

IGBT Module

1200V/100A 2 in one-package

Features

- 1200V100A, $V_{CE(sat)(typ.)}=2.1V@100A$
- Ultrafast switching speed
- Excellent short circuit ruggedness
- 34mm half bridge module



General Description

Daxin's IGBTs offer ultrafast switching speed for application such as welding, inductive-heating, UPS and other high frequency applications.

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GES}	Gate-Emitter Voltage	± 30	V
I_C	Continuous Collector Current ($T_C=25^\circ C$)	200	A
	Continuous Collector Current ($T_C=100^\circ C$)	100	A
I_{CM}	Pulsed Collector Current (Note 1)	200	A
I_F	Diode Continuous Forward Current ($T_C=100^\circ C$)	100	A
I_{FM}	Diode Maximum Forward Current (Note 1)	400	A
t_{sc}	Short Circuit Withstand Time	10	μs
$t_{sc(Max)}$	Maximum Short Circuit Withstand Time	>40	μs
I_{sc}	Short Circuit Current	890	A
P_D	Maximum Power Dissipation ($T_C=25^\circ C$)	431	W
	Maximum Power Dissipation ($T_C=100^\circ C$)	172	W
T_J	Operating Junction Temperature Range	-55 to +150	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Max.	Units
R_{thj-c}	Thermal Resistance, Junction to case for IGBT	0.29	$^\circ C/W$
R_{thj-c}	Thermal Resistance, Junction to case for Diode	0.46	$^\circ C/W$
Weight	Weight of Module	150	g

Electrical Characteristics of IGBT ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{CES}	Collector-Emitter Breakdown Voltage	$V_{GE}=0V, I_C=250\mu A$	1200	-	-	V
I_{CES}	Collector-Emitter Leakage Current	$V_{CE}=1200V, V_{GE}=0V$	-	-	250	μA
I_{GES}	Gate Leakage Current, Forward	$V_{GE}=30V, V_{CE}=0V$	-	-	100	nA
	Gate Leakage Current, Reverse	$V_{GE}=-30V, V_{CE}=0V$	-	-	-100	nA
$V_{GE(th)}$	Gate Threshold Voltage	$V_{GE}=V_{CE}, I_C=250\mu A$	4.5	-	5.7	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE}=15V, I_C=100A$	-	2.1	2.4	V
Qg	Total Gate Charge	$V_{CC}=960V, V_{GE}=15V$ $I_C=100A$		870		nC
$t_{d(on)}$	Turn-on Delay Time	$V_{CC}=600V$ $V_{GE}=\pm 15V$ $I_C=100A$ $R_G=10\Omega$ Inductive Load $T_C=25^\circ\text{C}$	-	36	-	ns
t_r	Turn-on Rise Time		-	62	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	490	-	ns
t_f	Turn-off Fall Time		-	200	-	ns
Eon	Turn-on Switching Loss		-	8.25	-	mJ
Eoff	Turn-off Switching Loss		-	6.65	-	mJ
Ets	Total Switching Loss		-	14.9	-	mJ
C_{ies}	Input Capacitance	$V_{CE}=25V$	-	8000	-	pF
C_{oes}	Output Capacitance	$V_{GE}=0V$	-	1350	-	pF
C_{res}	Reverse Transfer Capacitance	$f=1\text{MHz}$	-	810	-	pF
R_{Gint}	Integrated gate resistor	$f=1\text{M}; V_{pp}=1V$		1.9		Ω

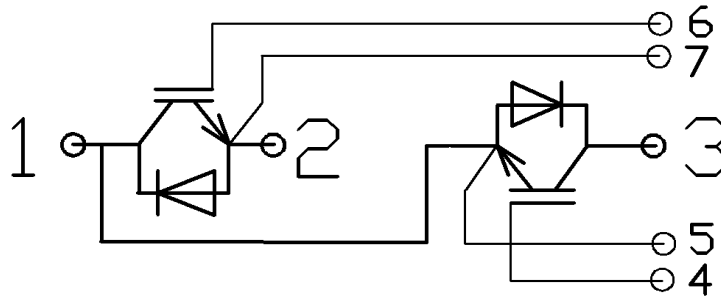
Electrical Characteristics of Diode ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_F	Diode Forward Voltage	$I_F=100A$	-	1.9		V
t_{rr}	Diode Reverse Recovery Time	$V_{CE}=600V$	-	155		ns
I_{rr}	Diode peak Reverse Recovery Current	$I_F=100A$	-	71		A
Q_{rr}	Diode Reverse Recovery Charge	$dI_F/dt=500A/\mu s$	-	5930		nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature

Internal Circuit:



Package Dimension

Dimensions in Millimeters

