



IGBT Modules

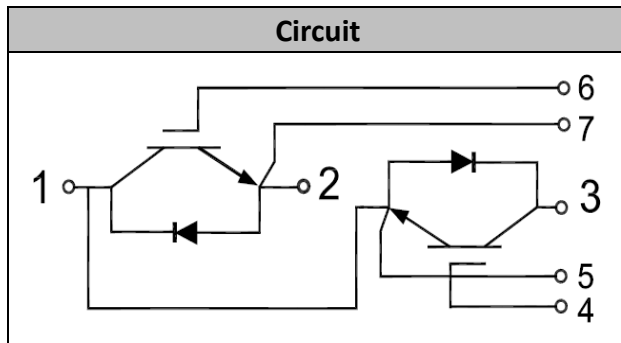
V_{CES}	1200V
I_C	100A

Applications

- High frequency drivers
- Solar inverters
- UPS (Uninterruptible Power Supplies)
- Electric welding machine

Features

- Low switching losses
- Including ultra fast & soft recovery anti-parallel FWD
- Low inductance
- Maximum junction temperature 150°C
- High short circuit capability(10us)



● IGBT

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Collector-Emitter Voltage	V_{CES}	$V_{GE}=0V, I_C=1mA, T_{vj}=25^{\circ}C$	1200	V
Continuous Collector Current	I_C	$T_C=100^{\circ}C$	100	A
Repetitive Peak Collector Current	I_{CRM}	$t_p=1ms$	200	A
Gate-Emitter Voltage	V_{GES}	$T_{vj}=25^{\circ}C$	± 20	V
Total Power Dissipation	P_{tot}	$T_C=25^{\circ}C$ $T_{vjmax}=150^{\circ}C$	690	W



Characteristic Values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}$, $I_C=3.8mA$, $T_{vj}=25^{\circ}C$	5.0	5.8	6.5	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	$V_{CE(sat)}$	$I_C=100A$, $V_{GE}=15V$, $T_{vj}=25^{\circ}C$		2.80		V
		$I_C=100A$, $V_{GE}=15V$, $T_{vj}=125^{\circ}C$		3.20		
		$I_C=100A$, $V_{GE}=15V$, $T_{vj}=150^{\circ}C$		3.30		
Gate Charge	Q_G			0.68		uC
Input Capacitance	C_{ies}	$V_{CE}=25V$, $V_{GE}=0V$, $f=1MHz$, $T_{vj}=25^{\circ}C$		7.53		nF
Reverse Transfer Capacitance	C_{res}			0.72		nF
Internal Gate Resistance	R_{gint}			1.74		Ω
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0V$, $V_{GE}=20V$, $T_{vj}=25^{\circ}C$			400	nA
Turn-on Delay Time	$t_{d(on)}$	$I_C=100A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=3.6\Omega$ $T_{vj}=25^{\circ}C$		7.6		ns
Rise Time	t_r			27		ns
Turn-off Delay Time	$t_{d(off)}$			146		ns
Fall Time	t_f			30		ns
Energy Dissipation During Turn-on Time	E_{on}			7.2		mJ
Energy Dissipation During Turn-off Time	E_{off}			1.9		mJ
Turn-on Delay Time	$t_{d(on)}$	$I_C=100A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=3.6\Omega$ $T_{vj}=125^{\circ}C$		9.6		ns
Rise Time	t_r			29		ns
Turn-off Delay Time	$t_{d(off)}$			160		ns
Fall Time	t_f			68		ns
Energy Dissipation During Turn-on Time	E_{on}			9.8		mJ
Energy Dissipation During Turn-off Time	E_{off}			2.7		mJ
Turn-on Delay Time	$t_{d(on)}$	$I_C=100A$ $V_{CE}=600V$ $V_{GE}=\pm 15V$ $R_G=3.6\Omega$ $T_{vj}=150^{\circ}C$		10.2		ns
Rise Time	t_r			30		ns
Turn-off Delay Time	$t_{d(off)}$			165		ns
Fall Time	t_f			73		ns
Energy Dissipation During Turn-on Time	E_{on}			10.2		mJ
Energy Dissipation During Turn-off Time	E_{off}			2.9		mJ
SC Data	I_{sc}	$t_p \leq 10\mu s$, $V_{GE}=15V$, $T_{vj}=150^{\circ}C$, $V_{CC}=600V$, $V_{CEM} \leq 1200V$		315		A



