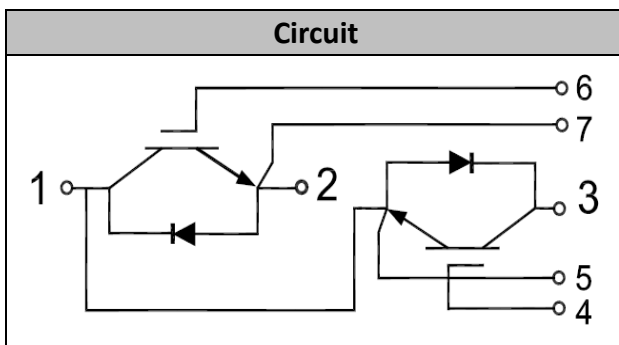


## IGBT Modules

V <sub>CE(S)</sub>	1200V
I <sub>C</sub>	150A

## Applications

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



## Features

- Low V<sub>ce(sat)</sub> with Trench technology
- V<sub>ce(sat)</sub> with positive temperature coefficient
- High short circuit capability(10us)
- Including ultra fast & soft recovery anti-parallel FWD
- Low inductance
- Maximum junction temperature 175°C

## ● IGBT

### Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Collector-Emitter Voltage	V <sub>CE(S)</sub>	V <sub>GE</sub> =0V, I <sub>C</sub> =1mA, T <sub>vj</sub> =25°C	1200	V
Continuous Collector Current	I <sub>C</sub>	T <sub>c</sub> =100°C	150	A
Repetitive Peak Collector Current	I <sub>CRM</sub>	tp=1ms	300	A
Gate-Emitter Voltage	V <sub>GES</sub>	T <sub>vj</sub> =25°C	± 20	V
Total Power Dissipation	P <sub>tot</sub>	T <sub>c</sub> =25°C T <sub>vjmax</sub> =175°C	833	W



## Characteristic values

Parameter	Symbol	Conditions	Value			Unit		
			Min.	Typ.	Max.			
Gate-emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=4mA, T_{vj}=25^{\circ}C$	5.0	6.2	7.0	V		
Collector-Emitter Cut-off Current	$I_{CES}$	$V_{CE}=1200V, V_{GE}=0V, T_{vj}=25^{\circ}C$			1.0	mA		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=150A, V_{GE}=15V, T_{vj}=25^{\circ}C$		1.85		V		
		$I_C=150A, V_{GE}=15V, T_{vj}=125^{\circ}C$		2.05				
Gate Charge	$Q_G$			1.56		uC		
Input Capacitance	$C_{ies}$	$V_{CE}=25V, V_{GE}=0V,$ $f=1MHz, T_{vj}=25^{\circ}C$		11.0		nF		
Reverse Transfer Capacitance	$C_{res}$				0.5		nF	
Gate-Emitter leakage current	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V, T_{vj}=25^{\circ}C$			400	nA		
Turn-on Delay Time	$t_{d(on)}$	$I_C=150A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=4.7\Omega$ $T_{vj}=25^{\circ}C$		347		ns		
Rise Time	$t_r$				75		ns	
Turn-off Delay Time	$t_{d(off)}$				375		ns	
Fall Time	$t_f$				181		ns	
Energy Dissipation During Turn-on Time	$E_{on}$				8.9		mJ	
Energy Dissipation During Turn-off Time	$E_{off}$				9.3		mJ	
Turn-on Delay Time	$t_{d(on)}$		$I_C=150A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=4.7\Omega$ $T_{vj}=125^{\circ}C$		352		ns	
Rise Time	$t_r$					81		ns
Turn-off Delay Time	$t_{d(off)}$					301		ns
Fall Time	$t_f$					327		ns
Energy Dissipation During Turn-on Time	$E_{on}$				11.9		mJ	
Energy Dissipation During Turn-off Time	$E_{off}$				16.0		mJ	
SC Data	$I_{sc}$	$T_p \leq 10\mu s, V_{GE}=15V,$ $T_{vj}=150^{\circ}C, V_{cc}=900V,$ $V_{CEM} \leq 1200V$			890		A	



## ● Diode

### Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	$T_{vj}=25^{\circ}C$	1200	V
Continuous DC Forward Current	$I_F$		150	A
Repetitive Peak Forward Current	$I_{FRM}$	$t_p=1ms$	300	A

