MG150HF12TLC1

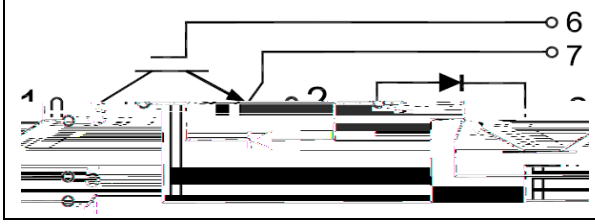
IGBT Modules

VCES	1200V
IC	150A

Applications

- Inverter for motor drive
- AC and DC servo drive amplifier
- UPS (Uninterruptible Power Supplies)
- Soft switching welding machine

Circuit



Features

- Low $V_{ce(sat)}$ with Trench technology
- $V_{ce(sat)}$ with positive temperature coefficient
- High short circuit capability(10us)
- Including ultra fast & soft recovery anti-parallel FWD
- Low inductance
- Maximum junction temperature 175℃

● IGBT

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Collector-Emitter Voltage	V_{CES}	V_{GE}=0V, I_C =1mA, T_{vj}=25℃	1200	V
Continuous Collector Current	I_C	T_c=100℃	150	A
Repetitive Peak Collector Current	I_{CRM}	tp=1ms	300	A
Gate-Emitter Voltage	V_{GES}	T_{vj}=25℃	±20	V
Total Power Dissipation	P_{tot}	T_c=25℃ T_{vjmax}=175℃	968	W

Characteristic values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}$, I_C =5mA,T_{vj}=25℃	5.0	5.7	6.5	V
Collector-Emitter Cut-off Current	I_{CES}	V_{CE}=1200V,V_{GE}=0V, T_{vj}=25			1.0	mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	Ic=150A,V_{GE}=15V, T_{vj}=25℃		1.90	2.20	V
		Ic=150A,V_{GE}=15V, T_{vj}=125℃		2.20		
Input Capacitance	C_{ies}	V_{CE}=25V,V_{GE} =0V, f=1MHz, T_{vj}=25		9.8		nF
Reverse Transfer Capacitance	C_{res}			0.48		nF
Internal Gate Resistance	R_{gint}			2.5		Ω
Gate-Emitter leakage current	I_{GES}	V_{CE}=0 V, V_{GE}=20V,T_{vj} = 25℃			400	nA
Turn-on Delay Time	$t_{d(on)}$	I_C=150 A V_{CE}=600 V V_{GE}= 15V R_G=5.1Ω T_{vj}=25℃		185		ns
Rise Time	t_r			55		ns
Turn-off Delay Time	$t_{d(off)}$			360		ns
Fall Time	t_f			115		ns
Energy Dissipation During Turn-on Time	E_{on}					

Diode

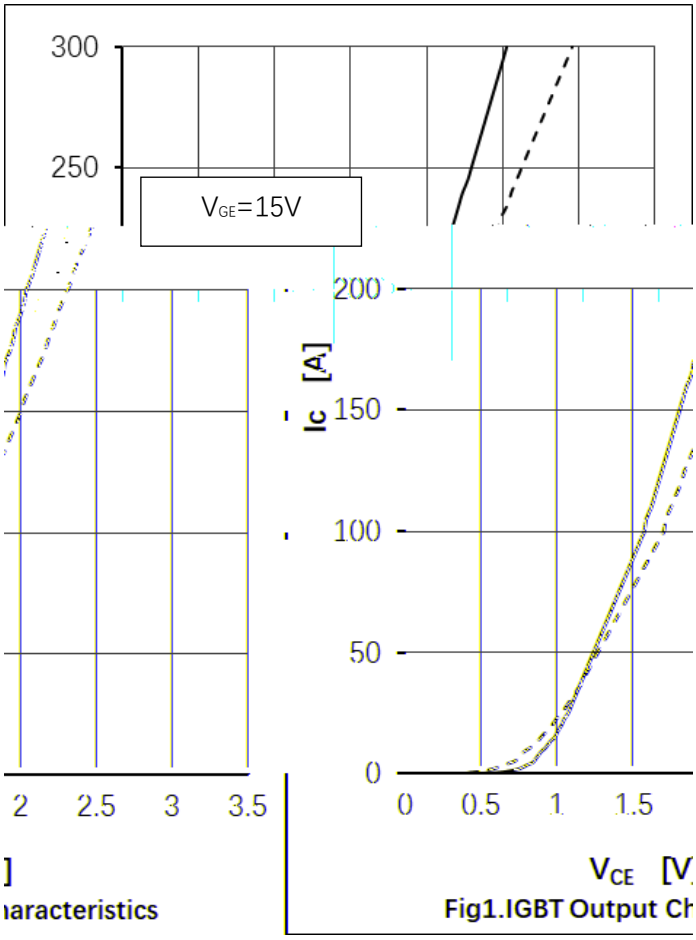
Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	T_{vj}=25℃	1200	V
Continuous DC Forward Current	I_F		150	A

