July 2015

SemiHow
Know-How for Semiconductor

SDM2F100G04FE
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

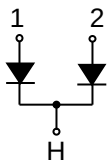
Features

- ❑ Repetitive Reverse Voltage : V_{RRM} = 400V
- ❑ Low Forward Voltage Drop : V_F(typ.) = 1.05V
- ❑ Average Forward Current : I_F(AV.) = 100A @ Tc = 100℃
- ❑ Ultra-Fast Reverse Recovery Time : t_{rr}(typ.) = 90 ns @100A
- ❑ Extensive Characterization of Recovery Parameters
- ❑ Reduced EMI and RFI
- ❑ Non Isolation Type Package and 175℃ Operating Junction Temperature
- ❑ Dual FRD Construction

Applications

- ❑ High Speed & High Power Converters, Welders.
- ❑ Various Switching and Telecommunication Power Supply.

Equivalent Circuit



(Common Heat Sink)

Package : 27mm

Non Isolation Type

Please see the package Out line information

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

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		400	V
V_R	Reverse DC Voltage		320	V
$I_{F(AV)}$	Average Forward Current	T_C = 25℃	200	A
		T_C = 100℃	100	
I_{FSM}	No Repetitive Surge Forward Current (1/2 cycle, sine)		2000	A
I^2t	I^2t For Fusing (60Hz, sine, t=8.3ms, T_J = 25℃)		$16.7 * 10^3$	A^2s
P_D	Maximum Power Dissipation		350	W
T_J	Junction Temperature		-40 to +175	℃
T_{STG}	Storage Temperature		-40 to +150	℃

Electrical Characteristics T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions		Min	Typ	Max	Unit
V_R	Cathode Anode Breakdown Voltage	I_R = 100uA		400	--	--	V
I_R	Repetitive Peak Reverse Current	V_R = 400V, T_C = 100℃		--	--	1	mA
V_{FM}	Maximum Forward Voltage	I_F = 100A	T_C = 25℃	--	1.05	1.3	V
			T_C = 100℃	--	0.95	1.1	
t_{rr}	Reverse Recovery Time	V_R = 30V, I_F = 1A, di/dt = -100A/μs	T_C = 25℃	--	45	60	ns
t_{rr}	Reverse Recovery Time	V_R = 200V, I_F = 100A, di/dt = 100A/μs	T_C = 25℃	--	90	120	ns
			T_C = 100℃	--	120	--	

Thermal Mechanical Specifications

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Junction-to-Case	DC Current	--	--	0.43	℃/W
-	Torque	Mounting Torque		4.0		N·m
-	Torque	Terminal Torque		3.0		N·m
L x W x H	Dimensions	Typical, see outline drawing		92 x 27 x 17		mm
-		Term. To Term	--	35	--	mm
m	Mass		--	70	--	g