### Characteristic values

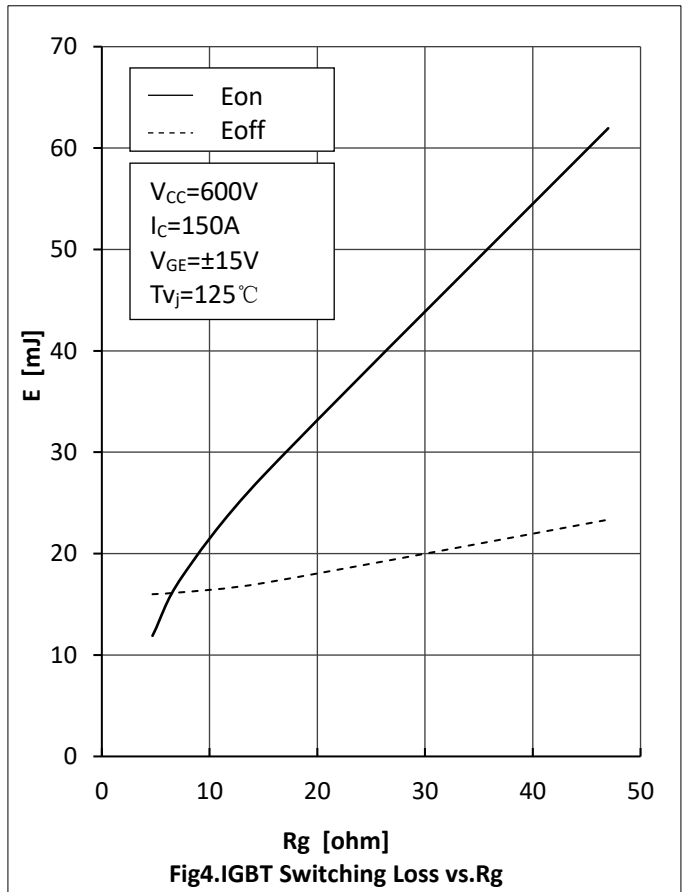
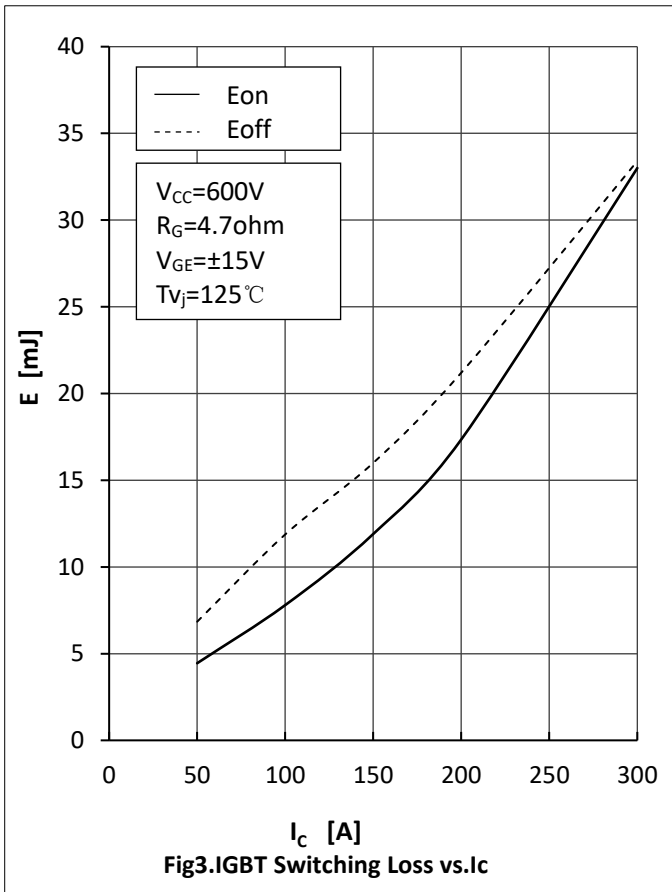
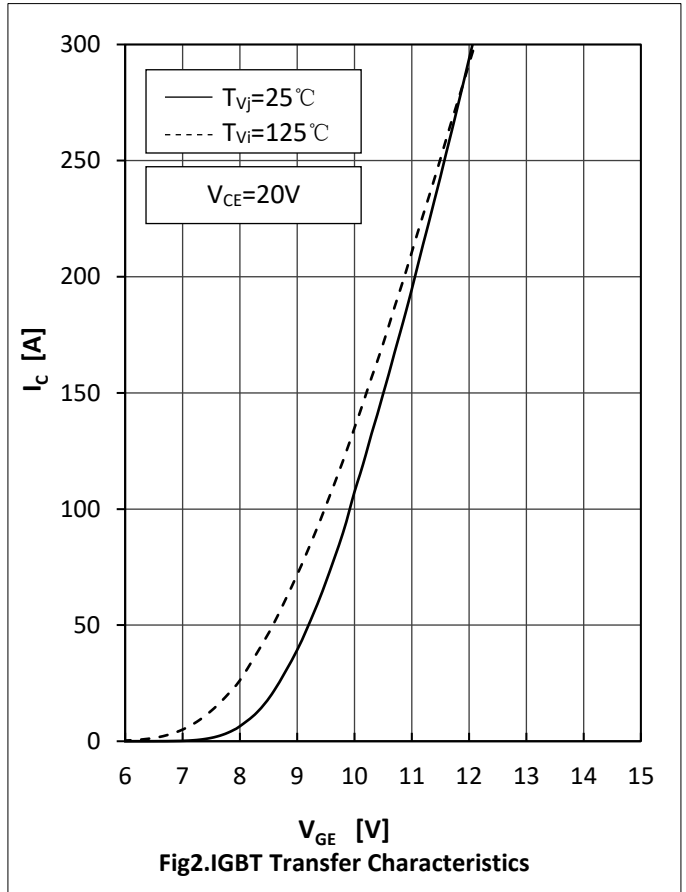
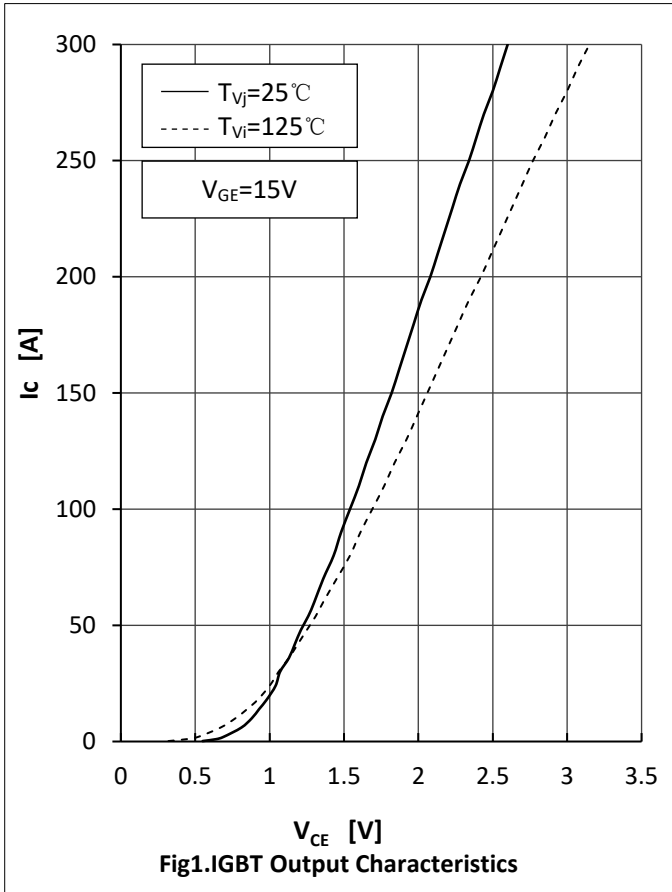
Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	$V_F$	$I_F=150A, T_{vj}=25^{\circ}C$		1.80	2.00	V
		$I_F=150A, T_{vj}=125^{\circ}C$		1.85		
Recovered Charge	$Q_{rr}$	$I_F=150A$		14.0		$\mu C$
Peak Reverse Recovery Current	$I_{rr}$	$V_R=600V$ $-di_F/dt=2250A/\mu s$		143		A
Reverse Recovery Energy	$E_{rec}$	$T_{vj}=25^{\circ}C$		9.5		mJ
Recovered Charge	$Q_{rr}$	$I_F=150A$		18.5		$\mu C$
Peak Reverse Recovery Current	$I_{rr}$	$V_R=600V$ $-di_F/dt=2250A/\mu s$		179		A
Reverse Recovery Energy	$E_{rec}$	$T_{vj}=125^{\circ}C$		17.5		mJ