Module Characteristics

T_C=25°C unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Isolation voltage	V_{isol}	t=1min,f=50Hz	2500			V
Maximum Junction Temperature □	T_{jmax}				175	℃


300
250
VGE=15V
200
Ic [A]
150
100
50
0
2
2.5
3
3.5
0
0.5
1
1.5
VCE [V
aracteristics
Fig1.IGBT Output Ch

V

V

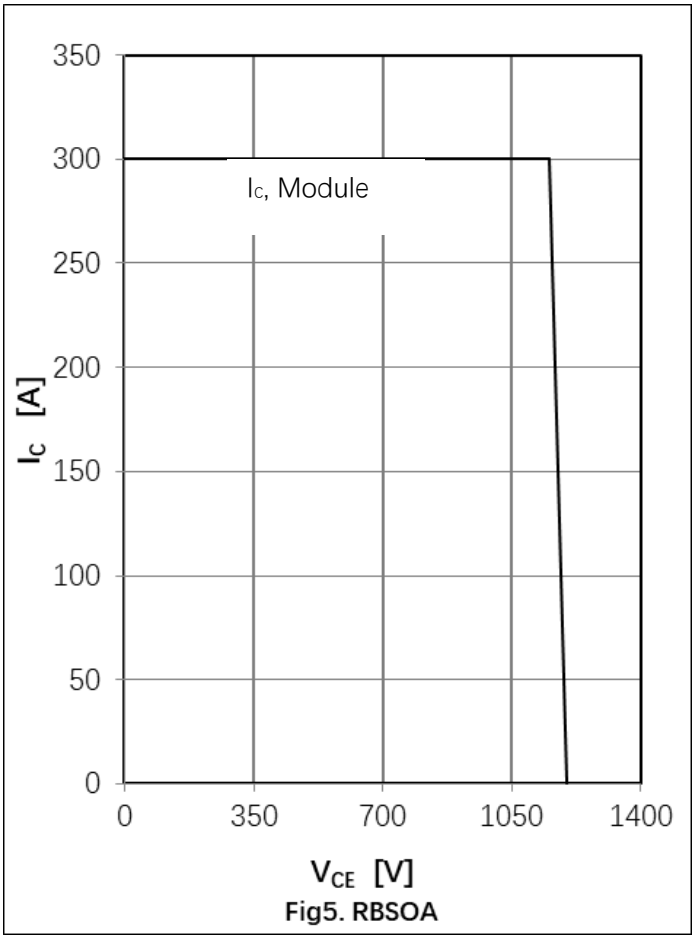
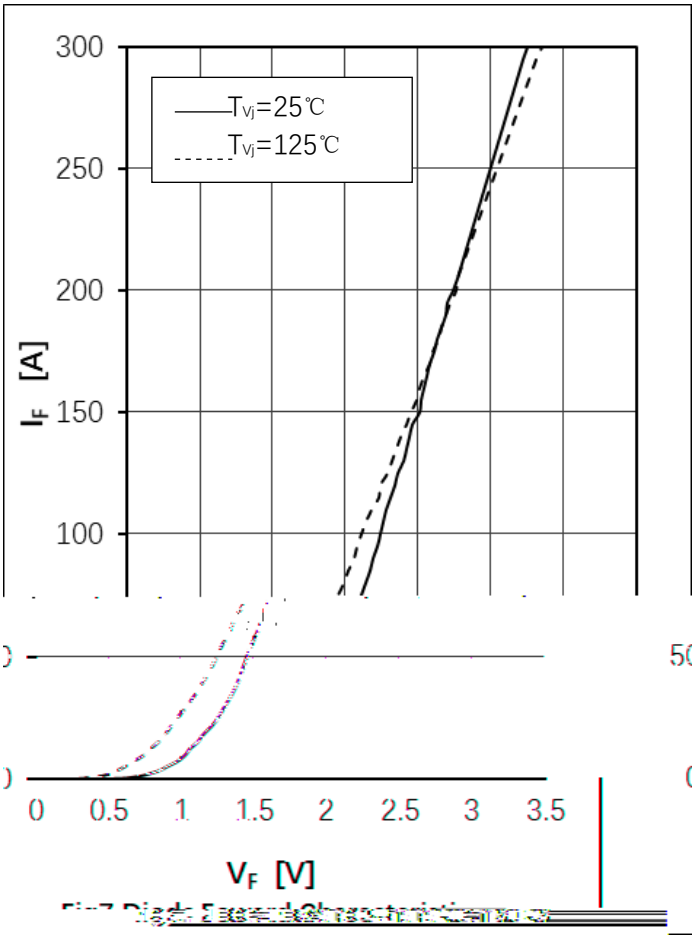


