G5S12010M

1200V/10A Silicon Carbide Power Schottky Barrier Diode

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

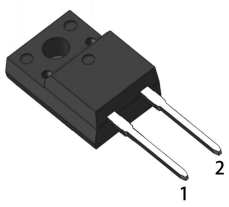
Key Characteristics		
V_{RRM}	1200	V
I_F, $T_c \leqslant 137℃$	10	A
Q_C	53.9	nC

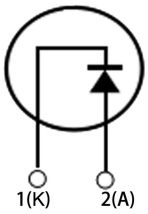
Benefits

- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Applications

- SMPS, e.g., CCM PFC;
- Motor drives, Solar application, UPS, Wind turbine, Rail traction, EV/HEV





Part No.	Package Type	Marking
G5S12010M	TO-220F	G5S12010M

Maximum Ratings

Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		1200	V
Surge Peak Reverse Voltage	V_{RSM}		1200	V
DC Blocking Voltage	V_{DC}		1200	V
Continuous Forward Current	I_F	T_C=25℃ T_C=125℃ T_C=137℃	22 11.5 10	A
Repetitive Peak Forward Surge Current	I_{FRM}	T_C=25℃, tp=10ms， Half Sine Wave，D=0.3	50	A
Non-repetitive Peak Forward Surge Current	I_{FSM}	T_C=25℃, tp=10ms， Half Sine Wave	130	A
Power Dissipation	P_{TOT}	T_C=25℃	72	W
		T_C=110℃	31	W
Operating Junction	T_j		-55℃ to 175℃	℃
Storage Temperature	T_{stg}		-55℃ to 175℃	℃
Mounting Torque		M3 Screw 6-32 Screw	1 8.8	Nm lbf-in

Thermal Characteristics

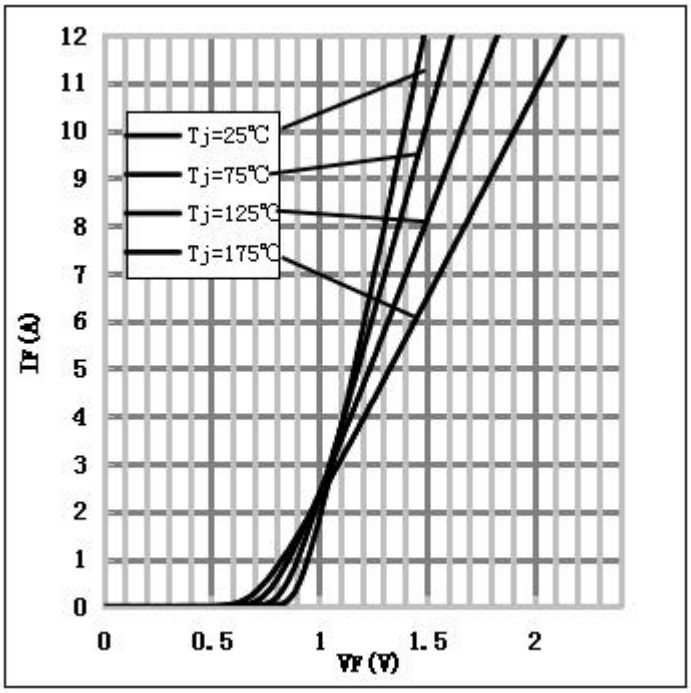
Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{th\ JC}$		2.07	℃/W

