

ESD150NC60KN/ESD150NS60KN

High-EAS&Ultra-Fast Soft Recovery Diode Module

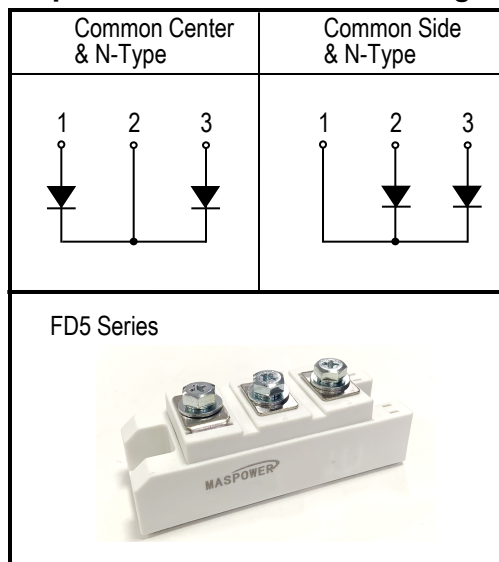
Features

- Repetitive Reverse Voltage : $V_{RRM} = 600V$
- Low Forward Voltage Drop : $V_F(\text{typ.}) = 1.3V$
- Average Forward Current : $I_F(\text{AV.}) = 150A$ @ $T_c = 100^\circ C$
- Ultra-Fast Reverse Recovery Time : $t_{rr}(\text{typ.}) = 150ns$
- Extensive Characterization of Recovery Parameters
- High EAS
- Reduced EMI and RFI
- Isolation Type Package

Applications

- Welding Machine
- Induction Heating
- UPS

Equivalent Circuit and Package



Absolute Maximum Ratings @ $T_c=25^\circ C$ (Per Leg)

Please see the package out line information

Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		600	V
$V_{R(DC)}$	Reverse DC Voltage		480	V
$I_{F(AV)}$	Average Forward Current	$T_c = 25^\circ C$	300	A
		$T_c = 100^\circ C$	150	A
$I_{FSM}^{(1)}$	Surge(non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	2100	A
I_t^2	I_t^2 for Fusing	Value for One Cycle Current, $t_w = 8.3ms$, $T_j = 25^\circ C$ Start	1.83×10^4	A^2s
$T_j^{(2)}$	Junction Temperature	-	$-40 \sim 125$	$^\circ C$
T_{stg}	Storage Temperature	-	$-40 \sim 125$	$^\circ C$
V_{isol}	Isolation Voltage	@ AC 1 minutes	2500	V
P_d	Maximum Power Dissipation		781	W
-	Mounting screw torque	M6	4.0	N.m
-	Mounting terminals screw torque	M6	3.0	N.m

(Note *1) Repetitive rating : Pulse width limited by max junction temperature

(Note *2) The maximum junction temperature of chip is $150^\circ C$

■ Electrical Characteristics of FRD @ $T_c=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit	
V _R	Cathode Anode Breakdown Voltage	I _R = 100uA	600	-	-	V	
V _{FM}	Maximum Forward Voltage	I _{FM} = 150A	T _j =25 °C	-	1.3	1.65	V
			T _j =125 °C	-	1.25	-	
I _{RRM}	Repetitive Peak Reverse Current	T _C = 100 °C , V _{RRM} applied	-	-	1.0	mA	
t _{rr}	Reverse Recovery Time	I _{FM} = 150A, V _R = 300V di/dt=-700A/us	T _j =25 °C	-	150	190	ns
			T _j =125 °C	-	200	-	

■ Thermal Characteristics and Weight

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Junction-to-Case	per FRD	-	-	0.15	$^\circ\text{C}/\text{W}$
Weight	Weight of Module		-	-	180	g

