"HALF-BRIDGE" IGBT

V_{CES} = 600V
Ic = 100A
$V_{CE(ON)}$ typ. = 2.2V
@ Ic = 100A

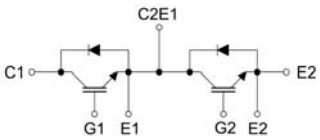
Features

- 10μs short circuit capability
- Low turn-off losses
- Short tail current

Applications

- AC & DC motor controls
- General purpose inverters
- Optimized for high current inverter stages (AC TIG welding machines)
- Servo controls
- UPS
- Robotics

Package : V1



Absolute Maximum Ratings @ Tc = 25℃ (per leg)

Symbol	Parameter	Test condition	Rating	Unit
V_{CES}	Collector-to-Emitter Voltage	V_{GE} = 0V, I_C = 250μA	600	V
V_{GES}	Gate emitter voltage		± 20	V
I_C	Continuous Collector Current	Tc = 70℃ (25℃)	100(130)	A
I_{CM}	Pulsed collector current	Tc = 70℃ (25℃)	200(260)	A
I_F	Diode Continuous Forward Current	Tc = 70℃ (25℃)	80(100)	A
I_{FM}	Diode Maximum Forward Current		200	A
T_{SC}	Short Circuit Withstand Time	Tc = 100℃	10	μs
V_{iso}	Isolation Voltage test	AC 1 minute	2500	V
T_j	Junction Temperature		-40 ~ 150	℃
T_{stg}	Storage Temperature		-40 ~ 125	℃
Weight	Weight of Module		190	g
Mounting Torque	Power Terminal Screw : M5		3.5	Nm
	Terminal connection Screw : M5		3.5	Nm

Electrical Characteristics @ Tj = 25℃ (unless otherwise specified)

Symbol	Parameter	Min	Typ	Max	Unit	Test condition
$V_{(BR)CES}$	Collector-to-Emitter Breakdown Voltage	600	-	-	V	V_{GE} = 0V, I_C = 250μA
$V_{CE(ON)}$	Collector-to-Emitter Saturation Voltage	-	2.2	2.7		I_C = 100A, V_{GE} = 15V
$V_{GE(th)}$	Gate Threshold Voltage	3.0	4.5	6.0		V_{CE} = V_{GE}, I_C = 250μA
I_{CES}	Zero Gate Voltage Collector Current	-	-	500	μA	V_{GE} = 0V, V_{CE} = 600V
I_{GES}	Gate-to-Emitter Leakage Current	-	-	±100	nA	V_{CE} = 0V, V_{GE} = ±20V
V_{FM}	Diode Forward Voltage Drop	-	1.6	1.9	V	I_C = 100A

Switching Characteristics @ Tj = 25℃ (unless otherwise specified)

Symbol	Parameter	Min	Typ	Max	Unit	Test condition
C_{ies}	Input capacitance	-	6900	-	pF	V_{CE} = 30V, V_{GE} = 0V f = 1.0MHz
C_{oss}	Output capacitance	-	730	-		
C_{res}	Reverse transfer capacitance	-	190	-		
$t_{d(on)}$	Turn-on delay time	-	82	-	ns	T_j = 25℃, V_{CC} = 480V I_C = 60A, V_{GE} = 15V R_G = 5.0Ω
t_r	Rise time	-	107	-		
$t_{d(off)}$	Turn-off delay time	-	282	423		
t_f	Fall time	-	97	146		
I_{rr}	Diode Peak Reverse Recovery current	-	13	20	A	T_j = 125℃, V_R = 200V I_F = 60A
t_{rr}	Diode Reverse Recovery time	-	140	210	ns	

Thermal Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
$R_{\Theta JC}$	Junction-to-Case (IGBT Part, Per 1/2 Module)	-	-	0.31	℃/W
$R_{\Theta JC}$	Junction-to-Case (Diode Part, Per 1/2 Module)	-	-	0.7	
$R_{\Theta CS}$	Case-to-Heat Sink (Conductive grease applied)	-	0.05	-	

