

1200V/150A

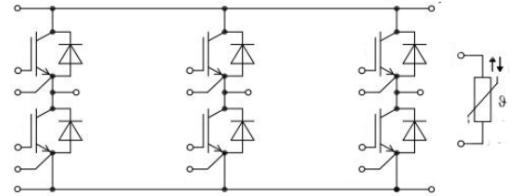
Features:

- 1200V150A, VCE(sat)(typ.)=2.10V
- Lower losses and higher energy
- Excellent short circuit ruggedness
- 62mm half bridge module



General Applications:

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



Equivalent Circuit Schematic

IGBT, Inverter Maximum Ratings of IGBT

V_{CES}	Collector to Emitter Voltage		1200	V
V_{GES}	Continuous Gate to Emitter Voltage		± 30	V
I_C	Continuous Collector Current	$T_C = 25^\circ\text{C}$	300	A
		$T_C = 100^\circ\text{C}$	150	
I_{CM}	Pulse Collector Current	$T_J = 150^\circ\text{C}$	300	A
P_D	Maximum Power Dissipation (IGBT)	$T_C = 25^\circ\text{C}, T_J = 150^\circ\text{C}$	980	W
t_{sc}	Short Circuit Withstand Time		> 10	μs
T_J	Maximum IGBT Junction Temperature		150	$^\circ\text{C}$
T_{JOP}	Maximum Operating Junction Temperature Range		-40 to +150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range		-40 to +125	$^\circ\text{C}$

Absolute Maximum Ratings of Freewheeling Diode

V_{RRM}	Repetitive Peak Reverse Voltage Preliminary Data		1200	V
I_F	Diode Continuous Forward Current	$T_C = 25^\circ\text{C}$	300	A
		$T_C = 100^\circ\text{C}$	150	
I_{FM}	Diode Maximum Forward Current		300	A

Electrical Characteristics of IGBT at $T_J = 25^\circ\text{C}$ (Unless Otherwise Specified)

Parameter		Test Conditions		Min	Typ	Max	Unit
BV _{CES}	Collector to Emitter Breakdown Voltage	V _{GE} = 0V, I _C = 1mA		1200			V
I _{CES}	Collector to Emitter Leakage Current	V _{GE} = 0V, V _{CE} = V _{CES}				1	mA
I _{GES}	Gate to Emitter Leakage Current	V _{GE} = ±30V, V _{CE} = 0V				100	nA
V _{GE(th)}	Gate Threshold Voltage	I _C = 1mA, V _{CE} = V _{GE}		4.5		5.5	V
V _{CE(sat)}	Collector to Emitter Saturation Voltage (Module Level)	I _C = 150A, V _{GE} = 15V	T _J = 25°C		2.10	2.30	V
			T _J = 125°C		2.50		

Switching Characteristics of IGBT

$t_{d(on)}$	Turn-on Delay Time	$V_{CC} = 600V$ $I_C = 150A$ $R_G = 10\ \Omega$ $V_{GE} = \pm 15V$ Inductive Load	$T_J = 25^{\circ}C$		140		ns
			$T_J = 125^{\circ}C$		150		
t_r	Turn-on Rise Time		$T_J = 25^{\circ}C$		100		ns
			$T_J = 125^{\circ}C$		110		
$t_{d(off)}$	Turn-off Delay Time		$T_J = 25^{\circ}C$		840		ns
			$T_J = 125^{\circ}C$		860		
t_f	Turn-off Fall Time		$T_J = 25^{\circ}C$		220		ns
			$T_J = 125^{\circ}C$		300		
E_{on}	Turn-on Switching Loss		$T_J = 25^{\circ}C$		18.5		mJ
			$T_J = 125^{\circ}C$		20.5		
E_{off}	Turn-off Switching Loss		$T_J = 25^{\circ}C$		11.5		mJ
			$T_J = 125^{\circ}C$		14.5		
Q_g	Total Gate Charge			$T_J = 25^{\circ}C$		1280	
R_{gint}	Integrated gate resistor	$f = 1M;$ $V_{pp} = 1V$	$T_J = 25^{\circ}C$		2.5		Ω
C_{ies}	Input Capacitance	$V_{CE} = 25V$ $V_{GE} = 0V$ $f = 1MHz$	$T_J = 25^{\circ}C$		12.0		nF
C_{oes}	Output Capacitance		$T_J = 25^{\circ}C$		1.86		
C_{res}	Reverse Transfer Capacitance		$T_J = 25^{\circ}C$		1.05		
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case (IGBT)					0.127	$^{\circ}C/W$

