

IGBT Module

1200V/200A 2 in one-package

Features

- 1200V200A, $V_{CE(sat)(typ.)}=2.1V@200A$
- Ultrafast switching speed
- Excellent short circuit ruggedness
- 62mm half bridge module



General Description

DAXIN's IGBTs offer lower losses and higher energy for application such as motor drive ,UPS, inverter and other soft switching applications.

Absolute Maximun Ratings

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GES}	Gate-Emitter Voltage	± 30	V
I_C	Continuous Collector Current ($T_C=25^{\circ}C$)	400	A
	Continuous Collector Current ($T_C=100^{\circ}C$)	200	A
I_{CM}	Pulsed Collector Current (Note 1)	400	A
I_F	Diode Continuous Forward Current ($T_C=100^{\circ}C$)	200	A
I_{FM}	Diode Maximum Forward Current (Note 1)	800	A
t_{sc}	Short Circuit Withstand Time	10	μs
$t_{sc(Max)}$	Maximum Short Circuit Withstand Time	>40	μs
I_{sc}	Short Circuit Current	1800	A
P_D	Maximum Power Dissipation ($T_C=25^{\circ}C$)	862	W
	Maximum Power Dissipation ($T_C=100^{\circ}C$)	344	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 per IGBT	0.29	$^{\circ}C/W$
R_{thj-c}	Thermal Resistance, Junction to case for per Diode	0.46	$^{\circ}C/W$
Weight	Weight of Module	340	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	$V_{GE}=15V, I_C=200A$	-	2.1	2.4	V
Qg	Total Gate Charge	$V_{CC}=960V, V_{GE}=15V$ $I_C=200A$		1740		nC
$t_{d(on)}$	Turn-on Delay Time	$V_{CC}=600V$ $V_{GE}=\pm 15V$ $I_C=200A$ $R_G=10\Omega$ Inductive Load $T_C=25^\circ\text{C}$	-	160	-	ns
t_r	Turn-on Rise Time		-	145	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	1044	-	ns
t_f	Turn-off Fall Time		-	128	-	ns
Eon	Turn-on Switching Loss		-	26	-	mJ
Eoff	Turn-off Switching Loss		-	18	-	mJ
Ets	Total Switching Loss		-	44	-	mJ
C_{ies}	Input Capacitance		$V_{CE}=25V$	-	17.5	-
C_{oes}	Output Capacitance	$V_{GE}=0V$	-	2.4	-	nF
C_{res}	Reverse Transfer Capacitance	$f=1\text{MHz}$	-	1.4	-	nF
R_{Gint}	Integrated gate resistor	$f=1\text{M}; V_{pp}=1V$		2.5		Ω

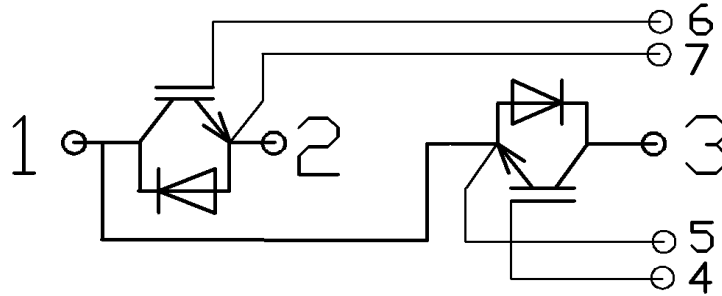
Electrical Characteristics of Diode ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_F	Diode Forward Voltage	$I_F=200A$	-	1.9		V
t_{rr}	Diode Reverse Recovery Time	$V_{CE}=600V$	-	158		ns
I_{rr}	Diode peak Reverse Recovery Current	$I_F=200A$	-	13.5		A
Q_{rr}	Diode Reverse Recovery Charge	$dI_F/dt=500A/\mu s$	-	9.5		μC

Notes:

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

Internal Circuit:



Package Dimension

Dimensions in Millimeters

