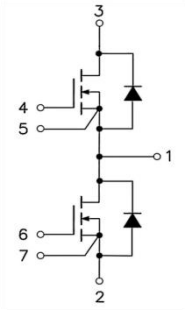
62mm Half Bridge SiC Module

Parameter	Value	Unit
V_{DS}	1200	V
I_D	500	A
$R_{DS(ON)}$	3.1	mΩ
Q_G	1192	nC





Features:

- Low Switching Losses
- High-frequency Operation
- Zero Reverse Recovery from Diodes
- Zero Turn-off Tail Current from MOSFET

Applications:

- DC/DC Converter
- Solar and Wind Inverters
- Uninterruptible Power Supply(UPS)
- Switched Mode Power Supply(SMPS)

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-source Voltage	1200	V
V_{GS}	Gate-source Voltage	-10/+22	V
I_D	Drain Current (continuous) (T_C=25°C)	500	A
I_{DM}	Drain Current (pulsed)	1000	A
T_{op};T_{stg}	Operating and Storage Temperature Range	-40 to +150	°C
T_J	Junction Temperature	175	°C
$R_{th(j-c)}$	Thermal Resistance,Junction-to- heatsink	0.11	°C/W

MOSFET Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
Static characteristics (at TC=25°C unless otherwise specified)						
B_{VDS}	Drain-source Breakdown Voltage	1200	-	-	V	V_{GS}=0V
I_{DSS}	Zero Gate Voltage Drain Current	-	-	50	μA	V_{DS}=1200V; V_{GS}=0V
I_{GSS}	Gate-body Leakage Current	-	-	2.5	μA	V_{GS}=-10/20V; V_{DS}=0V
$V_{GS(th)}$	Gate Threshold Voltage	2.0	-	4.0	V	V_{DS}=V_{GS} ; I_D=50mA
$R_{DS(on)}$	Static Drain-source on Resistance	-	3.1	4.5	mΩ	V_{GS}=18V; I_D=250A; T_J=25°C
$V_{GS(on)}$	Recommended Turn-on Voltage	-	18	-	V	Static
$V_{GS(off)}$	Recommended Turn-off Voltage	-	-5	-	V	
R_G	Gate Resistance	-	0.63	-	Ω	V_{GS}=0V; f=1MHz
Dynamic characteristics (at TC=25°C unless otherwise specified)						

C_{iss}	Input Capacitance	-	34.6	-	nF	V_{DS}=1000V; f=100kHz V_{AC};=25mV
C_{oss}	Output Capacitance	-	1.5	-		
C_{rss}	Reverse Transfer Capacitance	-	63	-	pF	
E_{on}	Turn-on Switching Energy	-	25.5	-	mJ	V_{DD}=900V; V_{GS}=-5/+18V I_D=300A; Load=100μH
E_{off}	Turn-off Switching Energy	-	15.6	-		
Q_{GS}	Gate-Source Charge	-	385	-	nC	V_{DD}=800V; V_{GS}=-5/+18V I_D=250A
Q_{GD}	Gate-drain Charge	-	392	-		
Q_G	Total Gate Charge	-	1192	-		
$t_{d(on)}$	Turn-on Delay Time	-	106	-	ns	V_{DD}=900V; V_{GS}=-5/+18V I_D=300A; $R_{G(ext)}$=5Ω Load=100μH
t_r	Rise Time	-	83	-		
$t_{d(off)}$	Turn-off Delay Time	-	344	-		
t_f	Fall Time	-	63	-		

Body Diode Characteristics (T_J =25°C unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_{FSD}	Forward Voltage	-	-	6	V	V_{GS}=0V; I_F=250A
I_S	Continuous Diode Forward Current	-	250	-	A	V_{GS}=0V; T_C=25°C
T_{RR}	Reverse Recovery Time	-	40	-	ns	V_{GS}=-5/+18V; I_F=300A V_R=900V;Load=100μH
Q_{RR}	Reverse Recovery Charge	-	3063	-	nC	
I_{RRM}	Peak Reverse Recovery Current	-	76	-	A	

Module Physical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
L_{Stray}	Stray Inductance	-	20	-	nH	
W	Weight	-	340	-	g	
M	Mounting Torque	4.0	-	5.5	N·m	M6
V_{ISOL}	Isolation Test Voltage	4.2	-	-	kV	
-	Clearance Distance	-	11	-	mm	Terminal to Terminal
		-	23	-	mm	Terminal to Baseplate
-	Creepage Distance	-	23	-	mm	Terminal to Terminal
		-	29	-	mm	Terminal to Baseplate

