

# P/N: YZPST-230B170F62

## All-SiC Power Module

$V_{DS}=1700V$     $R_{DS(on)}=7.5m\Omega$

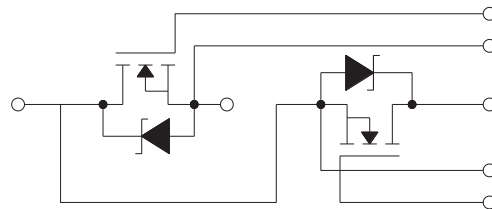
### Applications

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



### 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 ( $T_c = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Drain-source voltage	$V_{DSmax}$		1700	V
Continuous collector current	$I_D$	$V_{GS}=20V, T_c=25^\circ C$	230	A
		$V_{GS}=20V, T_c=100^\circ C$	200	
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	$^\circ C$

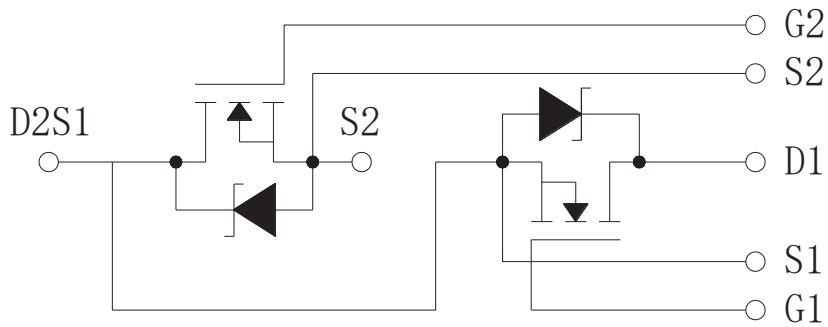
**● Electrical Characteristics ( $T_C = 25^\circ\text{C}$  unless otherwise specified)**

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	$\mu\text{A}$
Gate-source leakage current	$I_{GSS}$	$V_{GS}=20\text{V}$			1500	nA
On state resistance	$R_{DS(on)}$	$V_{GS}=20\text{V}, I_{DS}=230\text{A}$		7.5	11.7	$\text{m}\Omega$
		$V_{GS}=20\text{V}, I_{DS}=230\text{A}, T_{vj}=150^\circ\text{C}$		15		$\text{m}\Omega$
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	$Q_{GS}$	$V_{DS}=1200\text{V}, V_{GS} = +20\text{V}/-5\text{V}$ $I_D = 300\text{A}$		324		nC
Gate-drain charge	$Q_{GD}$			150		nC
Total gate charge	$Q_G$			1158		nC
Turn-on delay time	$t_{d(on)}$	$I_D = 180\text{A}$ $V_{DS} = 1200\text{V}$ $V_{GS} = +20\text{V}/-5\text{V}$ $R_G = 2.5\Omega$		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	$E_{on}$	$I_D = 180\text{A}$ $V_{DS} = 1200\text{V}$ $V_{GS} = +20\text{V}/-5\text{V}$		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	$V_{\text{isol}}$	$t=1\text{min}, f=50\text{Hz}$	2500			V
Maximum junction temperature	$T_{\text{jmax}}$				175	$^\circ\text{C}$
Operating junction temperature	$T_{\text{vj op}}$		-40		150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$		-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