● Diode

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	$T_{vj}=25^{\circ}\text{C}$	1200	V
Continuous DC Forward Current	I_F		100	A
Repetitive Peak Forward Current	I_{FRM}	$t_p=1\text{ms}$	200	A

Characteristic Values

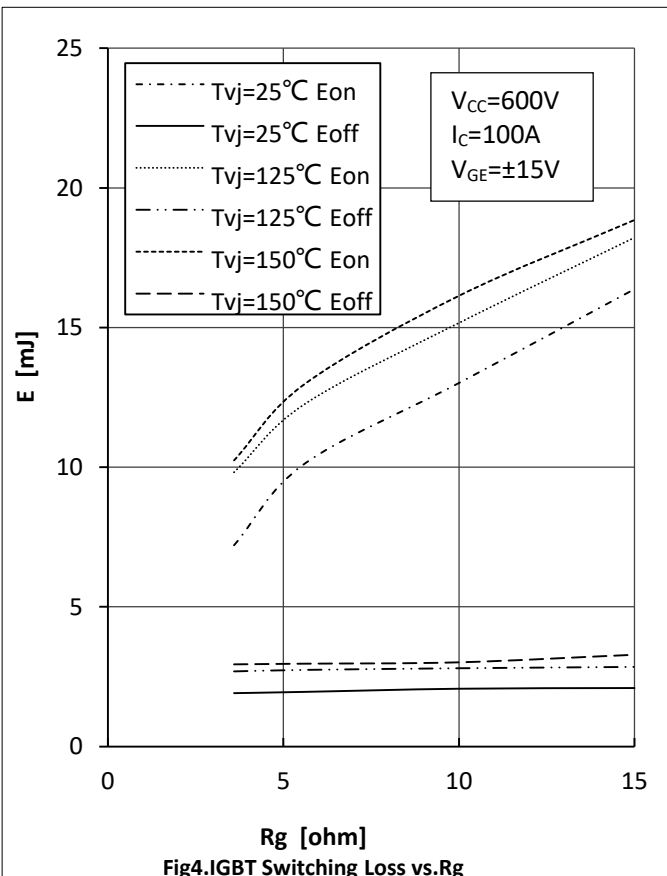
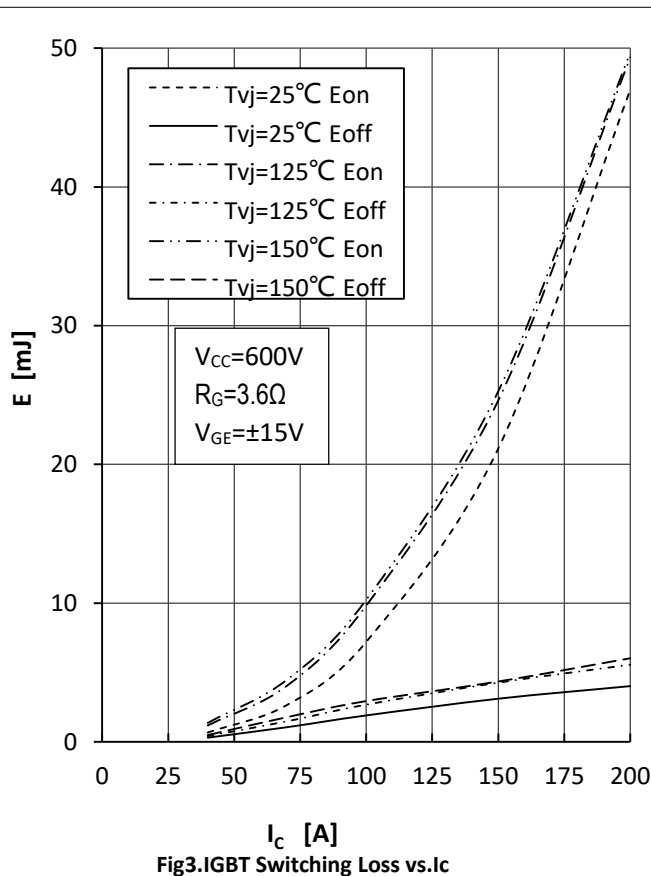
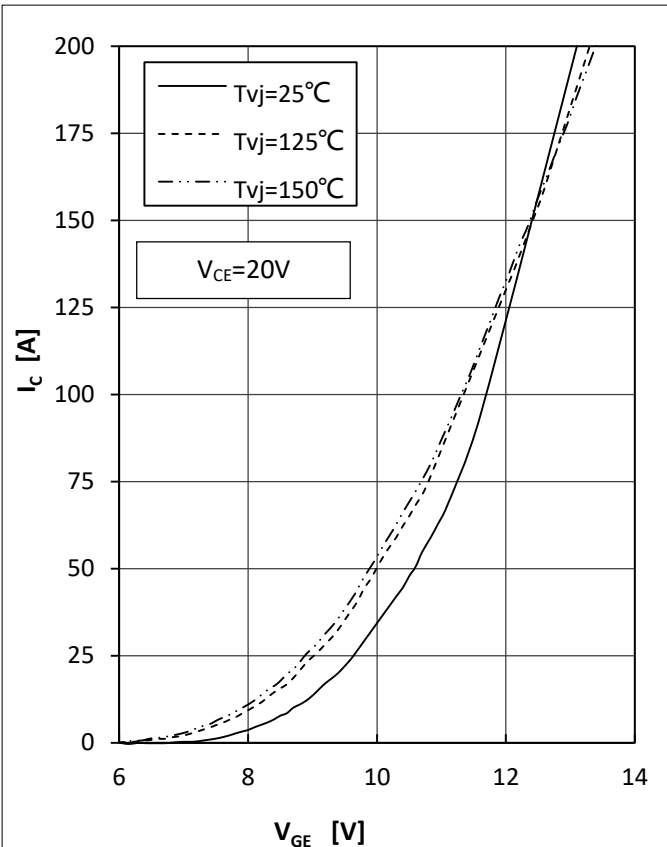
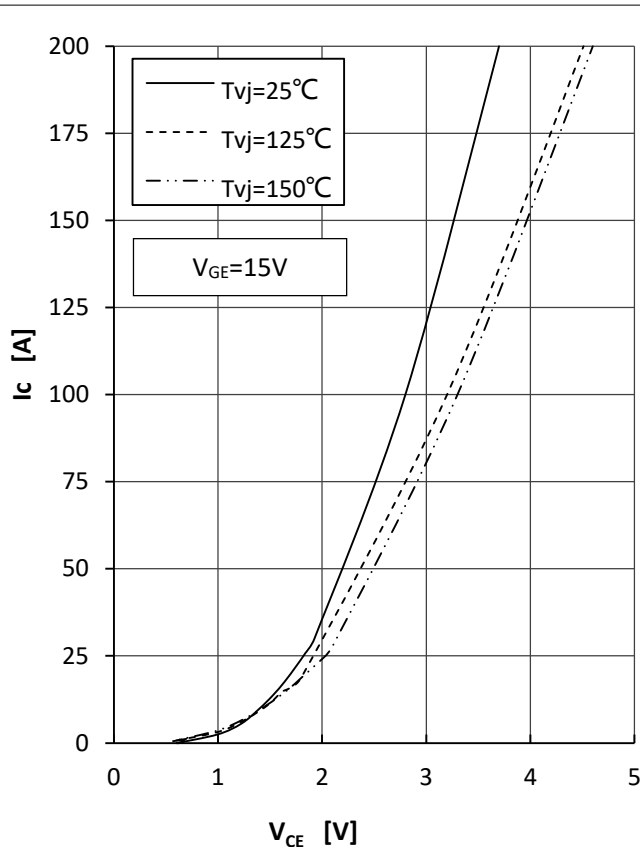
Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	V_F	$I_F=100\text{A}, T_{vj}=25^{\circ}\text{C}$		2.00		V
		$I_F=100\text{A}, T_{vj}=125^{\circ}\text{C}$		1.85		
		$I_F=100\text{A}, T_{vj}=150^{\circ}\text{C}$		1.80		
Recovered Charge	Q_{rr}	$I_F=100\text{A}$ $V_R=600\text{V}$ $-di_F/dt = 3000\text{A/us}$ $T_{vj}=25^{\circ}\text{C}$		10		μC
Peak Reverse Recovery Current	I_{rr}			56		A
Reverse Recovery Energy	E_{rec}			4.1		mJ
Recovered Charge	Q_{rr}	$I_F=100\text{A}$ $V_R=600\text{V}$ $-di_F/dt = 3000\text{A/us}$ $T_{vj}=125^{\circ}\text{C}$		18		μC
Peak Reverse Recovery Current	I_{rr}			63		A
Reverse Recovery Energy	E_{rec}			7.5		mJ
Recovered Charge	Q_{rr}	$I_F=100\text{A}$ $V_R=600\text{V}$ $-di_F/dt = 3000\text{A/us}$ $T_{vj}=150^{\circ}\text{C}$		20		μC
Peak Reverse Recovery Current	I_{rr}			67		A
Reverse Recovery Energy	E_{rec}			8.6		mJ

