

Applications

- Induction heating
- Solar and wind inverters
- DC/AC converters



Product Summary

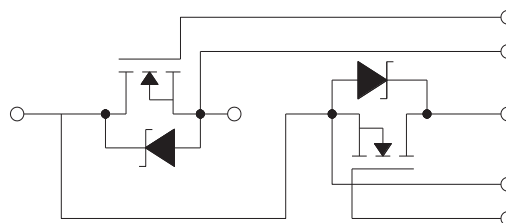
V_{CE}	RDS(on)
1700V	7.5mΩ

All-SiC Power Module



Features

- Ultra low loss
- High-Frequency operation
- Zero reverse recovery current from diode
- Zero turn-off tail current from MOSFET
- Normally-off, fail-safe device operation
- Ease of paralleling



1700V/7.5 mΩ in one-package

● Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Drain-source voltage	V_{DSmax}		1700	V
Continuous collector current	I_D	$V_{GS}=20V, T_C=25^\circ\text{C}$	432	A
		$V_{GS}=20V, T_C=100^\circ\text{C}$	288	
Gate- source voltage	V_{GSmax}	Absolute maximum values	-10V/+25V	V
Gate-source voltage	V_{GSop}	Recommended operational values	-5V/+20V	V
Operating Junction and Storage Temperature	T_J, T_{STG}		-40~+155	$^\circ\text{C}$

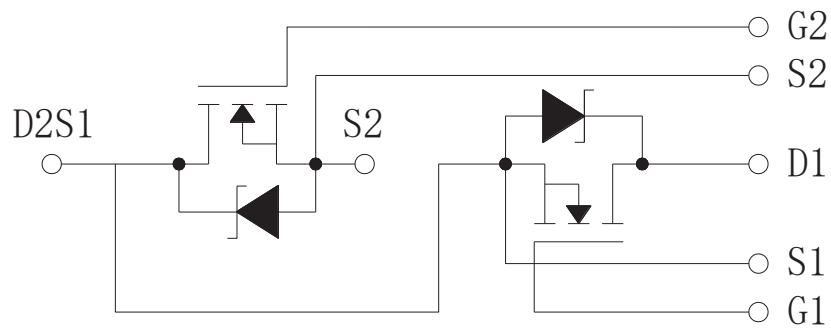
● Electrical Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Gate threshold voltage	V_{GSth}	$I_D = 108\text{mA}$	2.0	2.6	4.0	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=1700\text{V}, V_{GS}=0\text{V}$		6	600	μA
Gate-source leakage current	I_{GSS}	$V_{GS}=20\text{V}$			1500	nA
On state resistance	$R_{DS(on)}$	$V_{GS}=20\text{V}, I_{DS}=300\text{A}$		7.5	11.7	m Ω
		$V_{GS}=20\text{V}, I_{DS}=300\text{A}, T_{vj}=150^\circ\text{C}$		15		m Ω
Input capacitance	C_{iss}	$V_{GS}=0\text{V}, V_{DS}=1000\text{V}, V_{AC}=25\text{mV}$ $f=1\text{MHz}$		21.3		nF
Output capacitance	C_{oss}			0.99		nF
Reverse transfer capacitance	C_{rss}			0.04		nF
Gate-source charge	Q_{GS}	$V_{DS}=1200\text{V}, V_{GS} = +20\text{V/-5V}$ $I_D = 300\text{A}$		324		nC
Gate-drain charge	Q_{GD}			150		nC
Total gate charge	Q_G			1158		nC
Turn-on delay time	$t_{d(on)}$	$I_D = 180\text{A}$ $V_{DS} = 1200\text{V}$ $V_{GS} = +20\text{V/-5V}$ $R_G = 2.5\Omega$		27		ns
Rise time	t_r			32		ns
Turn-off delay time	$t_{d(off)}$			36		ns
Fall time	t_f			10		ns
Energy dissipation during turn-on time	E_{on}	$I_D = 180\text{A}$ $V_{DS} = 1200\text{V}$ $V_{GS} = +20\text{V/-5V}$		1.2		mJ
Energy dissipation during turn-off time	E_{off}	$R_G = 2.5\Omega$ $L = 200\mu\text{H}$		2.0		mJ
Diode forward voltage	V_{SD}	$I_F = 300\text{A}$		1.6	1.9	V
		$I_F = 300\text{A}, T_{vj} = 150^\circ\text{C}$		2.2	2.8	V

