

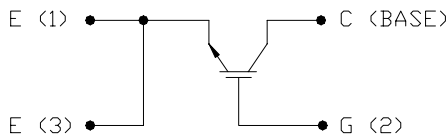
Outline



Description:
Powerex Single Non-Isolated Discrete IGBT designed specially for customer high voltage applications.

Features:

- Low Drive Requirement
- Low $V_{CE(sat)}$
- Molybdenum Mounting Plate
- Surface Mount



Schematic

Maximum Ratings, T_j=25°C unless otherwise specified

Ratings	Symbol	QIS4506002	Units
Collector Emitter Voltage	V _{CEs}	4500	Volts
Gate Emitter Voltage	V _{GES}	±20	Volts
Collector Current (Continuous)	I _C	60	Amperes
Peak Collector Current (Pulsed)	I _{CM}	120*	Amperes
Junction Temperature	T _j	-55 to 150	°C
Storage Temperature	T _{stg}	-55 to 125	°C
Mounting Torque, M5 Mounting Screws	-	30	In-lb
Weight (Typical)	-	20	Grams

*Pulse width and repetition rate should be such that device junction temperature does not exceed device rating.

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} V _{GE} =0V	-	-	1.0	mA
Gate Leakage Current	I _{GES}	V _{GE} =V _{GES} V _{CE} =0V	-	-	0.5	µA
Gate-Emitter Threshold Voltage	V _{GE(th)}	I _C =7mA, V _{CE} =10V	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C =67A, V _{GE} =15V	-	3.0	3.9*	Volts
		I _C =67A, V _{GE} =15V, T _j =125°C	-	3.6	-	Volts
Total Gate Charge	Q _G	V _{CC} =2250V, I _C =67A, V _{GS} =15V	-	800	-	nC

*Pulse width and repetition rate should be such that device junction temperature rise is negligible.

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	-	10	-	nF
Output Capacitance	C _{oes}	V _{CE} =10V	-	.7	-	nF
Reverse Transfer Capacitance	C _{res}	f=1MHz	-	.2	-	nF
Turn on Delay time	t _{d(on)}	V _{CC} =2250V	-	-	2.4	µs
Rise Time	t _r	I _C =67A	-	-	2.4	µs
Turn- off Delay Time	t _{d(off)}	V _{GE1} =V _{GE2} =15V	-	-	6.0	µs
Fall Time	t _f	R _G =120Ω	-	-	1.2	µs

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}	IGBT	-	0.05	-	°C/W
Thermal Resistance, Case to Sink	R _{θCS}	IGBT	-	TBD	-	°C/W