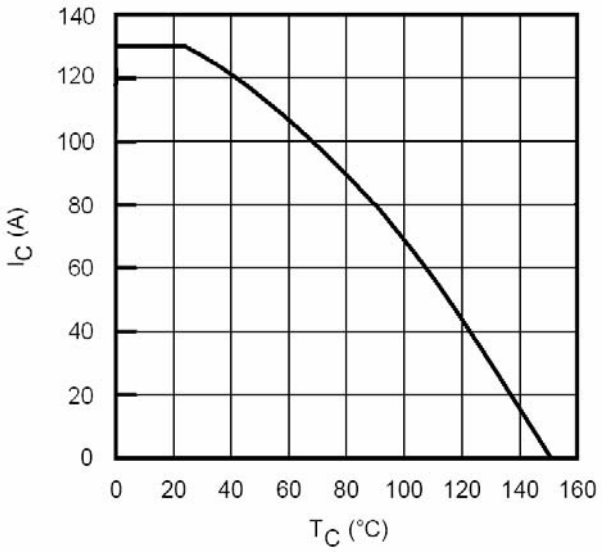


Fig 1. Maximum DC Collector Current vs. Case Temperature

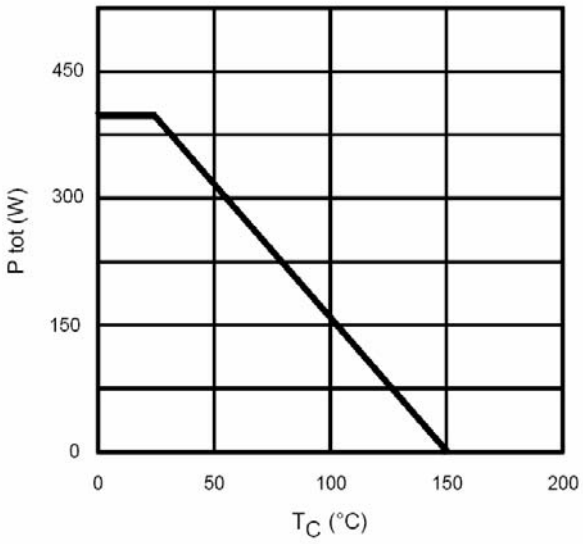


Fig 2. Power Dissipation vs. Case Temperature

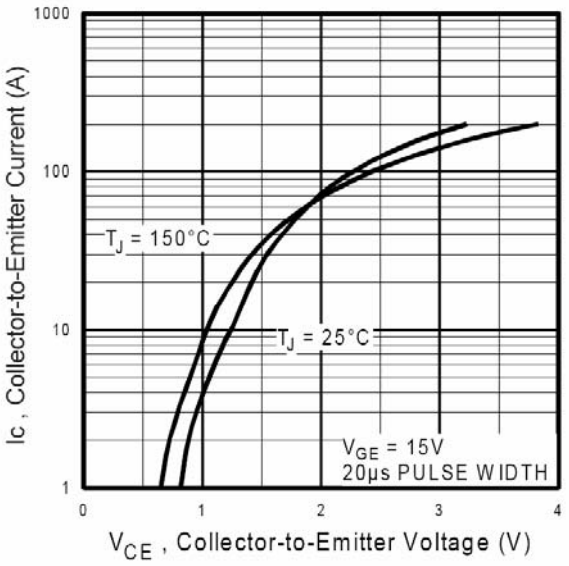


Fig 3. Typ. IGBT Output Characteristics

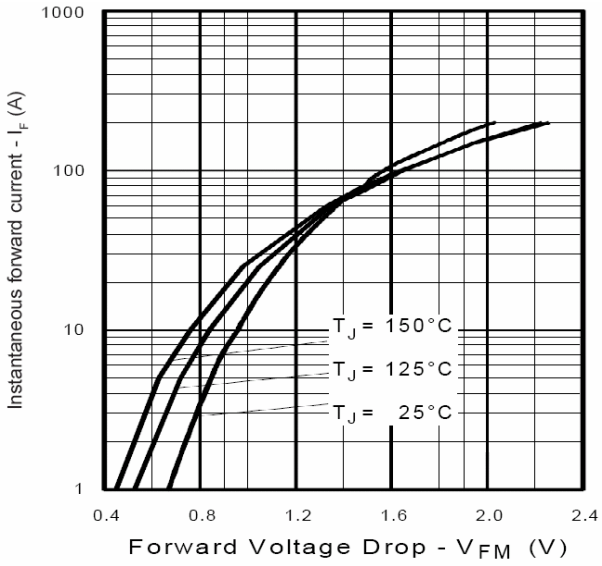