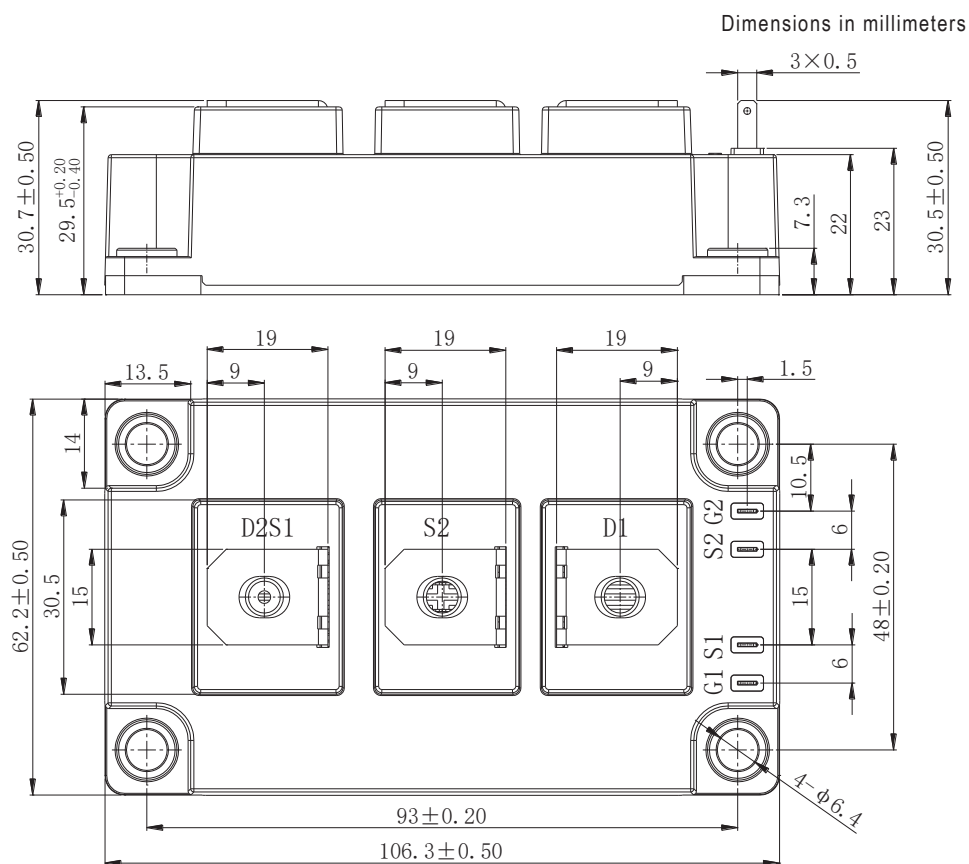
● Module Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Case isolation voltage	V_{isol}	$t=1\text{min}, f=50\text{Hz}$	2500			V
Maximum junction temperature	$T_{j\text{max}}$				175	$^\circ\text{C}$
Operating junction temperature	$T_{vj\text{op}}$		-40		150	$^\circ\text{C}$
Storage temperature	T_{stg}		-40		125	$^\circ\text{C}$
Module electrodes torque	M_t	Recommended(M6)	3.0		6.0	Nm
Module to heatsink torque	M_s	Recommended(M6)	3.0		6.0	
Weight of module	G			300		g

● Circuit Diagram



● Package Dimensions



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