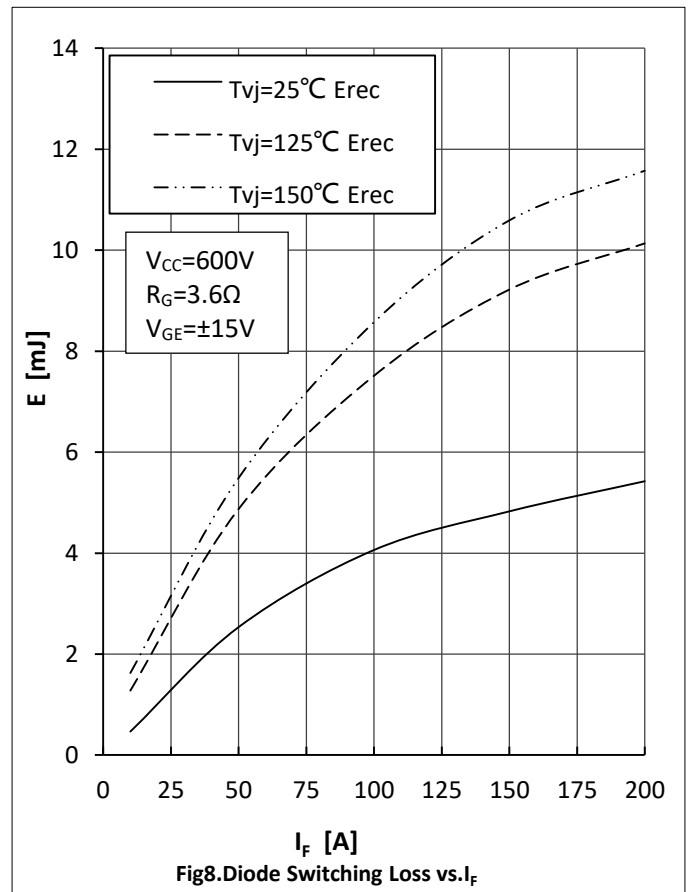
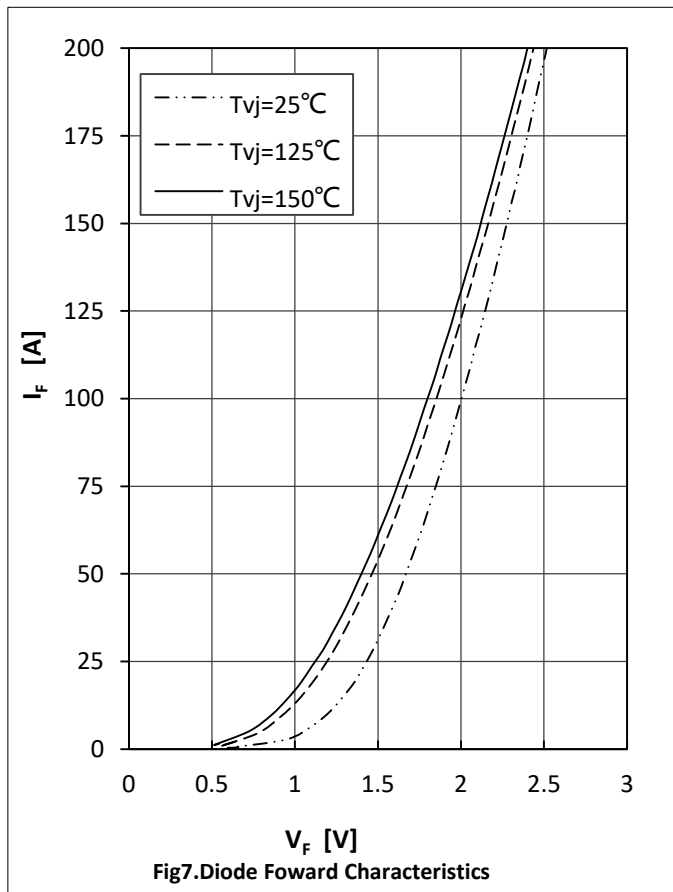
