G100HF65D1

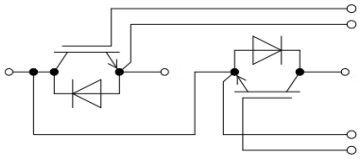
650V 100A IGBT Module

Features：

- 650V100A,VCE(sat)(typ.)=1.80V
- Low inductive design
- Lower losses and higher energy
- Field Stop IGBT Technology
- Excellent short circuit ruggedness

General Applications：

- Auxiliary Inverter
- Inductive Heating and Welding
- Solar Applications
- UPS Systems



Equivalent Circuit Schematic

Absolute Maximum Ratings of IGBT

V_{CES}	Collector to Emitter Voltage		650	V
V_{GES}	Continuous Gate to Emitter Voltage		±30	V
I_C	Continuous Collector Current	T_C = 25°C	200	A
		T_C = 100°C	100	
I_{CM}	Pulse Collector Current	T_J = 150°C	200	A
P_D	Maximum Power Dissipation (IGBT)	T_C = 25°C, T_J = 150°C	390	W
t_{sc}	Short Circuit Withstand Time		> 10	μs
T_J	Maximum IGBT Junction Temperature		150	°C
T_{JOP}	Maximum Operating Junction Temperature Range		-40 to +150	°C
T_{stg}	Storage Temperature Range		-40 to +125	°C

Absolute Maximum Ratings of Freewheeling Diode

V_{RRM}	Repetitive Peak Reverse Voltage Preliminary Data		650	V
I_F	Diode Continuous Forward Current	T_C = 25°C	200	A
	Diode Continuous Forward Current	T_C = 100°C	100	
I_{FM}	Diode Maximum Forward Current		200	A

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Electrical Characteristics of IGBT at T_J = 25°C (Unless Otherwise Specified)

Parameter		Test Conditions		Min	Typ	Max	Unit
BV_{CES}	Collector to Emitter Breakdown Voltage	V_{GE} = 0V, I_C = 1mA		650			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				200	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 = 100A, V_{GE} = 15V	T_J = 25°C		1.80	2.00	V
			T_J = 125°C		2.00		

Switching Characteristics of IGBT

$t_{d(on)}$	Turn-on Delay Time	V_{CC} = 400V I_C = 100A R_G = 10Ω V_{GE} = ±15V Inductive Load	T_J = 25°C		60		ns
t_r	Turn-on Rise Time		T_J = 25°C		55		ns
$t_{d(off)}$	Turn-off Delay Time		T_J = 25°C		210		ns
t_f	Turn-off Fall Time		T_J = 25°C		65		ns
E_{on}	Turn-on Switching Loss		T_J = 25°C		1.2		mJ
E_{off}	Turn-off Switching Loss		T_J = 25°C		1.0		mJ
Q_g	Total Gate Charge		T_J = 25°C		500		nC
R_{gint}	Integrated gate resistor	f = 1M; Vpp = 1V	T_J = 25°C		6.90		Ω
C_{ies}	Input Capacitance	V_{CE} = 25V V_{GE} = 0V f = 1MHz	T_J = 25°C		3.90		nF
C_{oes}	Output Capacitance		T_J = 25°C		0.35		
C_{res}	Reverse Transfer Capacitance		T_J = 25°C		0.25		
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case (IGBT)					0.32	°C/W

Electrical and Switching Characteristics of Freewheeling Diode

V_F	Diode Forward Voltage	I_F = 100A , V_{GE} = 0V	T_J = 25°C		1.35		V
			T_J = 125°C		1.20		
t_{rr}	Diode Reverse Recovery Time	I_F = 100A, di/dt = 550A/μs, V_{rr} = 400V,	T_J = 25°C		80		ns
I_{rr}	Diode Peak Reverse Recovery Current		T_J = 25°C		30		A
Q_{rr}	Diode Reverse Recovery Charge		T_J = 25°C		6.2		uC
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case (Diode)					0.75	°C/W

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		°C/W
M	Power Terminals Screw: M5	3.0		5.0	N·m
M	Mounting Screw: M6	4.0		6.0	N·m
G	Weight		160		g

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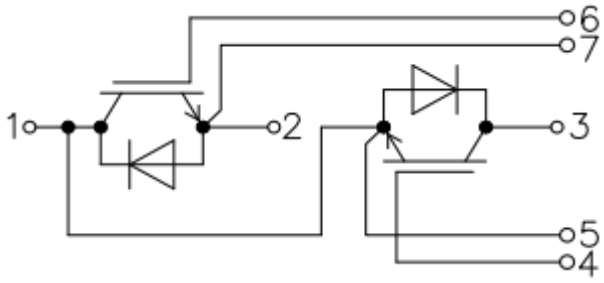
Internal Circuit:



Package Dimension