Typical Characteristics

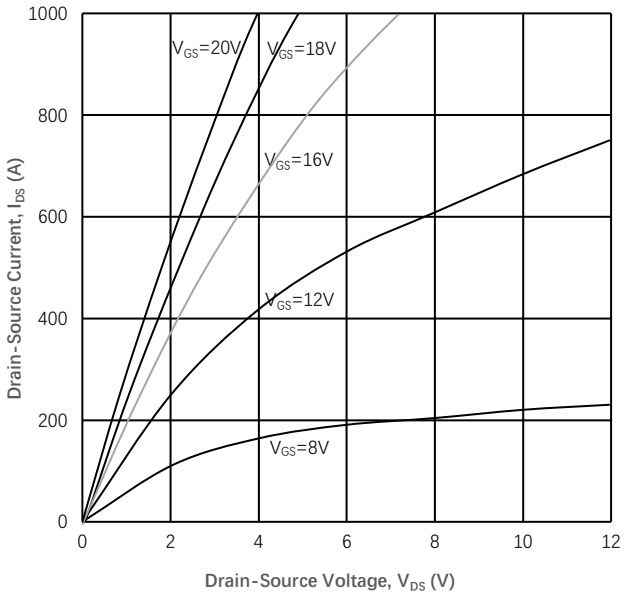


Figure 1
Output Characteristics (T_J=25 °C)

