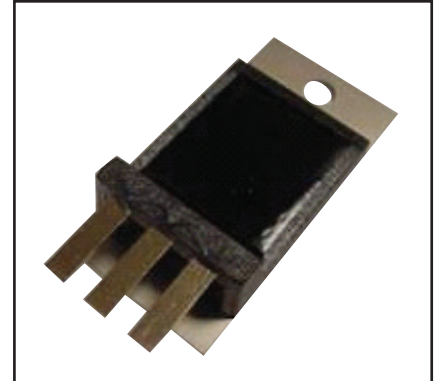
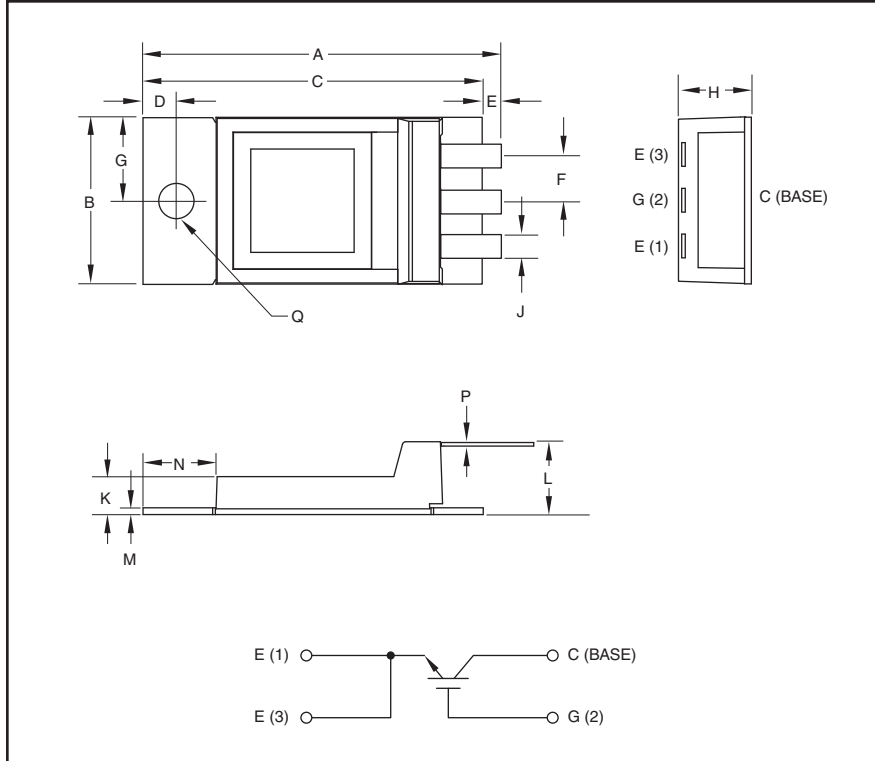


Single Discrete IGBT
100 Amperes/2500 Volts



Description:

Powerex Single Non-isolated Discrete is designed specially for customer high voltage switching and pulse power applications.

Features:

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

Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	2.11	53.6
B	0.98	25.0
C	2.01	51.0
D	0.2	5.0
E.	0.1	2.5
F	0.27	6.9
G	0.49	12.5
H	0.46 Max.	11.8 Max.

Dimensions	Inches	Millimeters
J	0.14	3.6
K	0.22	5.7
L	0.43	10.8
M	0.04	1.0
N	0.43	10.9
P	0.02	0.5
Q	0.21 Dia.	5.3 Dia.

QIS2510001
Single Discrete IGBT
 100 Amperes/2500 Volts

Maximum Ratings, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Ratings	Symbol	QIS2510001	Units
Collector Emitter Voltage	V_{CES}	2500	Volts
Gate Emitter Voltage	V_{GES}	± 20	Volts
Collector Current (DC, $T_C = 127^\circ\text{C}$)	I_C	100	Amperes
Peak Collector Current (Pulsed)	I_{CM}	200*	Amperes
Junction Temperature	T_j	-55 to 150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to 125	$^\circ\text{C}$
Mounting Torque, M5 Mounting Screws	—	30	in-lb
Weight (Typical)	—	20	Grams

Static Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	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	$V_{GE(th)}$	$I_C = 10\text{mA}, V_{CE} = 10V$	4.5	6.0	7.5	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{A}, V_{GE} = 15V, T_j = 25^\circ\text{C}$	—	3.20	4.20**	Volts
		$I_C = 100\text{A}, V_{GE} = 15V, T_j = 125^\circ\text{C}$	—	3.60	—	Volts
Total Gate Charge	Q_G	$V_{CC} = 1250V, I_C = 100\text{A}, V_{GE} = 15V$	—	450	—	nC

Dynamic Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Capacitance	C_{ies}	$V_{GE} = 0V, V_{CE} = 10V$	—	10	—	nF
Output Capacitance	C_{oes}		—	1.1	—	nF
Reverse Transfer Capacitance	C_{res}		—	330	—	pF
Resistive Load	Turn-on Delay Time	$V_{CC} = 1250V,$ $I_C = 100\text{A},$	—	—	TBD	μs
	Rise Time		t_r	—	—	TBD
Switching Times	Turn-off Delay Time	$V_{GE1} = V_{GE2} = 15V,$ $R_G = 30\Omega$	—	—	TBD	μs
	Fall Time		t_f	—	—	TBD
Turn-on Switching Energy	E_{on}	$T_j = 125^\circ\text{C}, I_C = 100\text{A}, V_{CC} = 1250V,$	—	125	—	mJ/P
Turn-off switching Energy	E_{off}	$V_{GE} = \pm 15V, R_G = 30\Omega, \text{Inductive Load}$	—	100	—	mJ/P

