

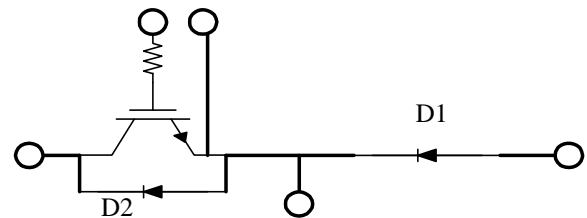
Description:

Powerex IGBT modules are designed for use in switching applications. Each Module consists of one IGBT transistor and one super fast recovery diode in a chopper configuration. All components are encapsulated in a plastic package are electrically isolated from the heat sinking base plate, offering simplified system assembly and thermal management.

Features:

- ◆ Low Drive Power
- ◆ Low $V_{CE(sat)}$
- ◆ Discrete Super-Fast Recovery (70ns) Diodes
- ◆ High Frequency Operation (20-25kHz)
- ◆ Isolated Base plate for Easy Heat sinking

Schematic:



Applications:

- ◆ DC Motor Control
- ◆ Power Supplies

Ordering Information:

Contact Powerex Custom Modules

Maximum Ratings, T_j=25°C unless otherwise specified

Ratings	Symbol		Units
Collector Emitter Voltage	V _{CES}	600	Volts
Gate Emitter Voltage	V _{GES}	±20	Volts
Collector Current	I _C	200	Amperes
Peak Collector Current	I _{CM}	400*	Amperes
Diode Forward Current (D1)	I _{FM}	300	Amperes
Diode Forward Surge Current (D1)	I _{FM}	600*	Amperes
Power Dissipation	P _d	1100	Watts
V Isolation	V _{RMS}	2500	Volts

Static Electrical Characteristics, T_j=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Collector Cutoff Current	I _{CES}	V _{CE} =V _{CES}			1.0	mA
Gate Leakage Current	I _{GES}	V _{CE} =0V			0.5	μA
Gate-Emitter Threshold Voltage	V _{GE(th)}	I _C =20mA, V _{CE} =10V	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C =200A, V _{GE} =15V		2.1	2.8	Volts
	V _{CE(sat)}	I _C =200A, V _{GE} =15V, T _j =150°C		2.15		Volts
Total Gate Charge	Q _G	V _{CC} =300V, I _C =200A, V _{GS} =15V		600		nC
Diode Forward Voltage (D1)	V _{FM}	I _E =300A, V _{GS} =0V			2.8	Volts

Dynamic Electrical Characteristics, T_j=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Input Capacitance	C _{ies}	V _{GE} =0V			20	nF
Output Capacitance	C _{oes}	V _{CE} =10V			7	nF
Reverse Transfer Capacitance	C _{res}	f=1MHz			4	nF
Turn on Delay time	t _{d(on)}	V _{CC} =300V			200	nS
Rise Time	t _r	I _C =200A			550	nS
Turn off delay time	t _{d(off)}	V _{GE1} =V _{GE2} =15V			300	nS
Fall Time	t _f	R _G =3.1Ω			300	nS
Diode Reverse Recovery Time	t _{rr}	I _E =200A			110	nS
Diode reverse Recovery Charge	Q _{rr}	di _E /dt=- 400A/μS		0.54		μC

Thermal and Mechanical Characteristics, T_j=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Thermal Resistance, Junction to Case	R _{θJC}	Per IGBT			0.16	°C/W