

SDM2F125G12FS

Ultra-Fast Soft Recovery Diode Module

General 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

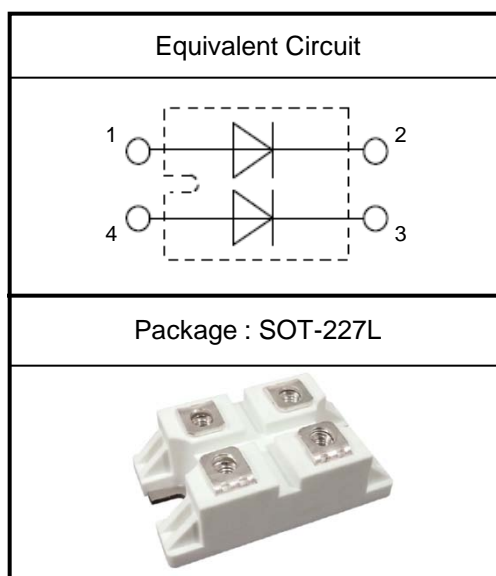
- Repetitive Reverse Voltage : $V_{RRM} = 1200V$
- Low Forward Voltage Drop : $V_F(\text{typ.}) = 2.5V$
- Average Forward Current : $I_F(\text{AV.}) = 125A$ @ $T_c = 100^\circ C$
- Ultra-Fast Reverse Recovery Time : $t_{rr}(\text{typ.}) = 90 \text{ ns}$ @ $125A$
- Extensive Characterization of Recovery Parameters
- Reduced EMI and RFI
- Isolation Type Package

Applications

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

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

Symbol	Parameter	Value	Unit	
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V	
V_R	Reverse DC Voltage	960	V	
$I_{F(\text{AV})}$	Average Forward Current	$T_c = 25^\circ C$	250	A
		$T_c = 100^\circ C$	125	
I_{FSM}	No Repetitive Surge Forward Current (1/2 cycle, sine)	1400	A	
I^2t	I^2t For Fusing (60Hz, sine, $t=8.3\text{ms}$, $T_J = 25^\circ C$)	$25.4 * 10^3$	A^2s	
T_J	Junction Temperature	-40 to +150	$^\circ C$	
T_{STG}	Storage Temperature	-40 to +125	$^\circ C$	
V_{ISOL}	Isolation Voltage (@ AC 1minutes)	2500	V	



Please see the package Out line information

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit	
V_R	Cathode Anode Breakdown Voltage	$I_R = 100\mu\text{A}$	1200	--	--	V	
I_R	Repetitive Peak Reverse Current	$V_R = 1200\text{V}, T_C = 100^\circ\text{C}$	--	--	6	mA	
V_{FM}	Maximum Forward Voltage	$I_F = 125\text{A}$	$T_C = 25^\circ\text{C}$	--	2.5	2.9	V
			$T_C = 100^\circ\text{C}$	--	2.1	--	
t_{rr}	Reverse Recovery Time	$V_R = 30\text{V},$ $I_F = 1\text{A},$ $di/dt = -100\text{A}/\mu\text{s}$	$T_C = 25^\circ\text{C}$	--	50	65	ns
t_{rr}	Reverse Recovery Time	$V_R = 600\text{V},$ $I_F = 125\text{A},$ $di/dt = -100\text{A}/\mu\text{s}$	$T_C = 25^\circ\text{C}$	--	90	125	ns
			$T_C = 100^\circ\text{C}$	--	200	--	

Thermal Mechanical Specifications

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Junction-to-Case	DC Current	--	--	0.4	$^\circ\text{C}/\text{W}$
-	Torque	Mounting Torque	1.45			N·m
-	Torque	Terminal Torque	1.45			N·m
L x W x H	Dimensions	Typical, see outline drawing	50 x 30 x 17			mm
m	Mass		--	30	--	g

Characterization curves

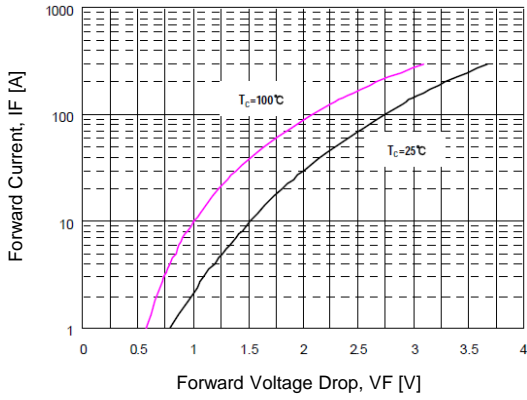


Fig1. Typical Forward Voltage Drop vs. Instantaneous Forward Current

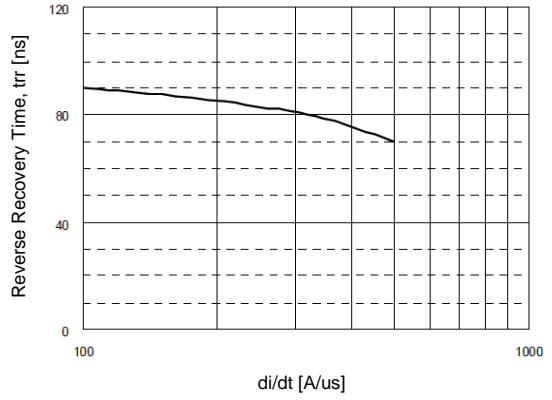


Fig2. Typical Reverse Recovery Time vs. $-di/dt$

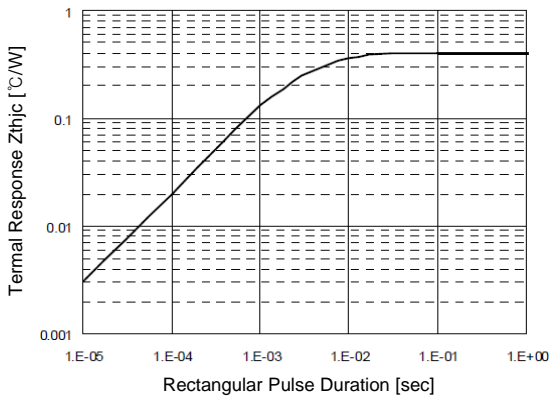


Fig3. Transient Thermal Impedance(Z_{thjc}) Characteristics

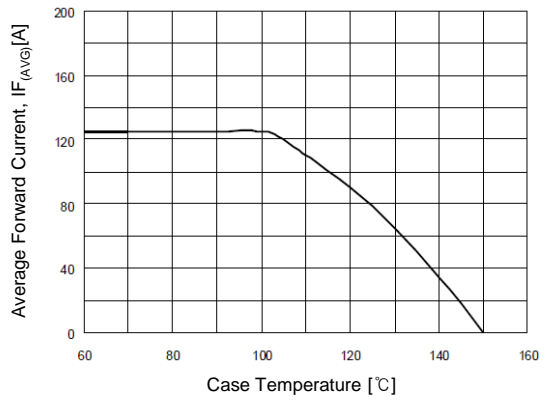


Fig4. Forward Current Derating Curve

Package Out line Information

SOT-227L



Dimensions in mm

