

产品规格书

Specifcation of products

产品名称: 快恢复二极管

产品型号: MUK400400CIT26

浙江世菱半导体有限公司
ZHEJIANG SHILING SEMICONDUCTOR CO., LTD.

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蓝少波	陈一凡	曹剑龙

Ultra-Fast Soft Recovery Diode Module

Description

Ultra-FRD module devices are 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.

Features

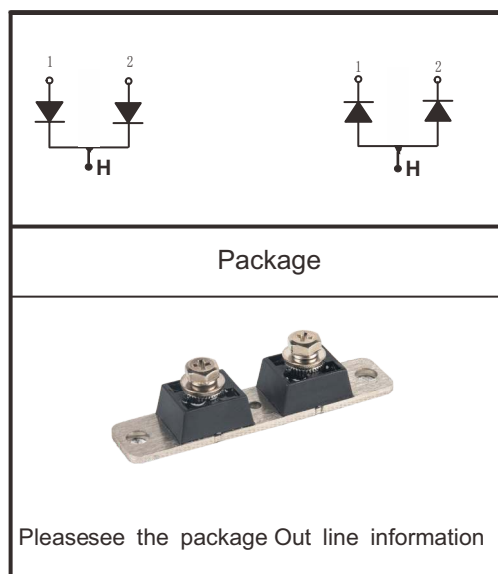
- Repetitive Reverse Voltage : $V_{RRM} = 400V$
- Low Forward Voltage Drop : $V_F(\text{typ.}) = 1.3V$
- Average Forward Current $I_{F(AV)} = 400A$ @ $T_c = 100^\circ C$
- Ultra-Fast Reverse Recovery Time : $t_{rr}(\text{typ.}) = 80 \text{ ns}$
- Extensive Characterization of Recovery Parameters
- Reduced EMI and RFI
- Non Isolation Type Package

Applications

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

Equivalent Circuit and Package

Equivalent Circuit



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

Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		400	V
$V_{R(DC)}$	Reverse DC Voltage		360	V
$I_{F(AV)}$	Average Forward Current @ $T_c = 25^\circ C$ @ $T_c = 100^\circ C$	Resistive Load	800 400	A A
I_{FSM}	Surge (non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	4000	A
I_t^2	I^2t for Fusing	Value for One Cycle Current, $t_w = 8.3ms, T_j = 25^\circ C$ Start	45.0×10^3	$A^2 s$
T_j	Junction Temperature		$-40 \sim 125$	$^\circ C$
T_{stg}	Storage Temperature		$-40 \sim 125$	$^\circ C$
P_d	Maximum Power Dissipation		660	W
—	Mounting Torque		5.0	N.m
—	Terminal Torque		4.0	N.m

Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance	Junction to Case	-	-	0.13	°C/W

Electrical Characteristics @ $T_j=25^{\circ}\text{C}$ (unless otherwise specified)

Symbol	Parameter	Conditions		Values			Unit
				Min.	Typ.	Max.	
V _R	CathodeAnodeBreakdown Voltage	I _R = 100uA		400	–	–	V
V _{FM}	Maximum Forward Voltage	I _{FM} = 400A, T _c = 25°C	–	1. 2	1. 3	V	
		I _{FM} = 400A, T _c =100°C	–	0. 7	0. 8	V	
I _{RRM}	Repetitive Peak Reverse Current	T _C = 100°C , V _{RRM} applied		–	–	8. 5	mA
T _{rr}	Reverse RecoveryTime	I _{FM} = 400A, V _R = 400V di/dt=–100A/us	T _C = 25 °C	–	80	–	ns
			T _C = 100 °C	–	85	–	ns