Fig5. RBSOA



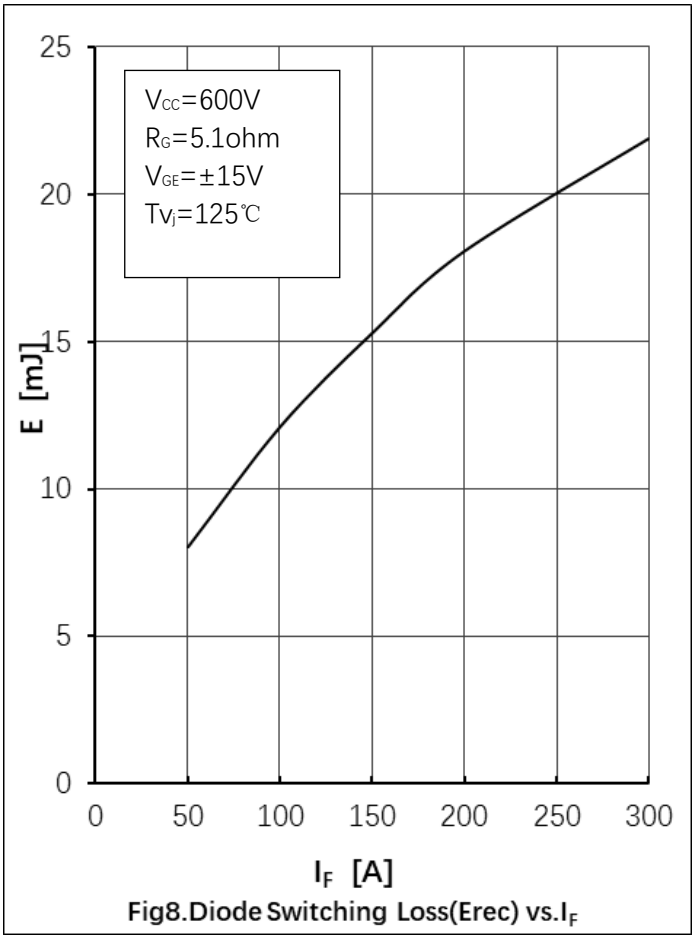
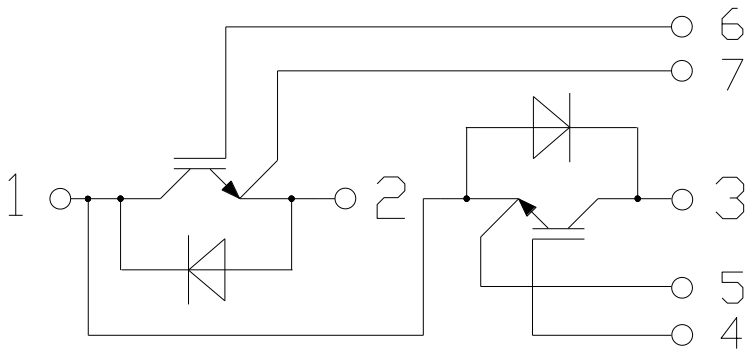


Fig8.Diode Switching Loss(Erec) vs.I_F

V_{CC}=600V
I_F=150A
V_{GE}=±15V
Tv_j=125℃

τ

- **Circuit Diagram**



- **Package Outline Information**

Dimensions in Millimeters