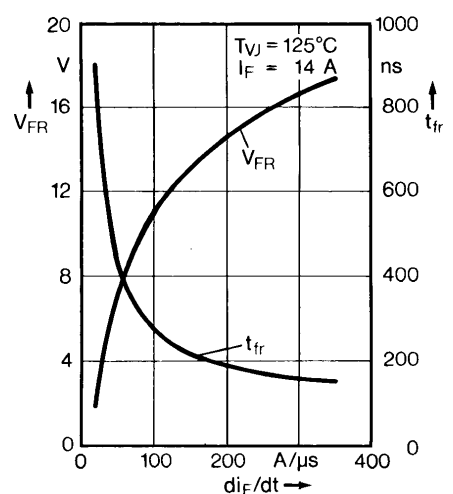
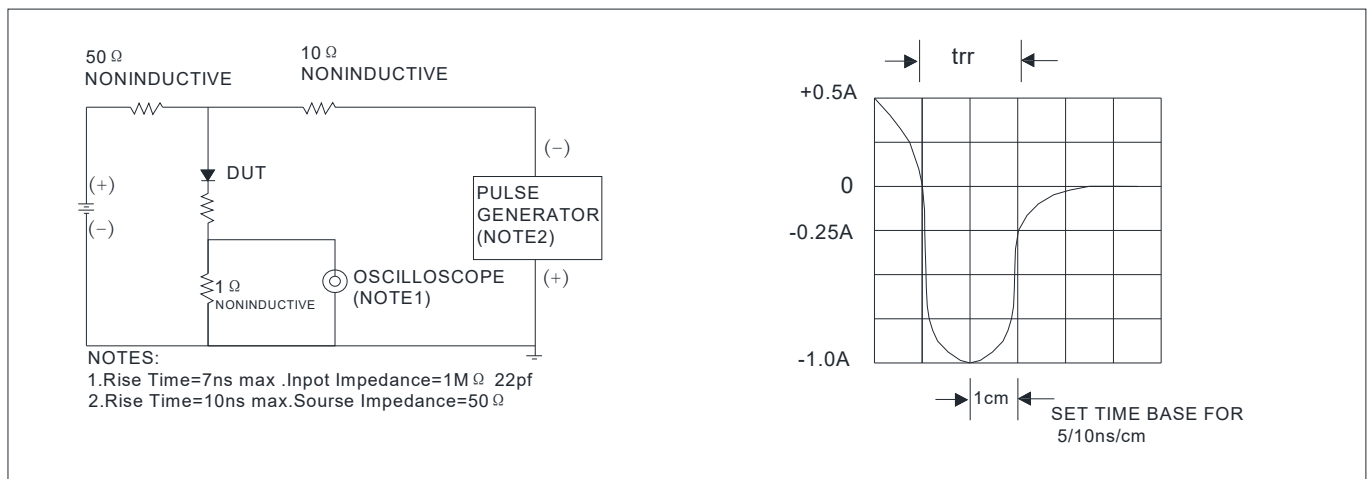
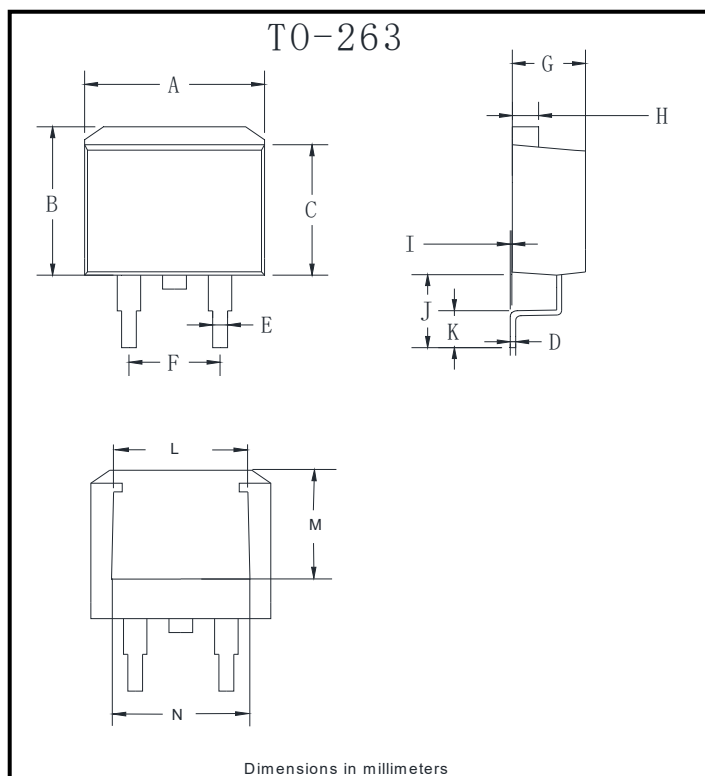


Fig. 6 Peak forward voltage versus di_F/dt .

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

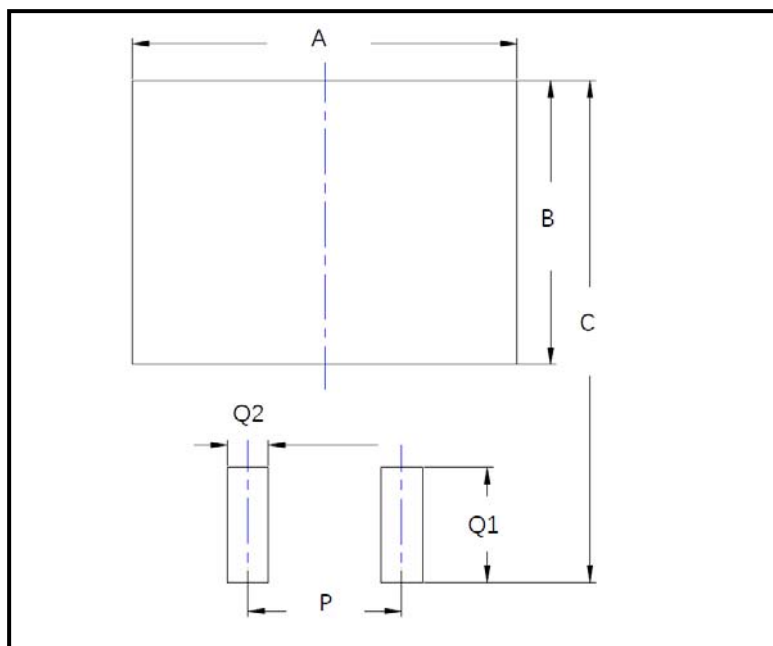


■ Outline Dimensions



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