Characterization curves

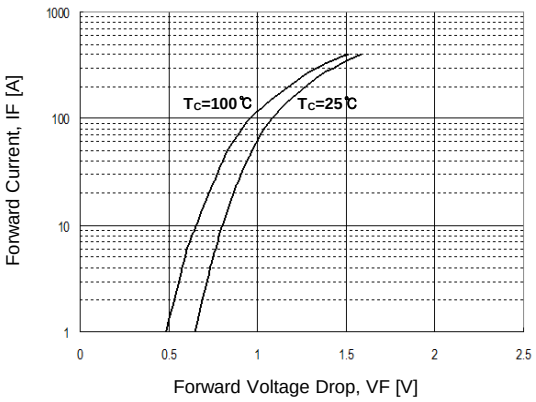


Fig1. Typical Forward Voltage Drop vs. Instantaneous Forward Current

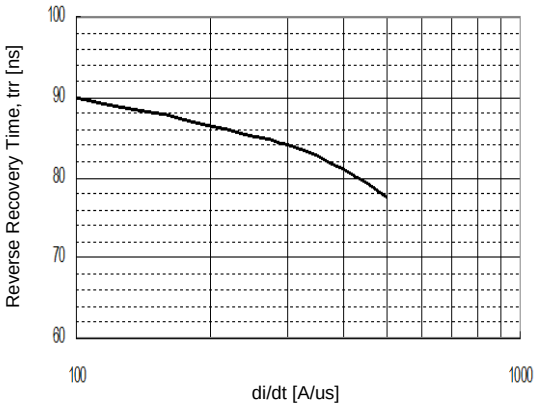


Fig2. Typical Reverse Recovery Time vs. -di/dt

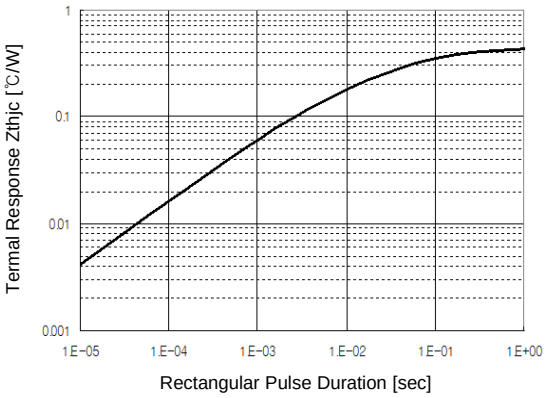


Fig3. Transient Thermal Impedance(Z_{thjc}) Characteristics

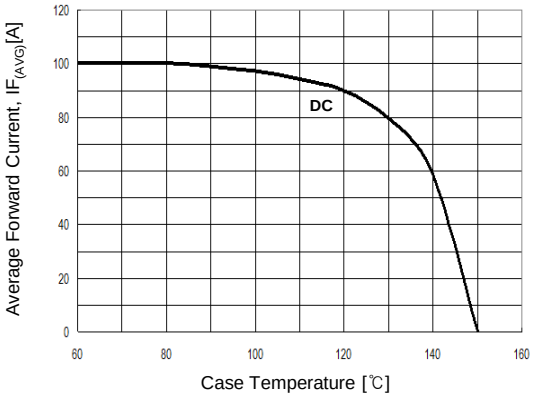
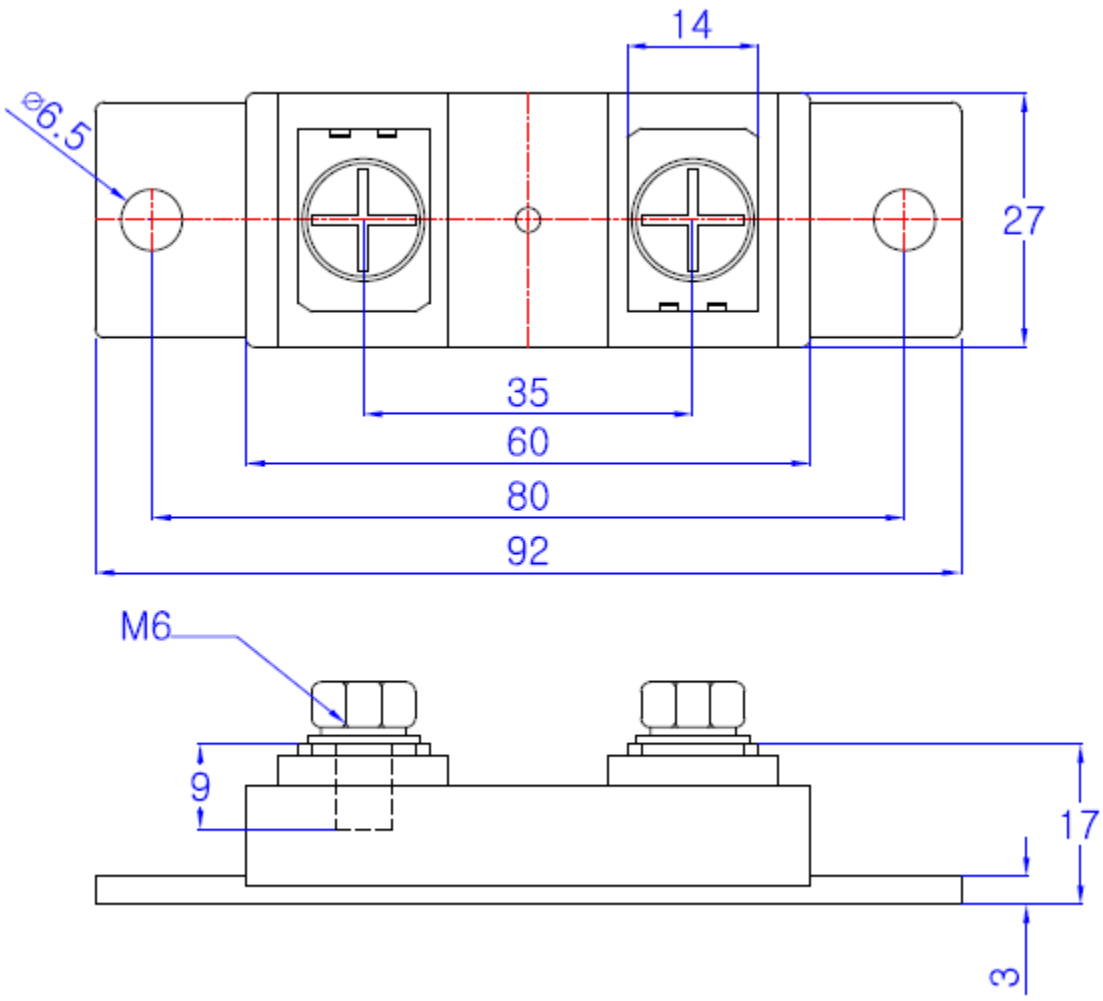


Fig4. Forward Current Derating Curve

Package Out line Information

27mm

Dimensions in mm



Attached (recommended torque):

Mounting torque(M6) 4.0 Nm Terminal torque(M6) 3.0 Nm