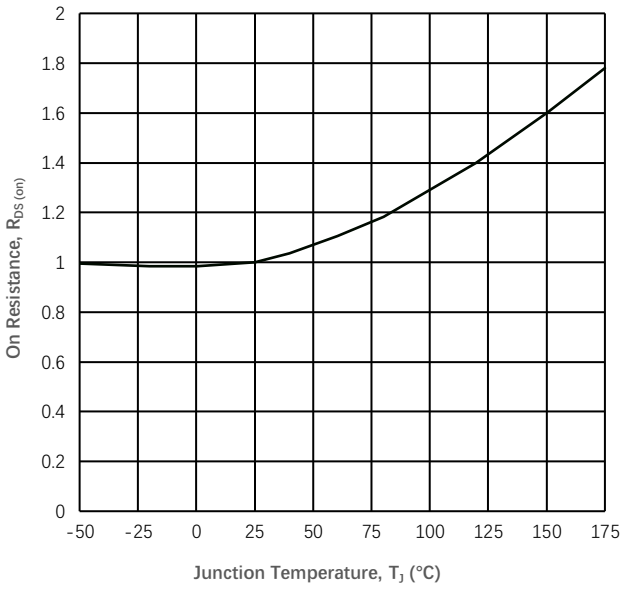


Figure 2
Normalized On-Resistance vs. T_j

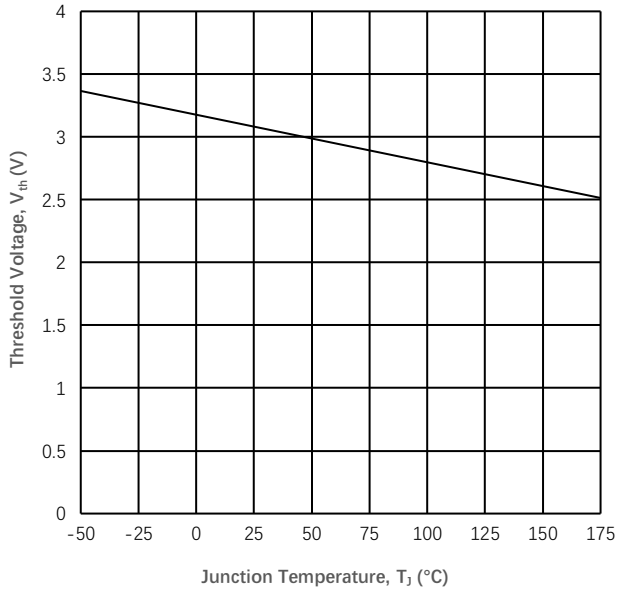


Figure 3
Threshold Voltage vs. Temperature

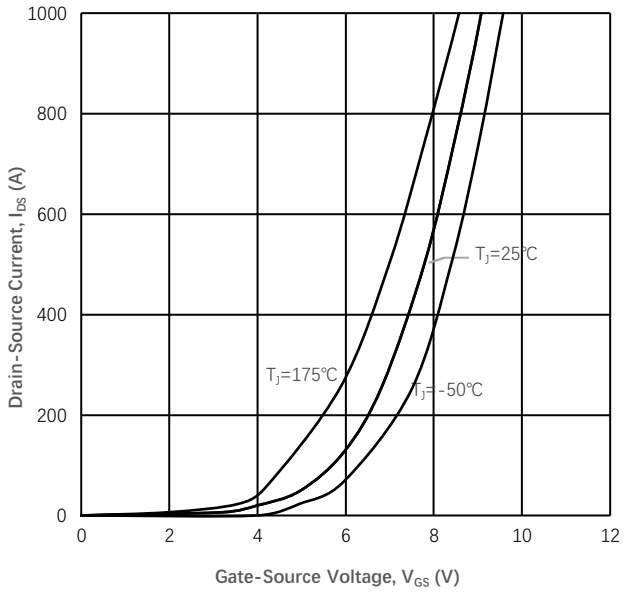


Figure 4
Transfer Characteristic for Various T_j

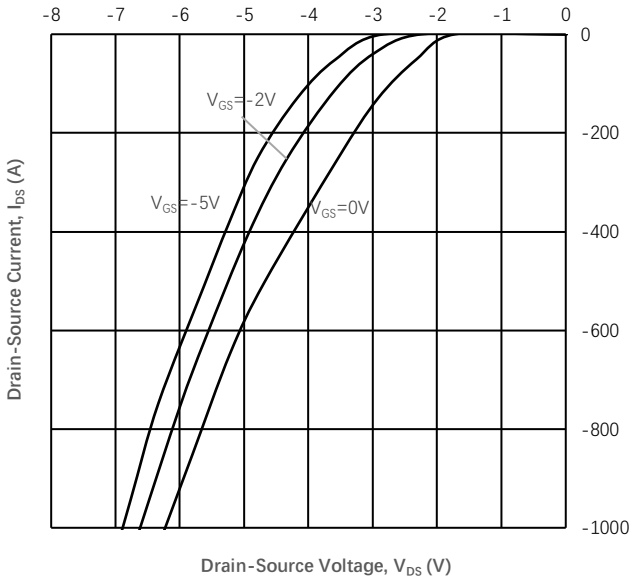


Figure 5

Body Diode Characteristic at 25°C

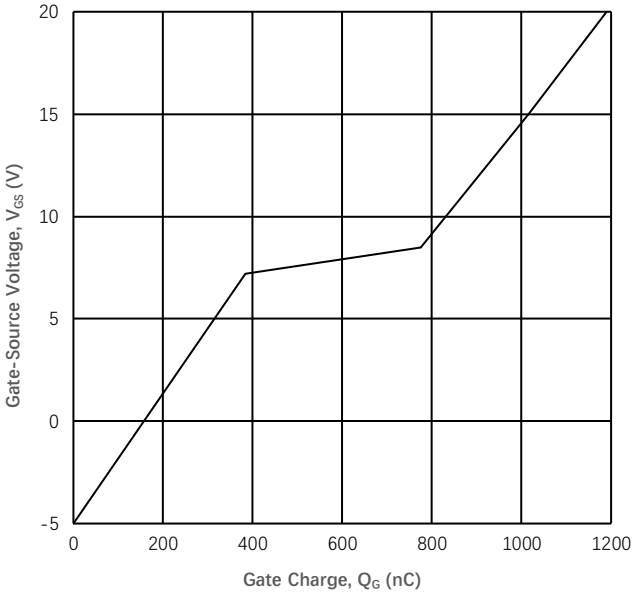


Figure 6

