"HALF-BRIDGE" IGBT MODULE

V_{CES} = 600V
Ic=150A
$V_{CE(ON)}$ typ. = 1.5V
@Ic=150A

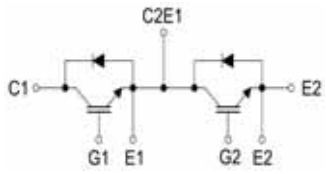
Feature

- Smart field stopper + Trench design technology
- Low V_{CE} (sat)
- Low Turn-off losses
- Short tail current for over 20KHz

Applications

- Motor controls
- VVVF inverters
- Inverter-type welding MC over 18KHZ
- SMPS, Electrolysis
- UPS/EPS, Robotics

Package : V1



Absolute Maximum Ratings @ Tj=25℃ (Per Leg)

Symbol	Parameter	Condition	Ratings	Unit
V_{CES}	Collector-to-Emitter Voltage	Tc = 25℃	600	V
V_{GES}	Gate emitter voltage		± 20	V
I_C	Continuous Collector Current	Tc = 80℃ (25℃)	150 (210)	A
I_{CP}	Pulsed collector current	Tc = 25℃	300	A
I_F	Diode Continuous Forward Current	Tc = 80℃ (25℃)	150 (210)	A
I_{FM}	Diode Maximum Forward Current	Tc = 25℃	300	A
t_p	Short circuit test, V_{GE} = 15V, V_{CC} = 360V	Tc = 150℃ (25℃)	6 (8)	μs
V_{iso}	Isolation Voltage test	AC @ 1 minute	2500	V
Tj	Junction Temperature		-40 ~ 150	℃
Tstg	Storage Temperature		-40 ~ 125	℃
Weight	Weight of Module		190	g
Md	Mounting torque with screw : M5		2.0	N.m
Td	Terminal connection torque : M5		2.0	N.m

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

Parameters		Min	Typ	Max	Unit	Test conditions
$V_{CE(ON)}$	Collector-to-Emitter Saturation Voltage		1.50	1.95	V	I_C = 150A, V_{GE} = 15V
$V_{GE(th)}$	Gate Threshold Voltage		5.8	6.5		V_{CE} = V_{GE}, I_C = 4mA
I_{CES}	Zero Gate Voltage Collector Current	—	—	5.0	mA	V_{GE} = 0V, V_{CE} = 600V
I_{GES}	Gate-to-Emitter Leakage Current	—	—	400	nA	V_{CE} = 0V, V_{GE} = 20V
V_F	Forward voltage drop		1.6	1.9	V	I_F = 150A
R_{GINT}	Integrated gate resistor	—	2	—	Ω	

Electrical Characteristic Values (IGBT / DIODE) @ Tj = 25℃ (unless otherwise specified)

Parameters		Min	Typ	Max	Unit	Test conditions
C_{iss}	Input capacitance	—	9200	—	pF	V_{CE} = 25V, V_{GE} = 0V f = 1 MHz
C_{oss}	Output capacitance	—	580	—		
C_{rss}	Reverse transfer capacitance	—	270	—		
$t_{d(on)}$	Turn-on delay time	—	125	—	ns	Inductive Switching (125°C) V_{CC} = 300V I_C = 150A, V_{GE} = ±15V R_G = 3.3Ω
tr	Rise time	—	30	—		
$t_{d(off)}$	Turn-off delay time	—	340	—		
tf	Fall time	—	60	—		
V_{BR}	Cathode-Anode breakdown Voltage	600	650	—	V	
I_{RM}	Maximum Reverse Leakage Current	—	—	250	μA	V_R = 600V
t_{rr}	Reverse Recovery Time	—	130	—	ns	I_F = 150A, V_R = 300V di / dt = 2100A /μs
Qrr	Reverse Recovery Charge	—	6.9	—	uC	

Thermal Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
$R_{\Theta JC}$	Junction-to-Case (IGBT Part, Per 1/2 Module)	-	-	0.44	°C/W
$R_{\Theta JC}$	Junction-to-Case (Diode Part, Per 1/2 Module)	-	-	0.77	
$R_{\Theta CS}$	Case-to-Heat Sink (Conductive grease applied)	-	0.05	-	

