产品规格书
DATA SHEET

产品名称： 62mm IGBT 模块

产品型号：LSMW200BS120-1

200A（1200V）

制作人	审核	核准

变更履历：

更改日期	版次	变更前	变更后	修改人	备注
2023.12.9	Rev.1.0	/	新增	夏一骄	

Molding Type Module

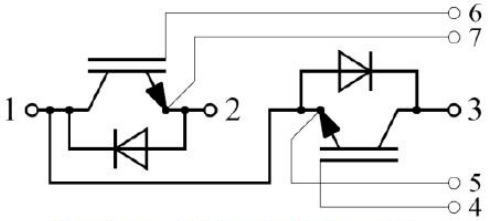
1200V/200A 2 in one-package

General Description

IGBT Power Module provides ultra low conduction loss as well as short circuit ruggedness.

Features

- Low $V_{CE(sat)}$ trench IGBT technology
- 10μs short circuit capability
- $V_{CE(sat)}$ with positive temperature coefficient
- Maximum junction temperature 175℃
- Low inductance case
- Fast & soft reverse recovery anti-parallel FRD
- Isolated copper baseplate using DBC technology



Equivalent Circuit Schematic

Typical Applications

- Switching mode power supplies
- Electronic welders

Absolute Maximum Ratings T_C=25℃ unless otherwise noted

Symbol	Description		Units
VCES	Collector-Emitter Voltage	1200	V
VGES	Gate-Emitter Voltage	±20	V
I_C	Collector Current @ T_C=25℃ Tvj=150℃	200	A
ICM	Pulsed Collector Current t_p=1ms	400	A
I_F	Diode Continuous Forward Current	200	A
IFRM	Diode Maximum Forward Current t_p=1ms	400	A
T_{STG}	Storage Temperature Range	-40 to +125	℃
VISO	Isolation Voltage RMS,f=50Hz,t=1min	2500	V
Mounting Torque	Power Terminal Screw:M6 Mounting Screw:M6	2.5 to 5.0 3.0 to 6.0	N.m

Electrical Characteristics of IGBT T_C=25℃ unless otherwise noted

Off Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	T_j=25℃	1200			V

I_{CES}	Collector Cut-Off Current	V_{CE}=1200V,V_{GE}=0V, T_j=25℃			0.01	mA
I_{GES}	Gate-Emitter Leakage Current	V_{GE}=20V,V_{CE}=0V, T_j=25℃			200	nA

On Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_{GE(th)}$	Gate-Emitter Threshold Voltage	I_C=8.0mA,V_{CE}=V_{GE}, T_j=25℃	5.0	5.5	6.0	V
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage	I_C=200A,V_{GE}=15V, T_j=25℃		2.7	3.5	V

Switching Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
td(on)	Turn-On Delay Time	V_{CE}=600V,I_C=200A, R_G=3Ω,V_{GE}=±15V, T_j=25℃		0.04		μs
tr	Rise Time			0.06		μs
td(off)	Turn-Off Delay Time			0.38		μs
tf	Fall Time			0.04		μs
E_{on}	Turn-On Switching Loss			13		mJ
E_{off}	Turn-Off Switching Loss			12		mJ
td(on)	Turn-On Delay Time	V_{CC}=600V,I_C=200A, R_G=3Ω,V_{GE}=±15V, T_j=125℃		0.04		μs
tr	Rise Time			0.07		μs
td(off)	Turn-Off Delay Time			0.39		μs
tf	Fall Time			0.1		μs
E_{on}	Turn-On Switching Loss			35		mJ
E_{off}	Turn-Off Switching Loss			17		mJ
Cies	Input Capacitance	V_{CE}=25V,f=1MHz, V_{GE}=0V		15		nF
C_{res}	Reverse Transfer Capacitance			0.48		nF
Q_G	Gate Charge	VGE= -15V …+15V		1.9		μC
RGint	Internal Gate Resistance			0.45		Ω
LCE	Stray Inductance				20	nH

Electrical Characteristics of Diode T_C=25℃ unless otherwise noted

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Units
V_F	Diode Forward Voltage	I_F=200A	Tj=25℃		2.5	2.7	V
Q_r	Recovered Charge	I_F=200A, V_R=600V, R_G=3Ω, V_{GE}=-15V	Tj=25℃		12.8		μC
I_{RM}	Peak Reverse Recovery Current		Tj=25℃		170		A
E_{rec}	Reverse Recovery Energy		Tj=25℃		5.2		mJ

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Units
RθJC	Junction-to-Case (per IGBT)		0.09	K/W
RθJC	Junction-to-Case (per Diode)		0.18	K/W
RθCS	Case-to-Sink (per IGBT -Conductive grease applied)	0.03		
RθCS	Case-to-Sink (per Diode -Conductive grease applied)	0.06		K/W

Package Dimensions