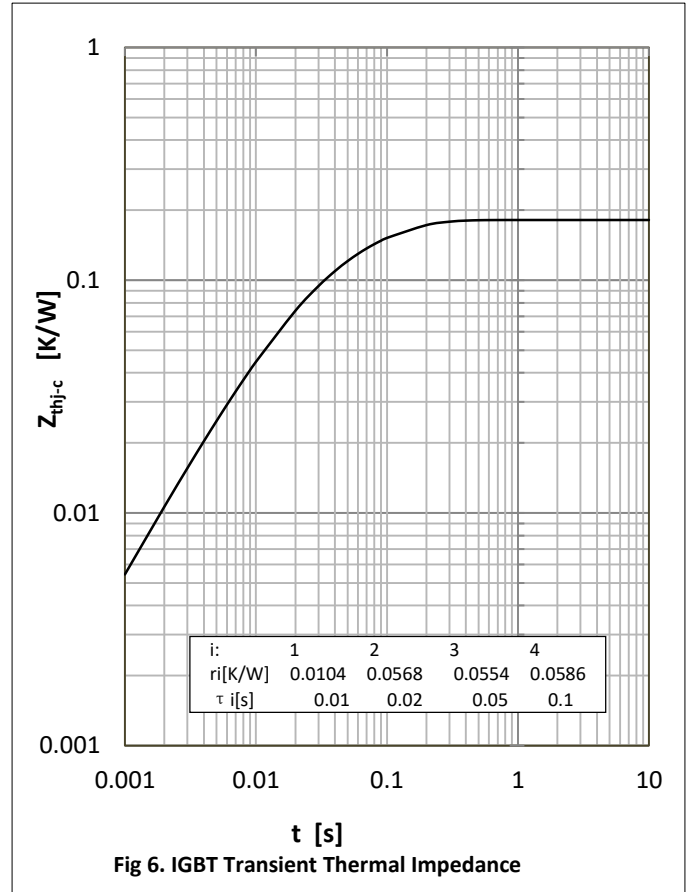
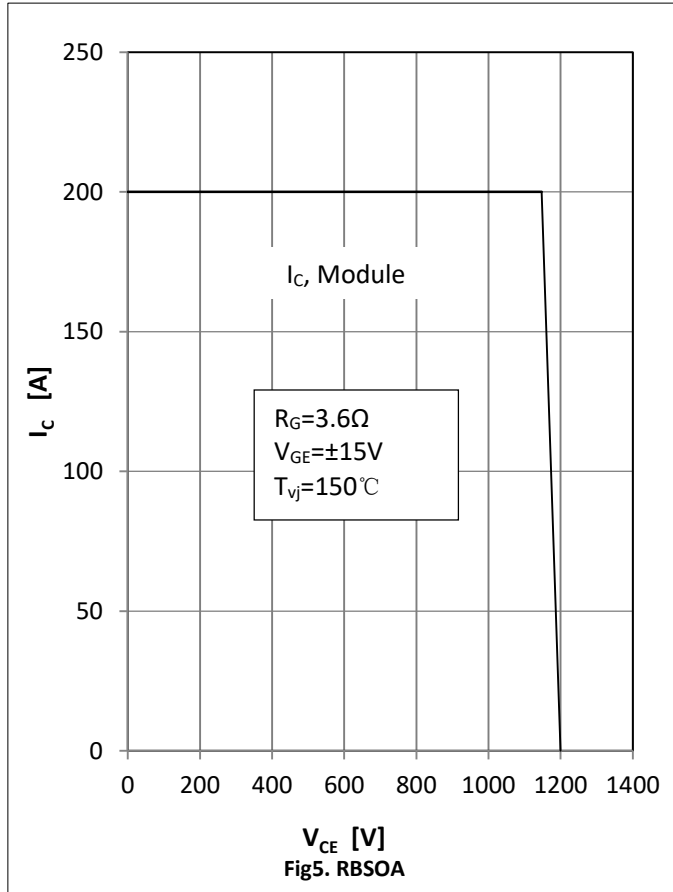