Electrical Characteristics

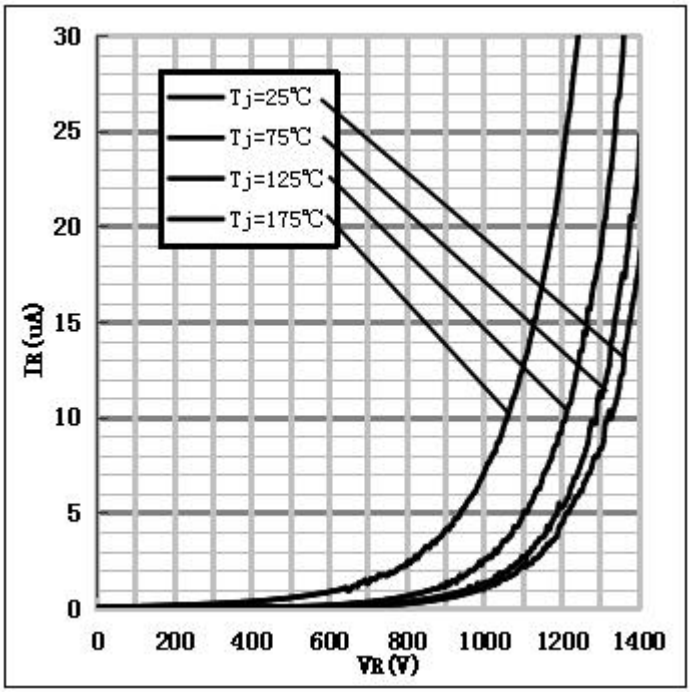
Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	V_F	I_F=10A, T_j=25℃	1.4	1.7	V
		I_F=10A, T_j=175℃	1.9	2.3	
Reverse Current	I_R	V_R=1200V, T_j=25℃	4.5	50	μA
		V_R=1200V, T_j=175℃	23	100	
Total Capacitive Charge	Q_C	V_R=800V, T_j=25℃ $Qc = \int_0^{VR} C(V)dV$	53.9	-	nC
Total Capacitance	C	V_R=0V, T_j=25℃, f=1MHZ	825	830	pF
		V_R=400V, T_j=25℃, f=1MHZ	50	55	
		V_R=800V, T_j=25℃, f=1MHZ	40	45	

Performance Graphs

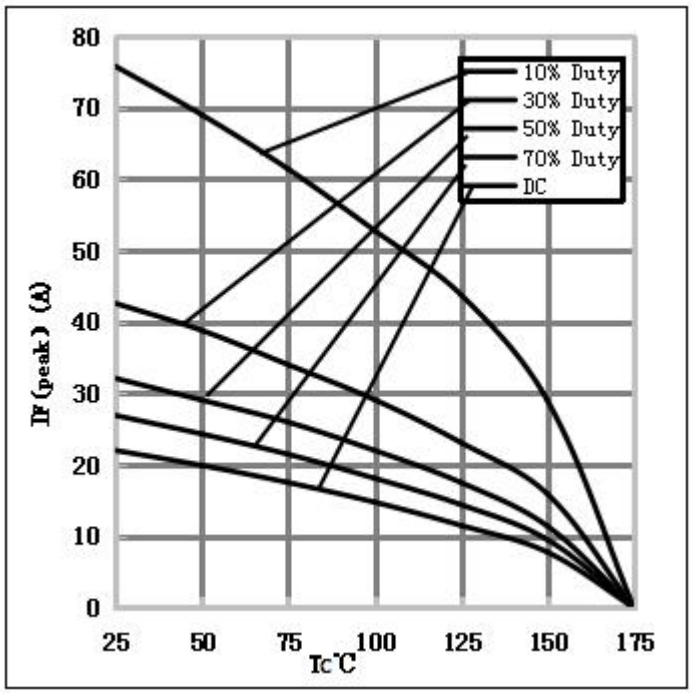
1) Forward IV characteristics as a function of Tj :