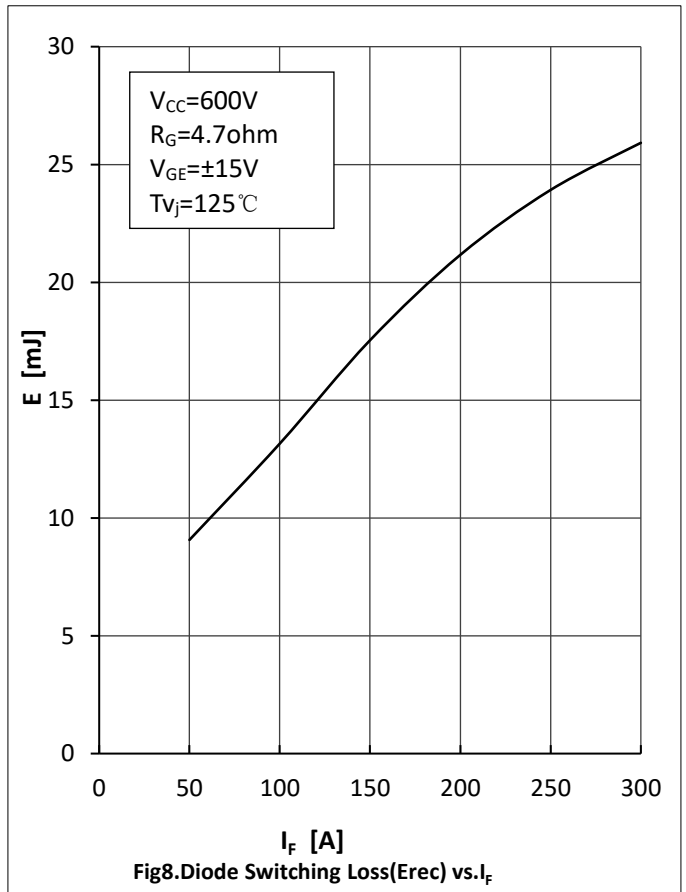
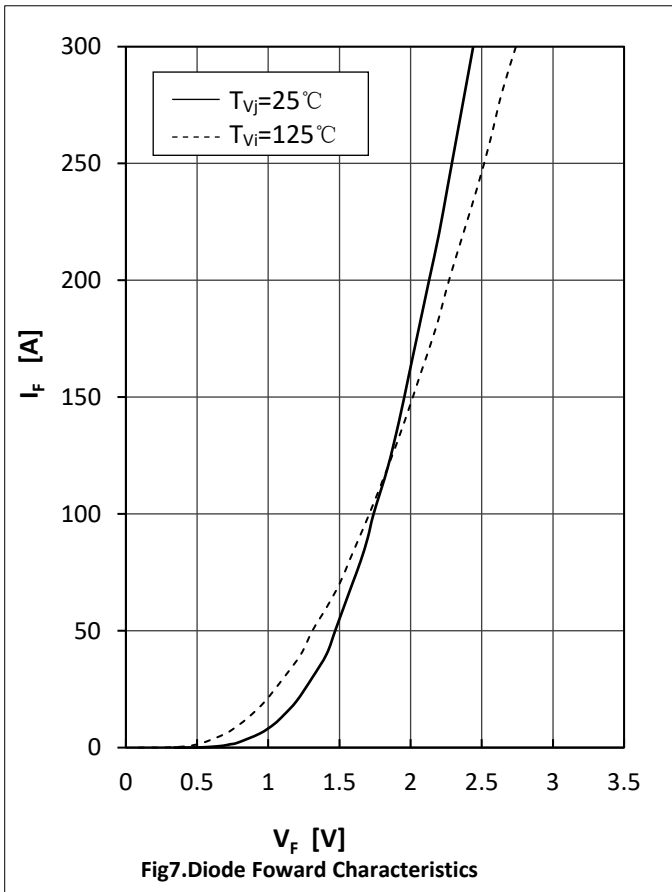
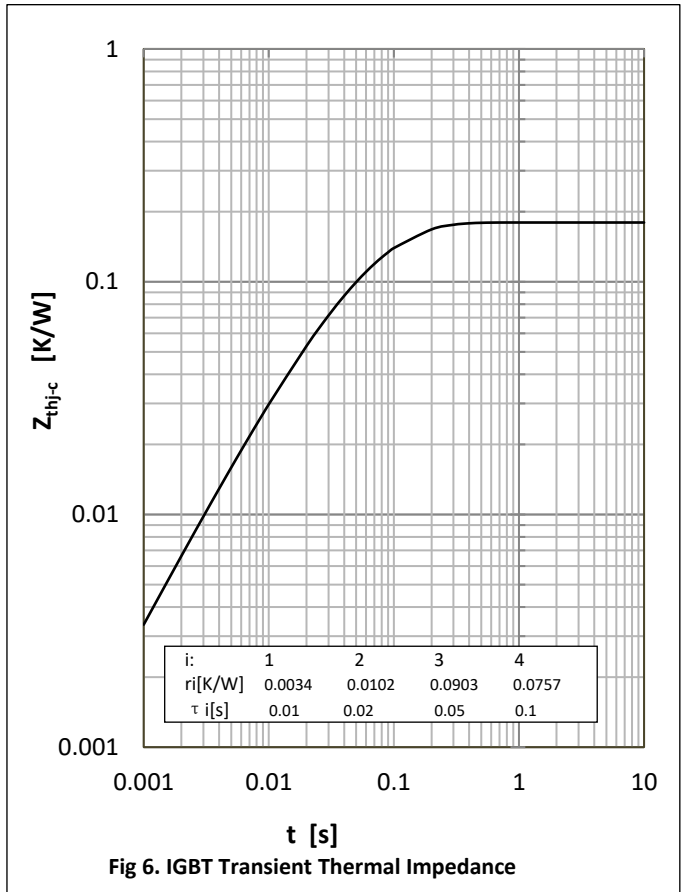
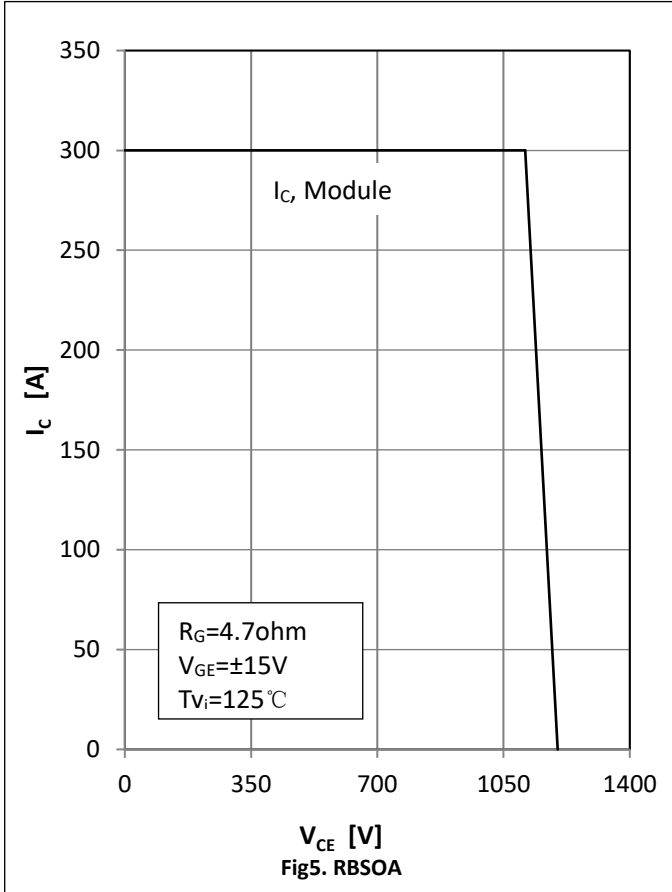


