

TECHNICAL DATA
DATA SHEET 4205, REV-

600 VOLT, 70 AMP IGBT DEVICE
VERY HIGH SPEED
WITH ULTRAFAST REVERSE RECOVERY DIODE

ELECTRICAL CHARACTERISTICS

(T_j=25°C UNLESS OTHERWISE SPECIFIED)

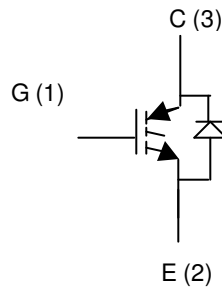
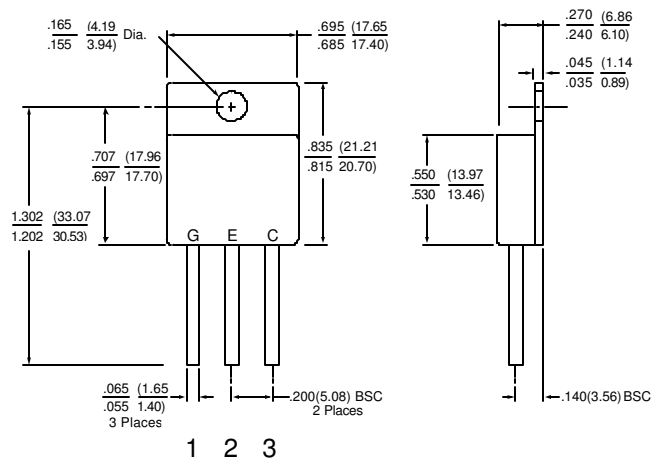
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
IGBT SPECIFICATIONS					
Collector to Emitter Breakdown Voltage I _C = 250 μA, V _{GE} = 0V	BV _{CES}	600	-	-	V
Continuous Collector Current T _C = 25 °C T _C = 90 °C	I _C	-	-	45 ⁽¹⁾ 30	A
Pulsed Collector Current, 1msec	I _{CM}	-	-	150	A
Gate to Emitter Voltage	V _{GE}	-	-	+/-20	V
Gate-Emitter Leakage Current, V _{GE} = +/-20V	I _{GES}	-	-	+/- 100	nA
Gate Threshold Voltage, I _C = 250 μA	V _{GE(TH)}	2.5	-	5.0	V
Zero Gate Voltage Collector Current V _{CE} = 600 V, V _{GE} =0V T _i =25°C V _{CE} = 480 V, V _{GE} =0V T _i =125°C	I _{CES}	- -	- -	0.2 3.0	mA mA
Collector to Emitter Saturation Voltage, °C I _C = 24A, V _{GE} = 15V, °C T _C = 25 T _C = 125	V _{CE(SAT)}	-	2.2 2.0	2.5 -	V
Input Capacitance Output Capacitance Reverse Transfer Cap. V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz	C _{ies} C _{oes} C _{res}	-	1500 145 40	-	pF
Turn On Delay Time Rise Time Turn Off Delay Time Fall Time Turn off Energy Loss (T _j = 125 °C, I _C = 24A, V _{GE} = 15V, inductive load, V _{CC} = 400 V, R _G = 5 Ω	t _{d(on)} t _r t _{d(off)} t _f E _{off} E _{on}	- - - -	13 17 130 80 0.38 0.22	- - - -	nsec mJ mJ
Maximum Thermal Resistance	R _{θJC}	-	-	0.85	°C/W
Maximum and Storage Junction Temperature	T _{jmax}	-55	-	150	°C

ULTRAFAST DIODE RATING AND CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Diode Peak Inverse Voltage	PIV	600	-	-	V
Continuous Forward Current, $T_C = 25\text{ }^{\circ}\text{C}$ $T_C = 90\text{ }^{\circ}\text{C}$	I_F	-	-	45 ⁽¹⁾ 30	A
Forward Surge Current, $t_p = 8.3\text{ msec}$	I_{FSM}	-	-	300	A
Diode Forward Voltage, $I_F = 30\text{A}$ $T_C = 25\text{ }^{\circ}\text{C}$ $T_C = 125\text{ }^{\circ}\text{C}$	V_F	- -	1.7 -	1.8 1.7	V
Diode Reverse Recovery Time Diode Reverse Recovery Current ($I_F = 30\text{A}$, $V_{RR} = 100\text{V}$, $di/dt = 100\text{ A}/\mu\text{s}$) $T_C = 100\text{ }^{\circ}\text{C}$	t_{rr} I_{RM}	- -	100 -	140 4	nsec A
Maximum Thermal Resistance	$R_{\theta JC}$	-	-	1.0	$^{\circ}\text{C}/\text{W}$
Maximum and Storage Junction Temperature	T_{jmax}	-55	-	150	$^{\circ}\text{C}$

(1) Current is limited by package leads to 45A; Die ratings are 70A.

Schematic Diagram:

Package Drawing:
(TO258)

TECHNICAL DATA

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