SHI LING® ZHEJIANG SHILING SEMICONDUCTOR CO.,LTD.

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Specifcation of products

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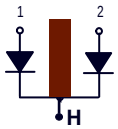
Ultra Fast Soft Recovery Diode Module

Description

Ultra-FRD module devicesare optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems. These diode modules are ideally suited for power converters, motors drives and other applications where switching losses are significant portion of the total losses.

Equivalent Circuitand Package

Equivalent Circuit



Features

- ☞ Repetitive Reverse Voltage : V_{RRM} =300V
- ☞ Low Forward Voltage Drop : V_F (typ.) = 1.0V
- ☞ Average Forward Current : $I_{F(AV.)}$ = 200A @ Tc= 125℃
- ☞ Ultra-Fast ReverseRecoveryTime : t_{rr}(typ.) = 65 ns
- ☞Extensive Characterization of Recovery Parameters
- ☞Reduced EMI and RFI
- ☞Non Isolation Type Package

Applications

Motor Drives, Free wheel use, High Power Converters, Welders, Various Switching and Telecommunication Power Supply

Absolute Maximum Ratings @ T_j=25℃(Per Leg)

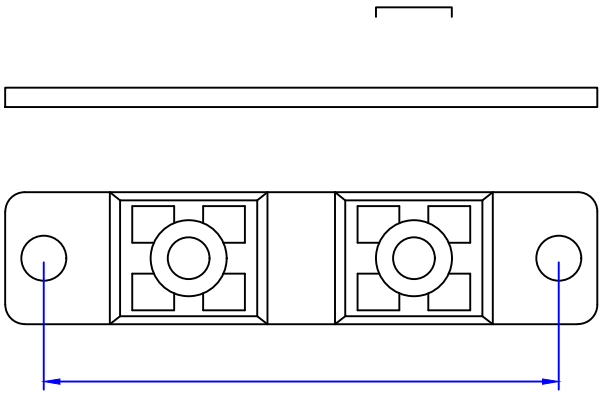
Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		300	V
$V_{R(DC)}$	Reverse DC Voltage		150	V
$I_{F(AV)}$	Average Forward Current @ Tc=25℃ @ Tc = 100	Resistive Load	400 200	A A
I_{FSM}	Surge (non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	2000	A
I^2t	I^2t for Fusing	Value for One Cycle Current, t_W= 8.3ms,Tj = 25 ℃Start		A^2 s
T_j	Junction Temperature		-40 ~ 125	℃
T_{stg}	Storage Temperature		-40 ~ 125	℃
P_d	Maximum Power Dissipation		1010	W
-	Mounting Torque		5.0	N.m
-	Terminal Torque		5.0	N.m

Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance	Junction to Case	-	-	0.10	℃/W

Electrical Characteristics @ T_j =25℃ (unless otherwise specified)

Symbol	Parameter	Conditions		Values			Unit
				Min.	Typ.	Max.	
V_R	Cathode Anode Breakdown Voltage	I_R= 100uA		300	-	-	V
V_{FM}	Maximum Forward Voltage	I_{FM}= 400A, T_c= 25℃		-	1.0	1.1	V
		I_{FM}= 400A, T_c =100℃		-	0.7	0.8	V
I_{RRM}	Repetitive Peak Reverse Current	T_C= 100 ℃, V_{RRM} applied		-	-	10.0	mA
t_{rr}	Reverse Recovery Time	I_{FM}= 300A, V_R= 150V di/dt=-100A/us	T_C= 25℃	-	65	70	ns
			T_C= 100℃	-	100	-	ns



Performance Cu rves

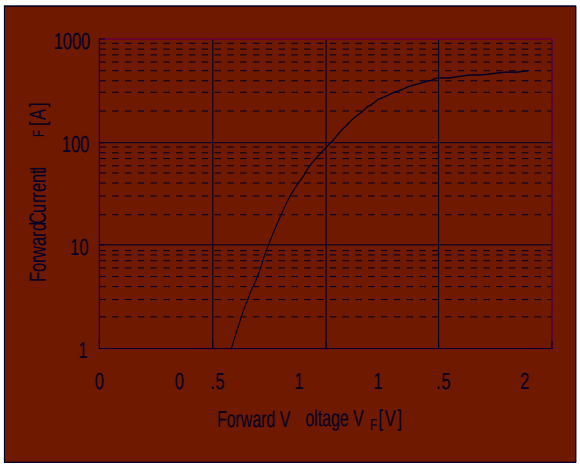


Fig. 1 : Typical Forward Voltage Drop vs. Instantaneous Forward Cur rent

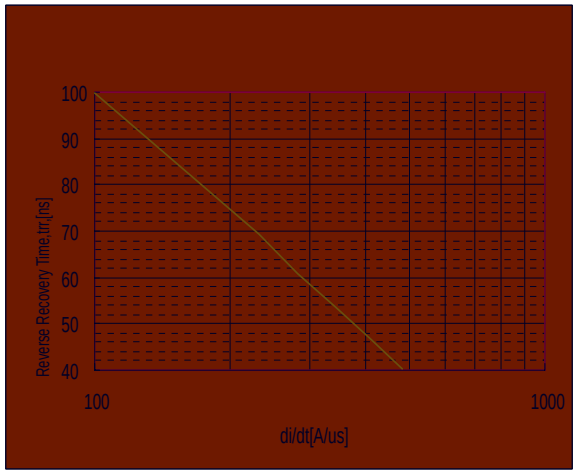


Fig. 2 : Typical Reverse Recovery Time vs. -di/dt

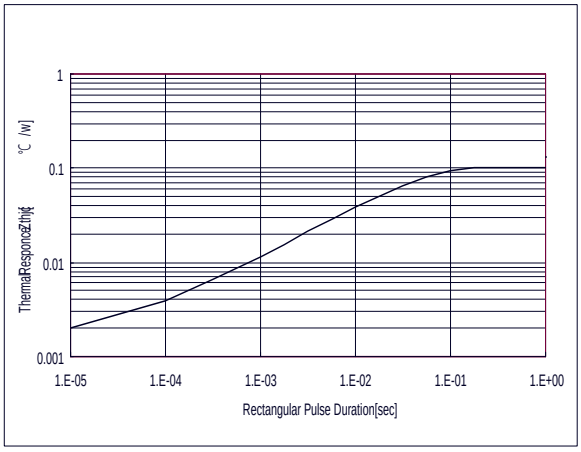


Fig. 3 : Transient Thermal Impedance(Z thjc) Characteristics

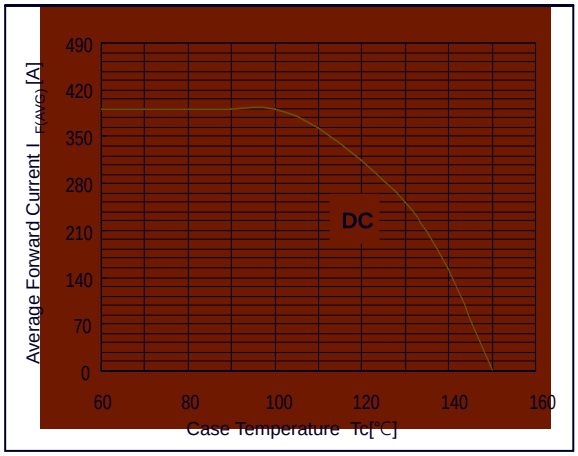


Fig. 4 : Forward Current DeratingCurve