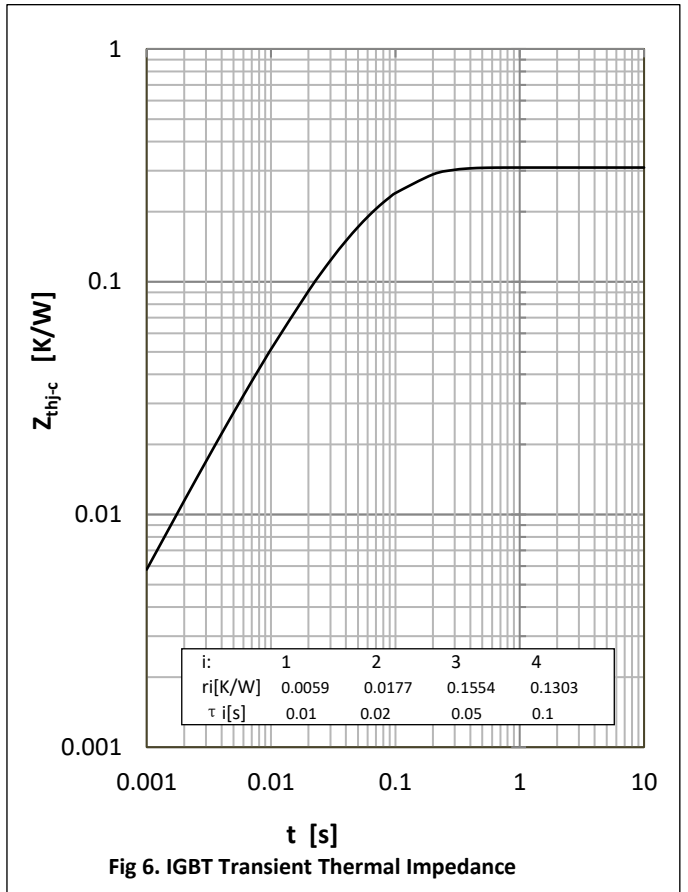
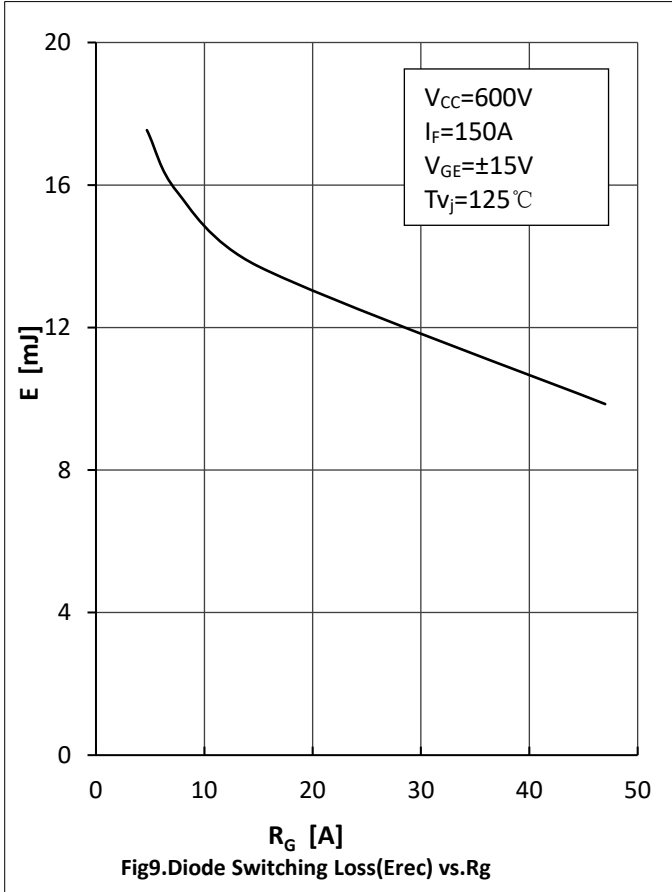
## ● Module Characteristics

