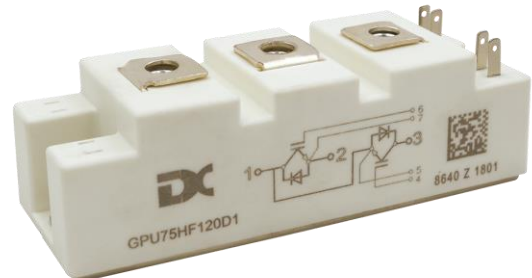


## IGBT Module

1200V/50A 2 in one-package

### Features

- 1200V50A,  $V_{CE(sat)(typ.)}=3.2V@50A$
- 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 Maximun Ratings

Symbol	Parameter	Value	Units
$V_{CES}$	Collector-Emitter Voltage	1200	V
$V_{GES}$	Gate-Emitter Voltage	$\pm 30$	V
$I_C$	Continuous Collector Current ( $T_C=25^\circ C$ )	100	A
	Continuous Collector Current ( $T_C=100^\circ C$ )	50	A
$I_{CM}$	Pulsed Collector Current (Note 1)	100	A
$I_F$	Diode Continuous Forward Current ( $T_C=100^\circ C$ )	50	A
$I_{FM}$	Diode Maximum Forward Current (Note 1)	200	A
$t_{sc}$	Short Circuit Withstand Time	10	$\mu s$
$t_{sc (Max)}$	Maximum Short Circuit Withstand Time	>40	$\mu s$
$I_{sc}$	Short Circuit Current	550	A
$P_D$	Maximum Power Dissipation ( $T_C=25^\circ C$ )	277	W
	Maximum Power Dissipation ( $T_C=100^\circ C$ )	111	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
$R_{th j-c}$	Thermal Resistance, Junction to case for IGBT	0.44	$^\circ C/W$
$R_{th j-c}$	Thermal Resistance, Junction to case for Diode	0.80	$^\circ C/W$
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	$\mu A$	
$I_{GES}$	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	$V_{GE}=15V, I_C=50A$	-	3.2	3.6	V	
Qg	Total Gate Charge	$V_{CC}=960V, V_{GE}=15V$ $I_C=50A$		430		nC	
$t_{d(on)}$	Turn-on Delay Time	$V_{CC}=600V$ $V_{GE}=\pm 15V$ $I_C=50A$ $R_G=10\Omega$ Inductive Load $T_C=25^\circ\text{C}$	-	18	-	ns	
$t_r$	Turn-on Rise Time		-	33	-	ns	
$t_{d(off)}$	Turn-off Delay Time		-	251	-	ns	
$t_f$	Turn-off Fall Time		-	121	-	ns	
Eon	Turn-on Switching Loss		-	2.65	-	mJ	
Eoff	Turn-off Switching Loss		-	1.15	-	mJ	
Ets	Total Switching Loss		-	3.80	-	mJ	
$C_{ies}$	Input Capacitance		$V_{CE}=25V$	-	3840	-	pF
$C_{oes}$	Output Capacitance		$V_{GE}=0V$	-	513	-	pF
$C_{res}$	Reverse Transfer Capacitance	$f=1\text{MHz}$	-	332	-	pF	
$R_{Gint}$	Integrated gate resistor	$f=1\text{M}; V_{pp}=1V$		2.2		$\Omega$	

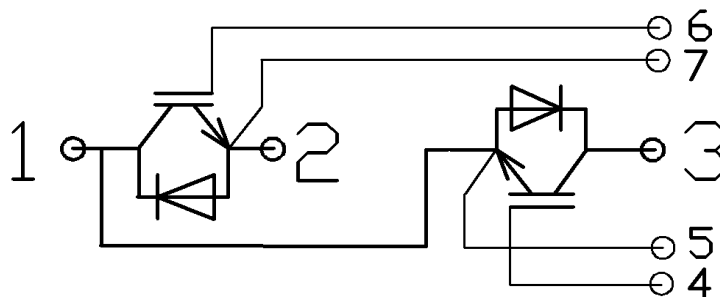
## Electrical Characteristics of Diode ( $T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_F$	Diode Forward Voltage	$I_F=50A$	-	2.3		V
$t_{rr}$	Diode Reverse Recovery Time	$V_{CE}=600V$	-	111		ns
$I_{rr}$	Diode peak Reverse Recovery Current	$I_F=50A$	-	64		A
$Q_{rr}$	Diode Reverse Recovery Charge	$dI_F/dt=500A/\mu s$	-	3472		nC

### Notes:

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

## Internal Circuit:



## Package Dimension

Dimensions in Millimeters