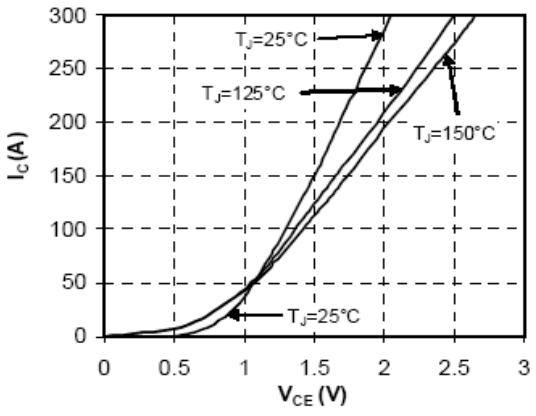


Fig 1. Typ. IGBT Output Characteristics

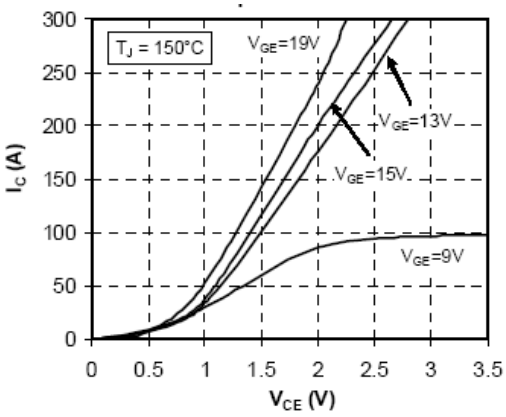


Fig 2. Typ. IGBT Out Characteristics

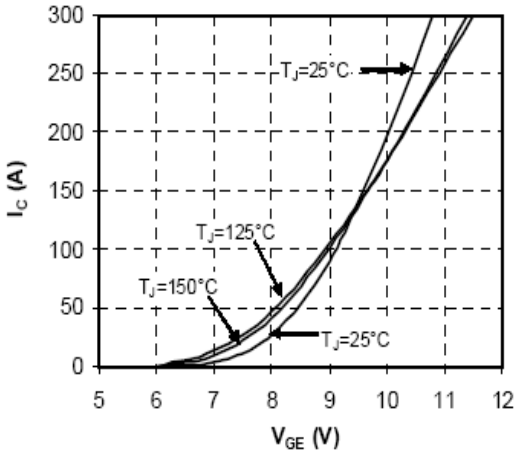


Fig 3. Typ. Transfer Characteristics

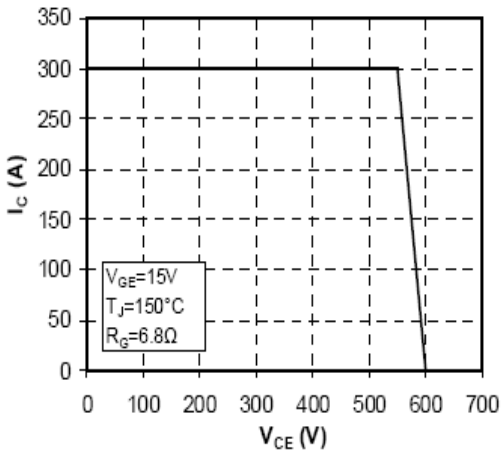


Fig 4. Reverse Bias Operating Area