Typical Gate Charge Characteristics

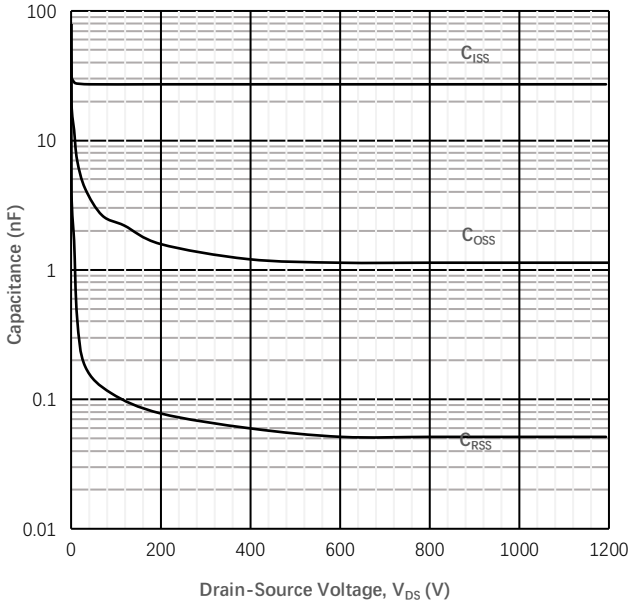


Figure 7

Typical Capacitances vs. Drain-Source Voltage

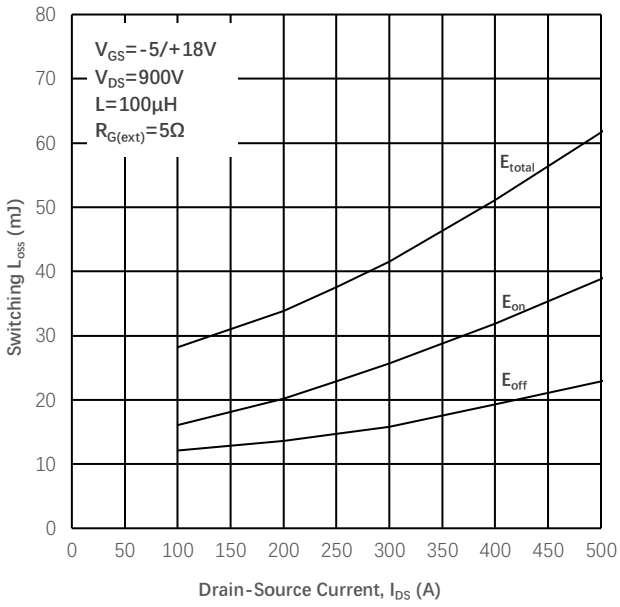


Figure 8

Inductive Switching Energy vs. Drain Current

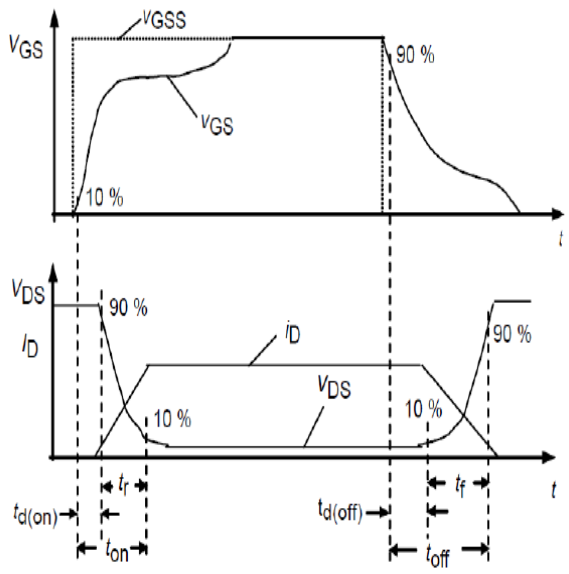


Figure 9
Switching Time Description

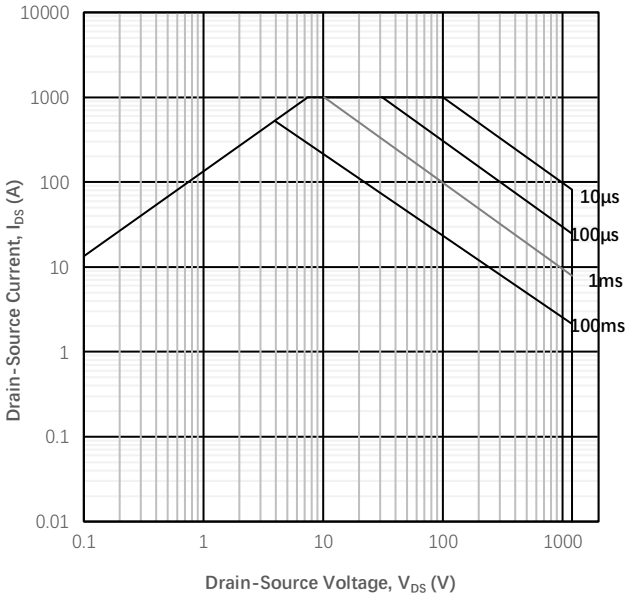
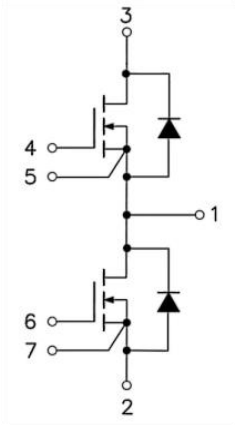
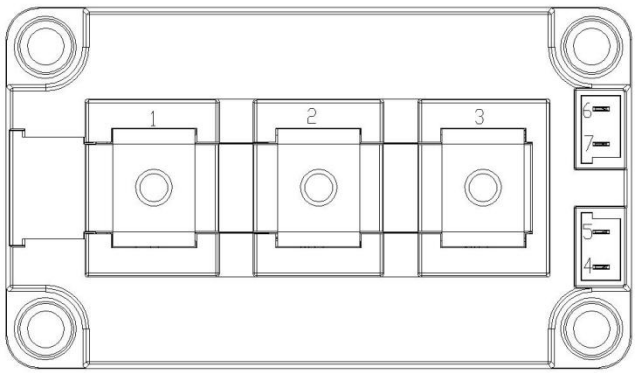