Performance Curves

Fig. 1 Typical Forward Voltage Drop vs. Instantaneous Current

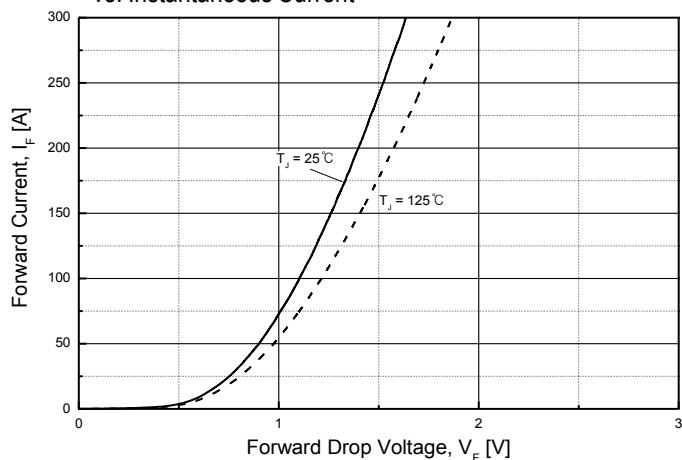


Fig. 2 Forward Current Derating Curve

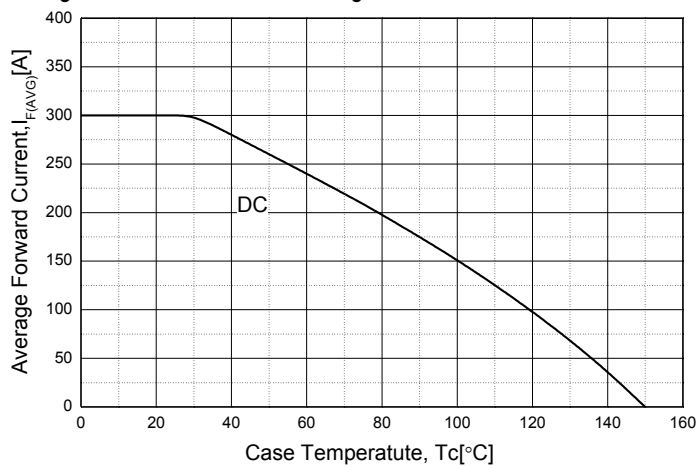
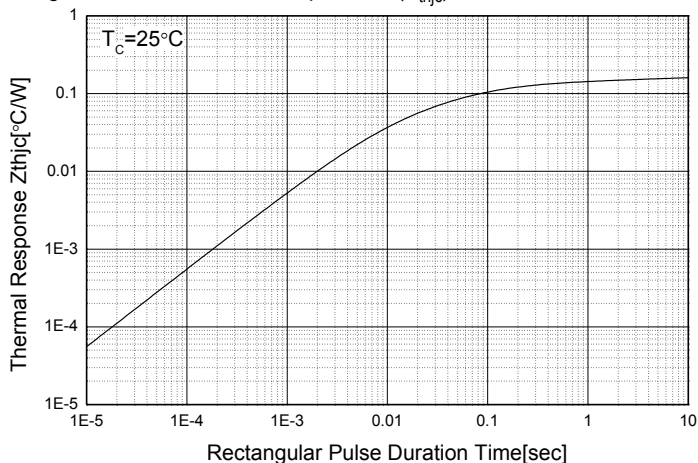


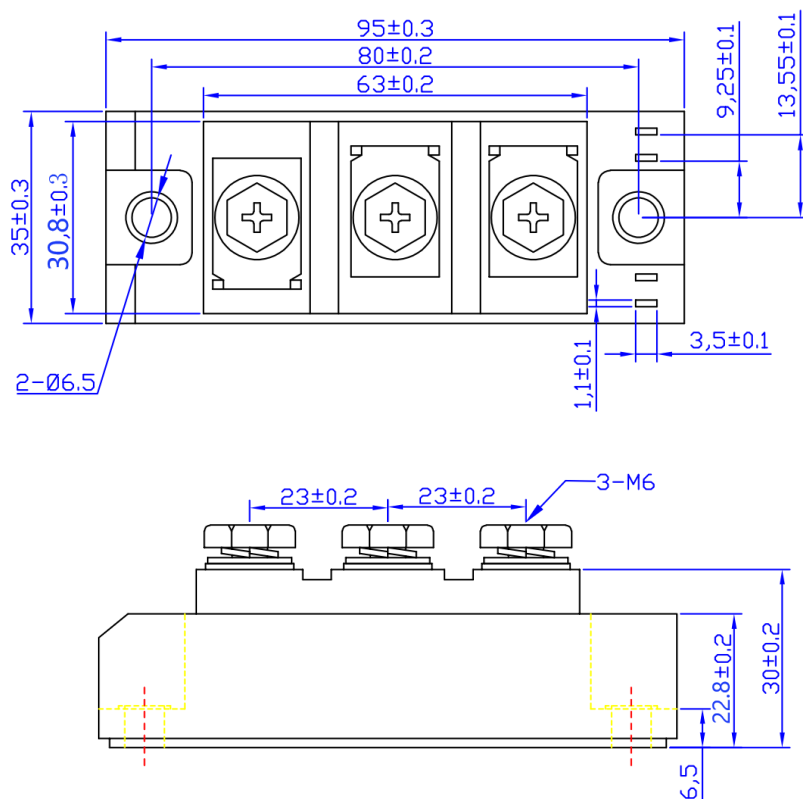
Fig. 3 Transient Thermal Impedance(Z_{thjc}) Characteristics



Package Out Line Information

FD5 Package

Dimensions in mm



Internal Circuit