Fig 4. Maximum Forward Voltage Drop vs. Instantaneous Forward Current

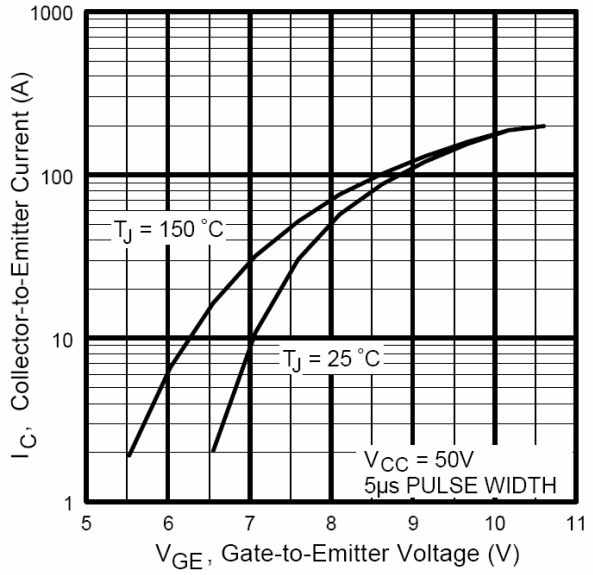


Fig 5. Typical Transfer Characteristics

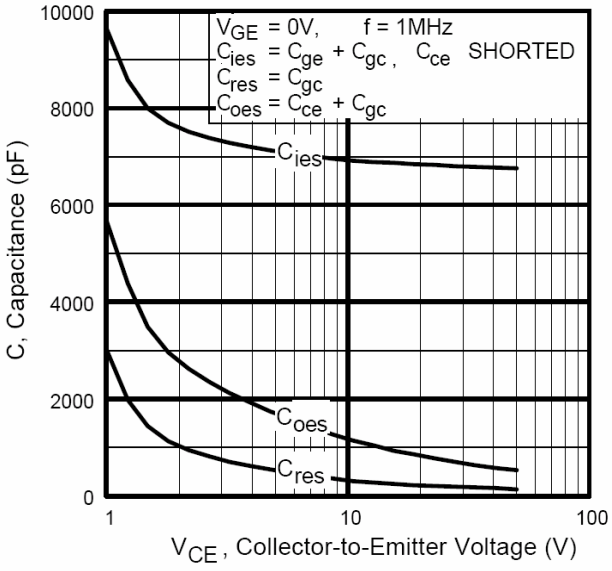


Fig 6. Typ. Capacitance vs. V_{CE}

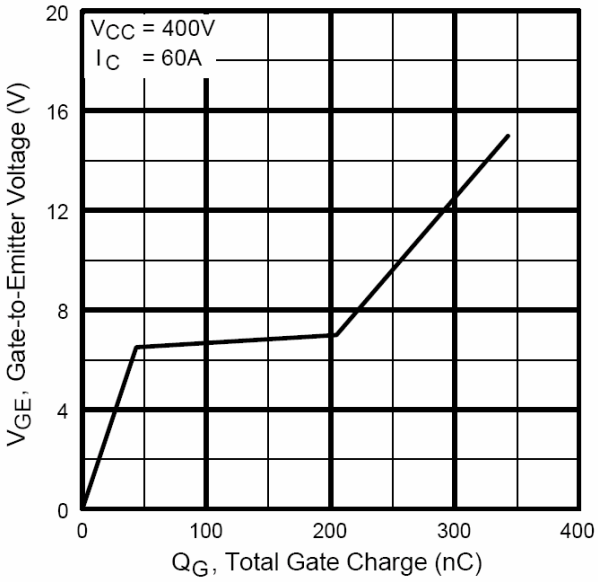


Fig 7. Typical Gate Charge vs. V_{GE}

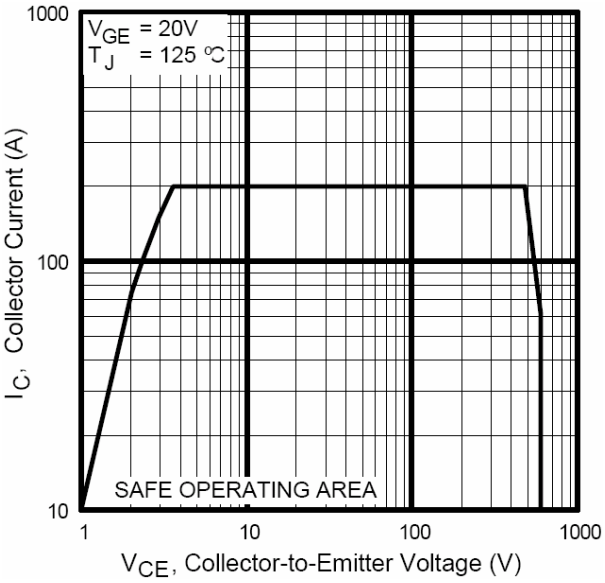