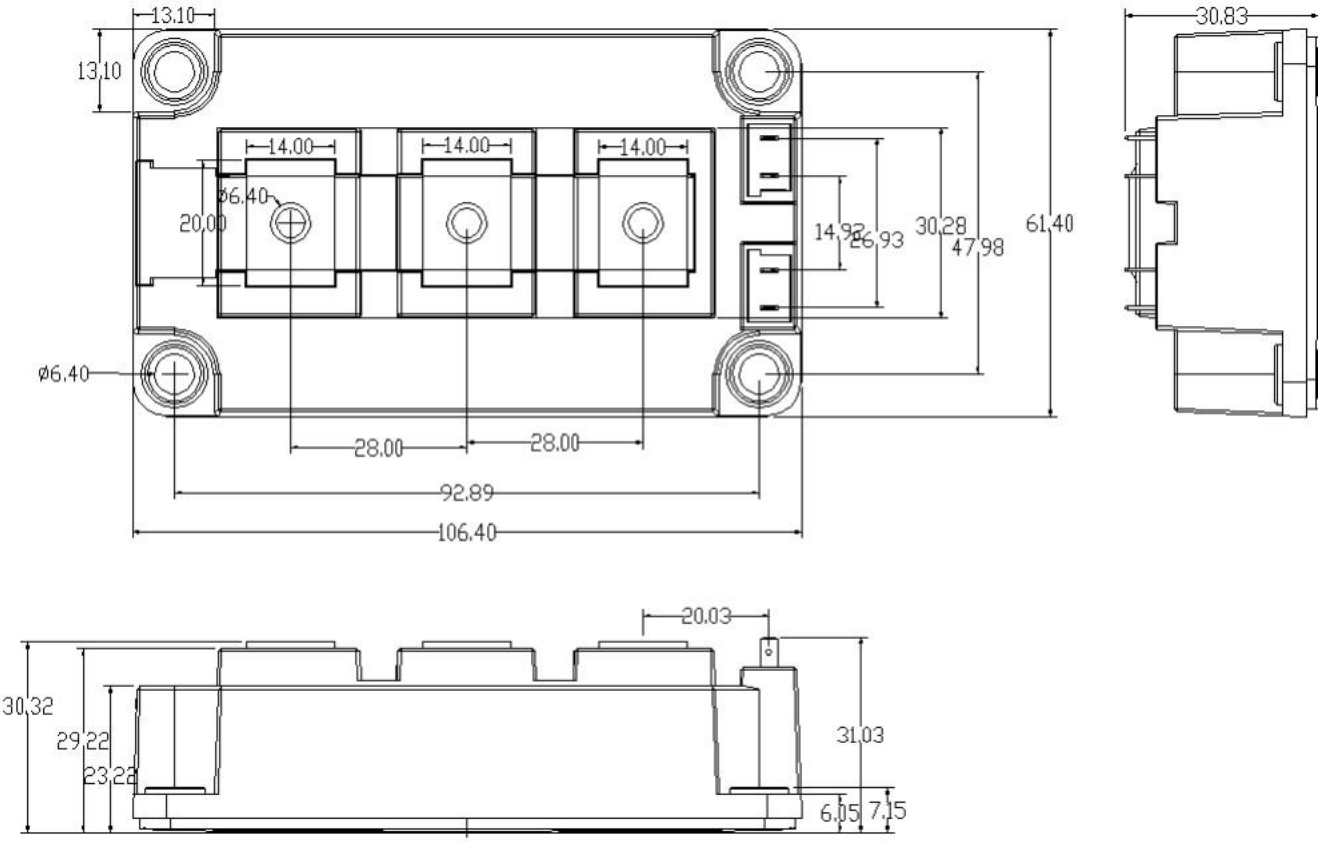
Figure 10
Safe Operating Area

Circuit Diagram





Package Outlines(Unit: mm):



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