Rating and Characteristic

Performance Curves

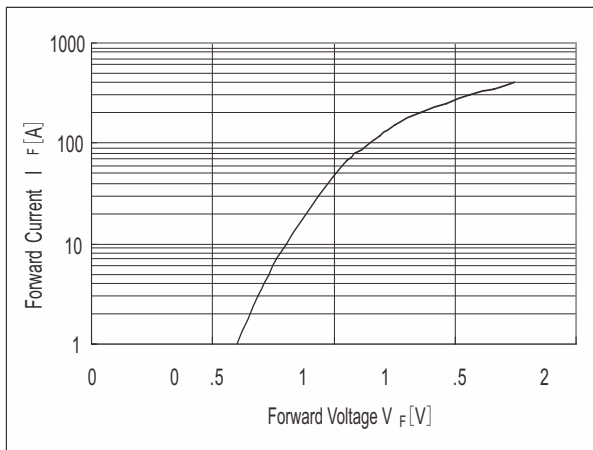


Fig. 1 : Typical Forward Voltage Drop vs. Instantaneous Forward Current

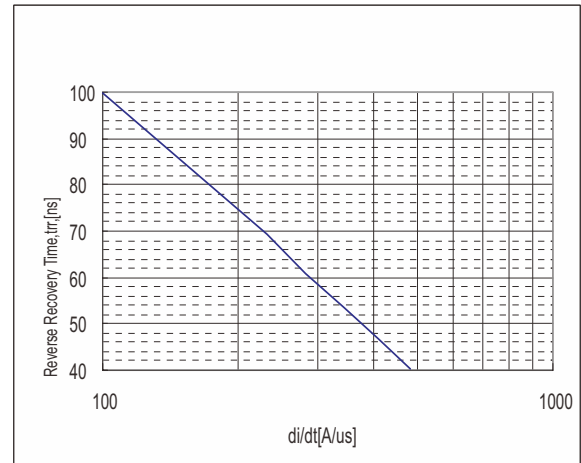


Fig. 2 : Typical Reverse Recovery Time vs. $-di/dt$

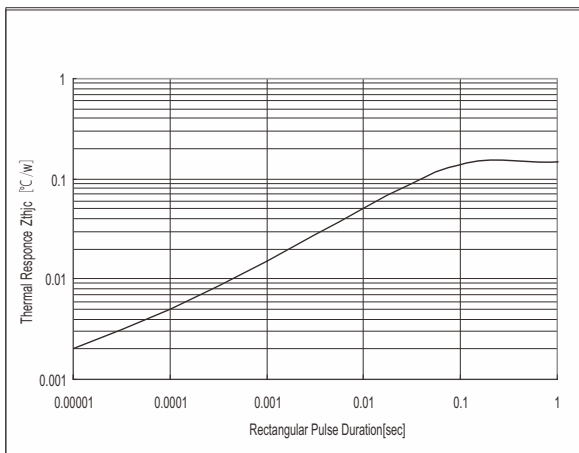


Fig. 3 : Transient Thermal Impedance (Z_{thjc}) Characteristics

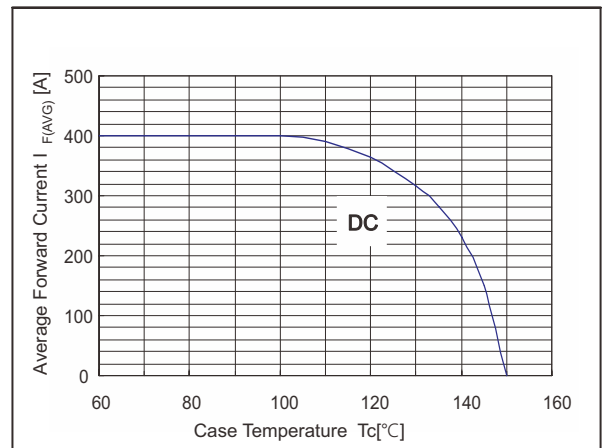
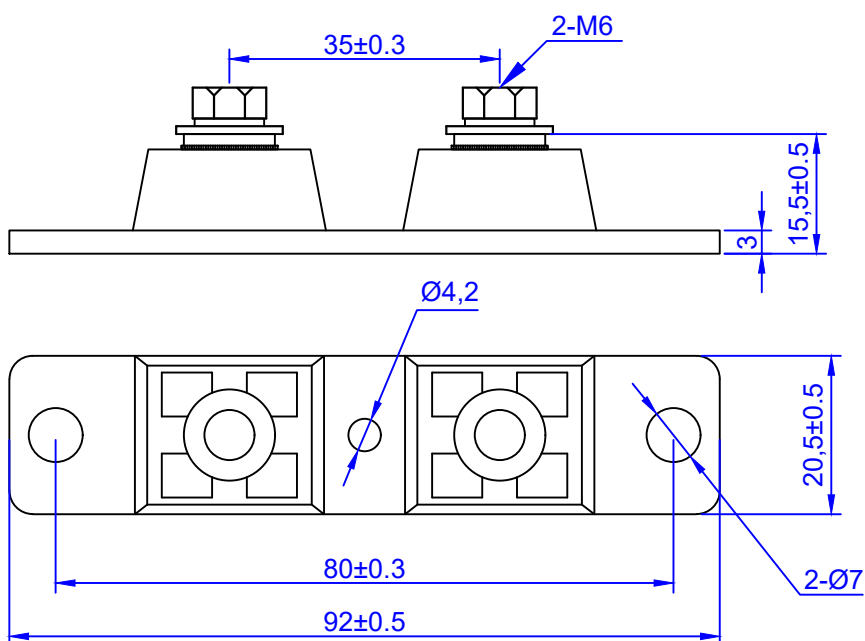


Fig. 4 : Forward Current Derating Curve

Outside Dimension



Dimensions (mm)