Fig 8. Turn-off SOA

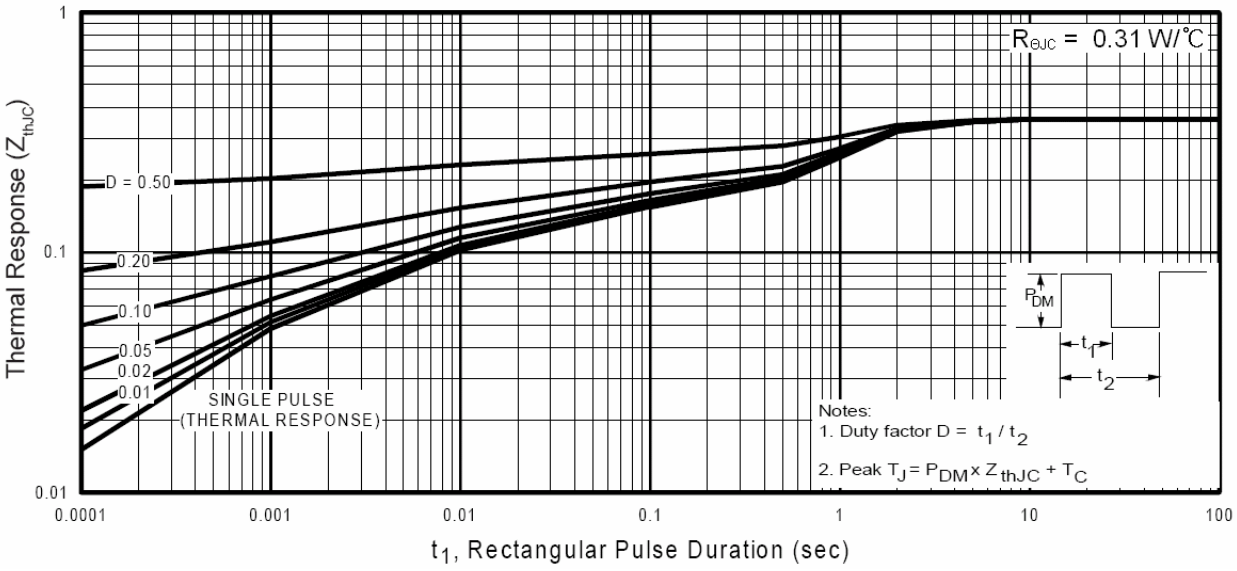
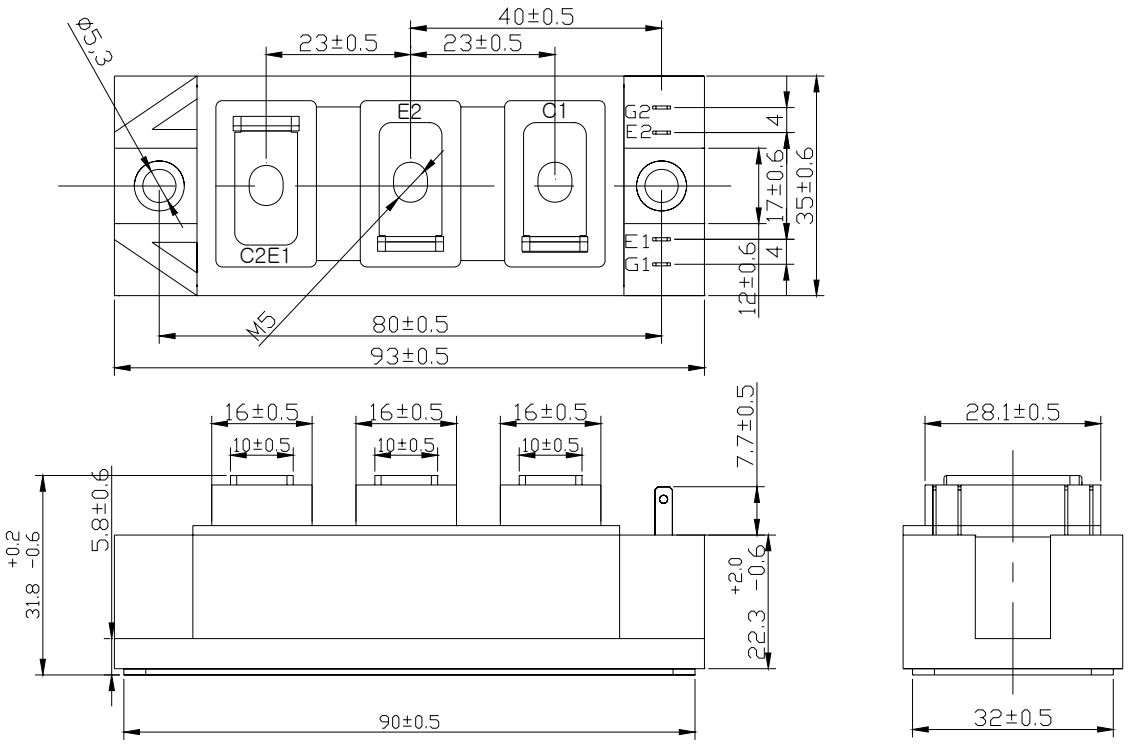


Fig 9. Maximum Effective Transient Thermal Impedance, Junction-to-Case

Package Outline (dimensions in mm)



Data and specifications subject to change without notice. May 2006

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