Thermal and Mechanical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

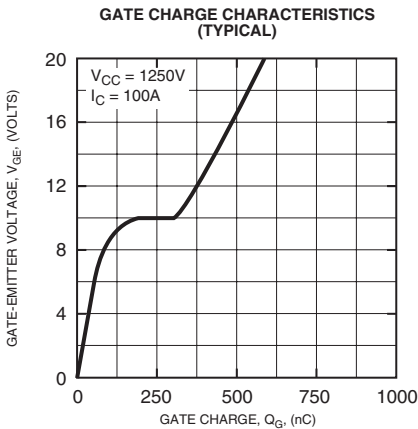
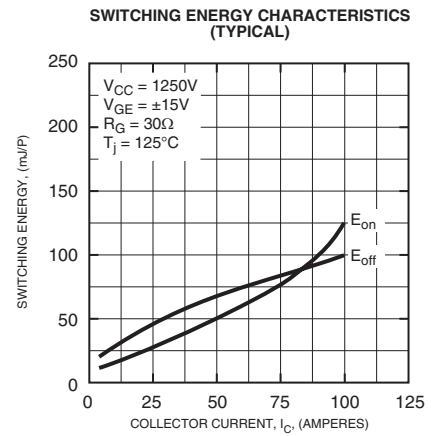
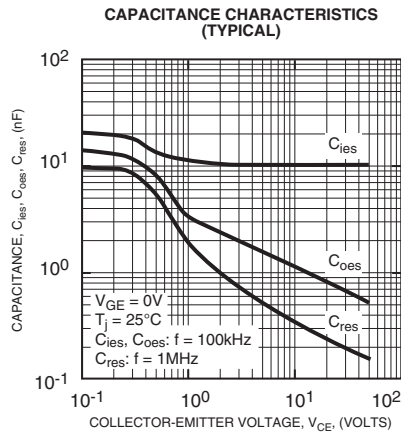
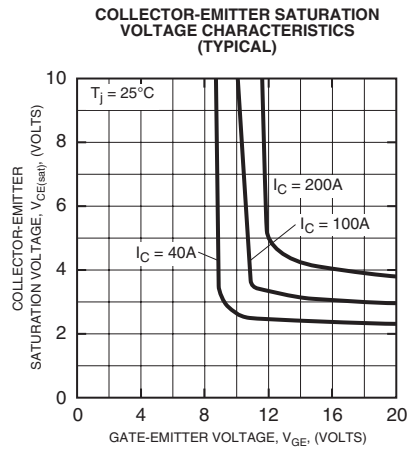
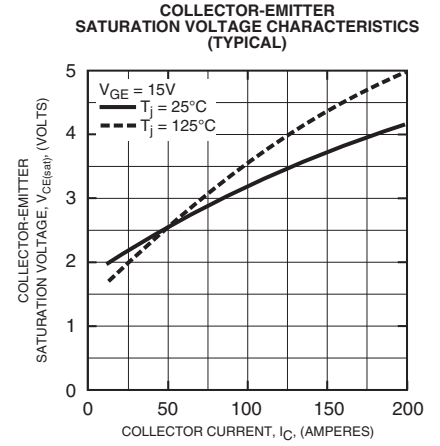
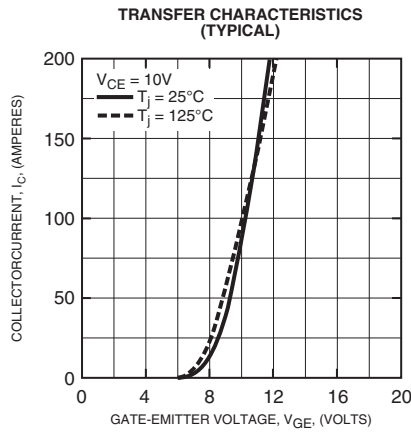
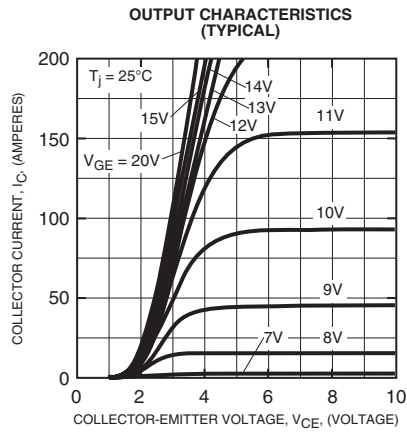
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	IGBT	—	0.10	TBD	$^\circ\text{C/W}$
Thermal Resistance, Case to Sink	$R_{th(c-s)}$	$\lambda_{grease} = 1\text{W/mK}$	—	0.10	—	$^\circ\text{C/W}$

Thermal Grease Applied

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

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

QIS2510001
Single Discrete IGBT
 100 Amperes/2500 Volts



Information presented is based upon manufacturers testing and projected capabilities. This information is subject to change without notice. The manufacturer makes no claim as to the suitability of use, reliability, capability, or future availability of this product.