Electrical and Switching Characteristics of Freewheeling Diode

V _F	Diode Forward Voltage	I _F = 150A , V _{GE} = 0V	T _J = 25°C		1.90	2.20	V
			T _J = 125°C		1.90		
t _{rr}	Diode Reverse Recovery Time	I _F = 150A, di/dt=1900A/μs, V _{rr} = 600V,	T _J = 25°C		150		ns
			T _J = 125°C		280		
I _{rr}	Diode Peak Reverse Recovery Current		T _J = 25°C		140		A
			T _J = 125°C		160		
Q _{rr}	Diode Reverse Recovery Charge		T _J = 25°C		12.0		uC
			T _J = 125°C		20.5		
E _{rr}	Diode Reverse Recovery Energy		T _J = 25°C		3.5		mJ
			T _J = 125°C		7.00		
R _{θJC}	Thermal Resistance, Junction-to-Case (Diode)					0.301	°C/W

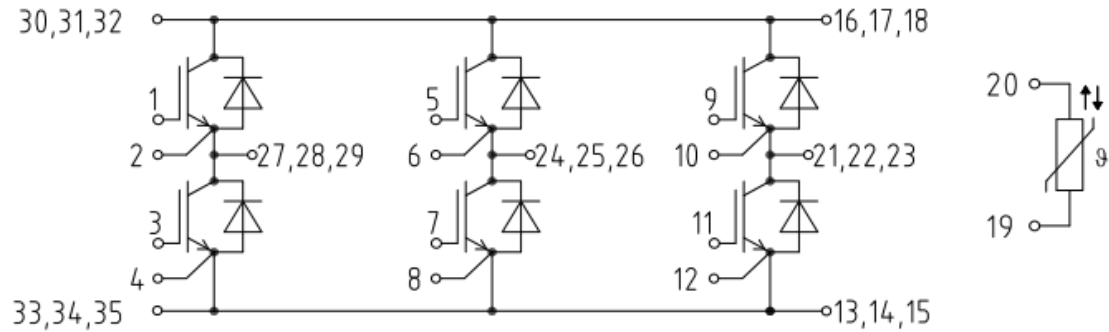
NTC - Thermistor Characteristic Values

R_{25}	$T_C = 25^\circ C$	5		$K\Omega$
$\Delta R/R$	$T_C = 100^\circ C, R_{100} = 493\Omega$		± 5	%
P_{25}	$T_C = 25^\circ C$	50		mW
$B_{25/50}$	$R_2 = R_{25} \exp[B_{25/50}(1/T_2 - 1/(298.15K))]$	3375		K
$B_{25/80}$	$R_2 = R_{25} \exp[B_{25/80}(1/T_2 - 1/(298.15K))]$	3410		K

Module Characteristics

Parameter		Min.	Typ.	Max.	Unit
V_{iso}	Isolation Voltage (All Terminals Shorted), $f = 50Hz$, 1minute			2500	V
$R_{\theta CS}$	Case-To-Sink(Conductive Grease Applied)		0.1		$^\circ C/W$
M	Mounting Screw: M5	3.0		6.0	N·m
G	Weight		310		g

Internal Circuit:



Package Dimension
Dimensions in Millimeters