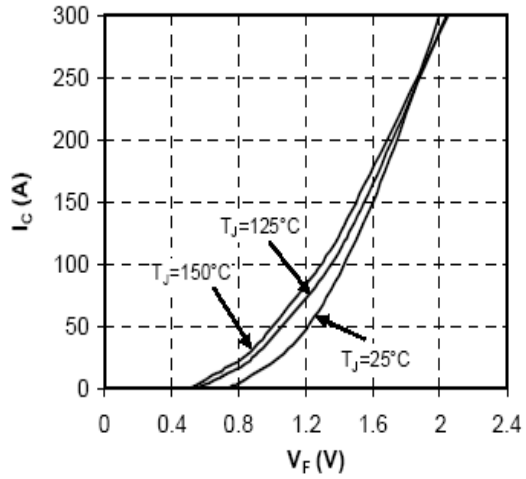


Fig 5. Forward Characteristics of Diode

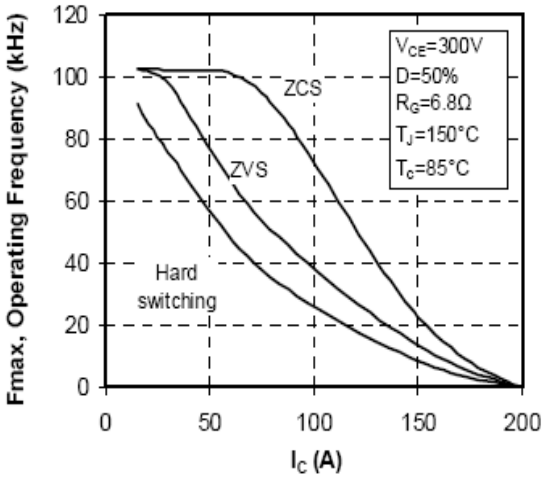
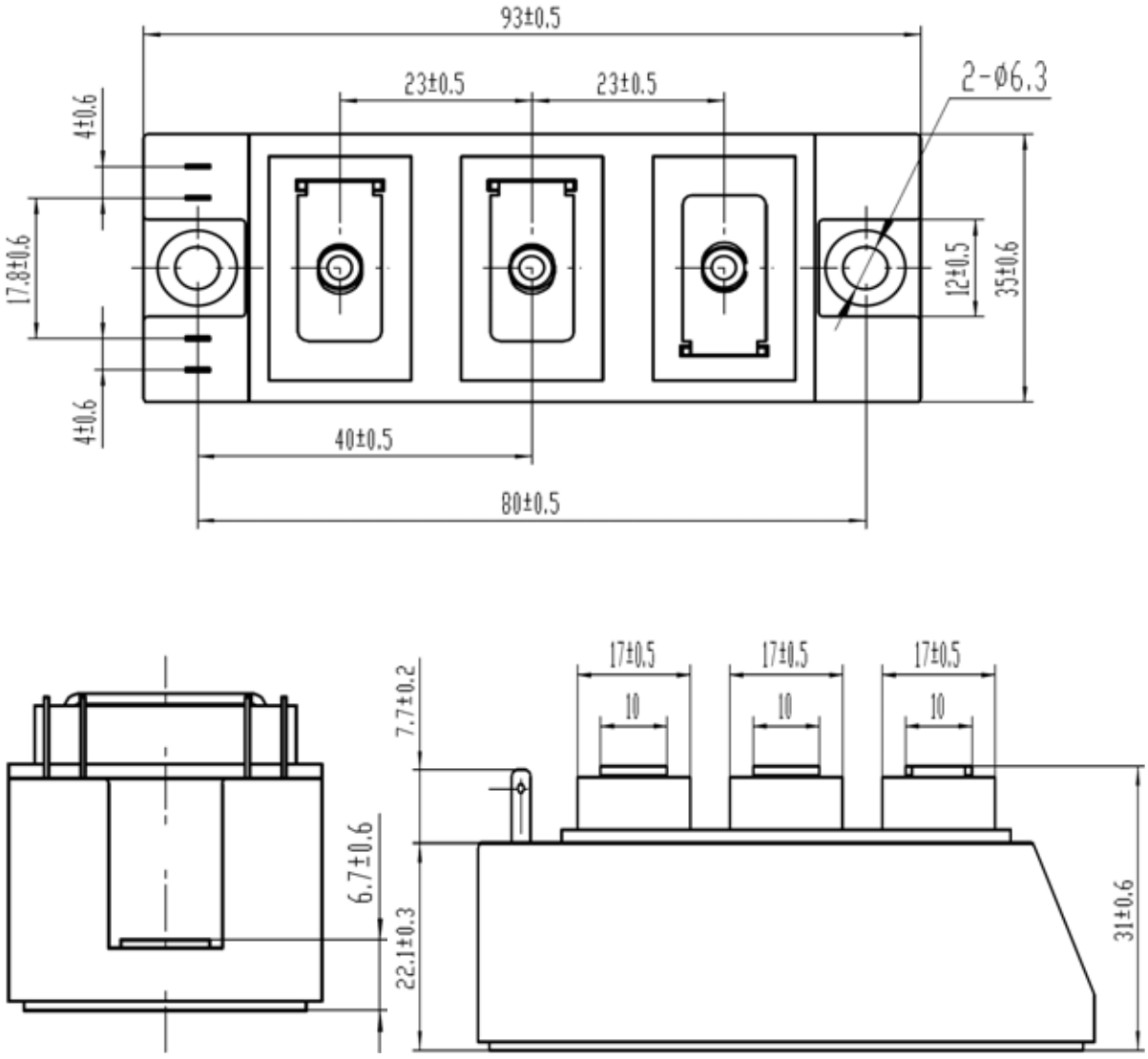


Fig 6. Operating Frequency vs Collector Current

Package Outline (dimensions in mm)



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