T<sub>c</sub>=25°C unless otherwise specified

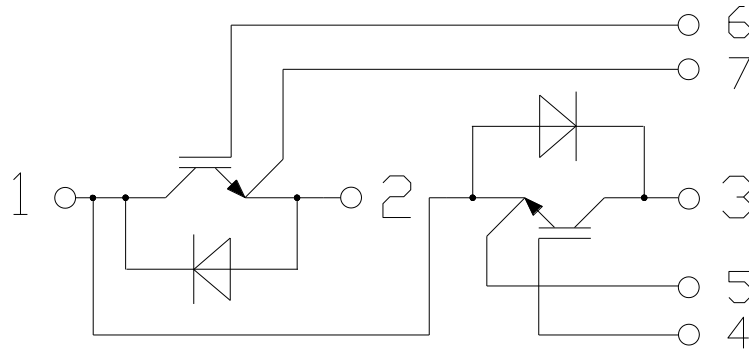
Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Isolation voltage	V <sub>isol</sub>	t=1min,f=50Hz	2500			V
Maximum Junction Temperature	T <sub>jmax</sub>				175	°C
Operating Junction Temperature	T <sub>vj op</sub>		-40		150	°C
Storage Temperature	T <sub>stg</sub>		-40		125	°C
Thermal Resistance Junction-to Case	R <sub>θJC</sub>	per IGBT			0.18	K/W
		per Diode			0.31	
Thermal Resistance Case-to Sink	R <sub>θCS</sub>	Conductive grease applied		0.035		K/W
Module Electrodes Torque	M <sub>t</sub>	Recommended(M6)	3.0		5.0	N·m
Module-to-Sink Torque	M <sub>s</sub>	Recommended(M6)	3.0		5.0	N·m
Weight of Module	G			315		g







● **Circuit Diagram**



● **Package Outline Information**

Dimensions in Millimeters