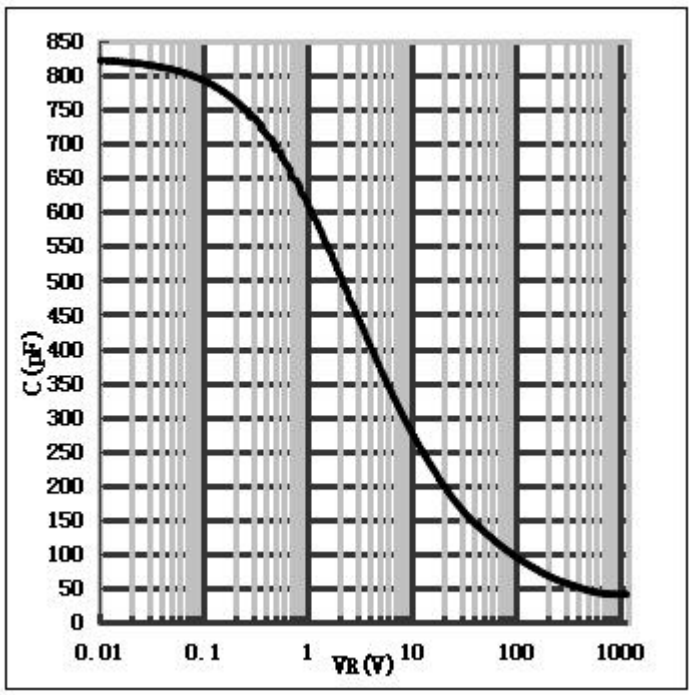
2) Reverse IV characteristics as a function of Tj :



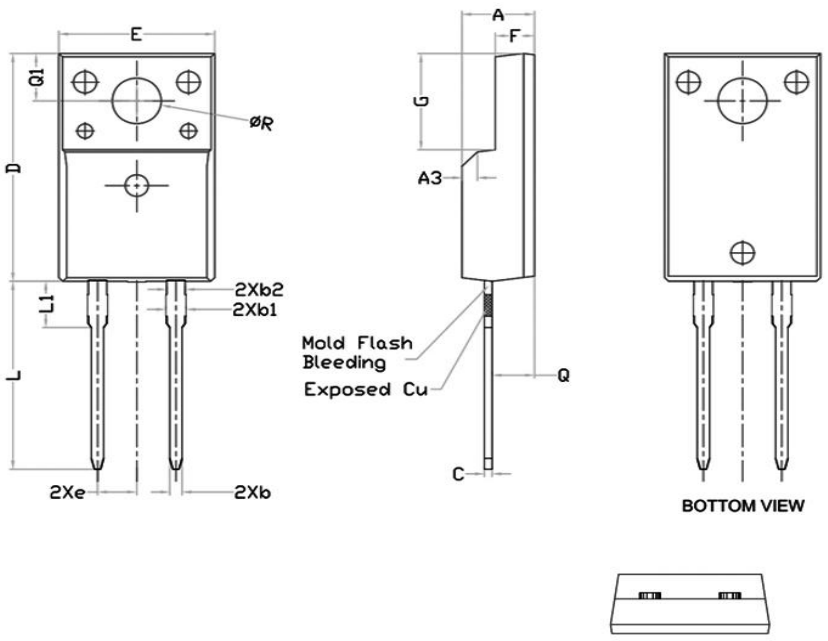
3) Current Derating:



4) Capacitance vs. reverse voltage:



Package TO-220F



单位：mm

SYMBOL	DIMENSIONS		
	Min.	Nom.	Max.
A	4.60	4.70	4.80
b	0.70	0.80	0.91
b1	1.20	1.30	1.47
b2	1.10	1.20	1.30
C	0.45	0.50	0.63
D	15.80	15.87	15.97
e		2.54	
E	10.00	10.10	10.30
F	2.44	2.54	2.64
G	6.50	6.70	6.90
L	12.90	13.10	13.30
L1	3.13	3.23	3.33
Q	2.65	2.75	2.85
Q1	3.20	3.30	3.40
ΦR	3.08	3.18	3.28

Note:

1. All Dimension Are In mm.
2. Package Body Sizes Exclude Mold Flash And Burrs Mold Flash Should Be Less Than 6 Mil.

Note: The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC(RoHS2).