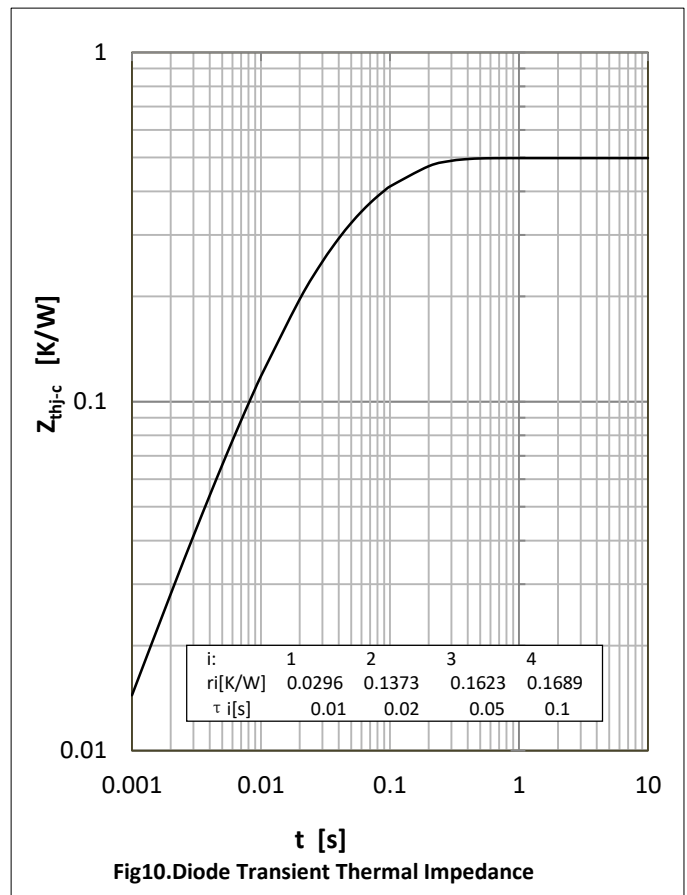
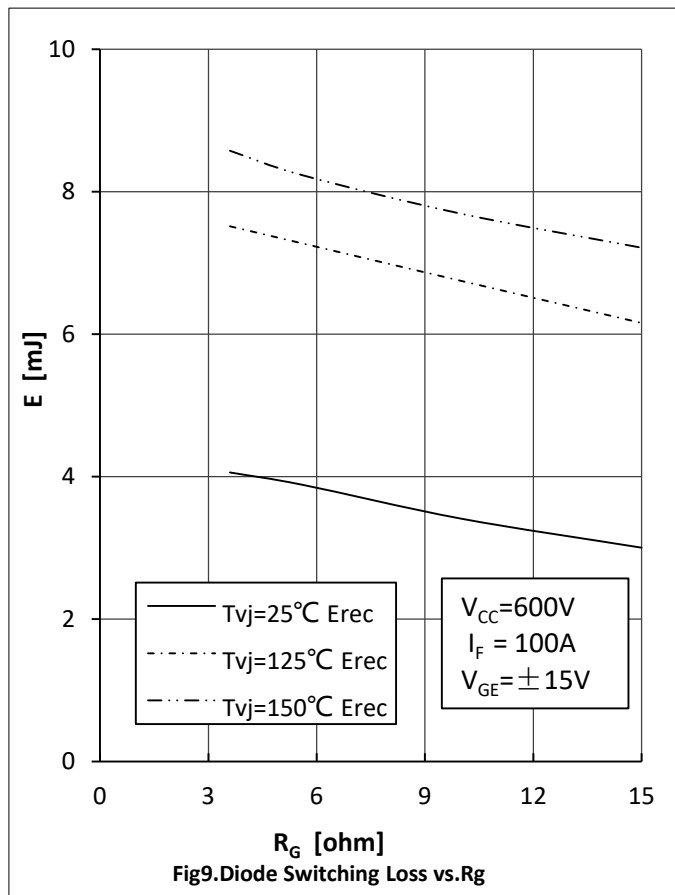
● Module Characteristics

T_C=25°C unless otherwise specified

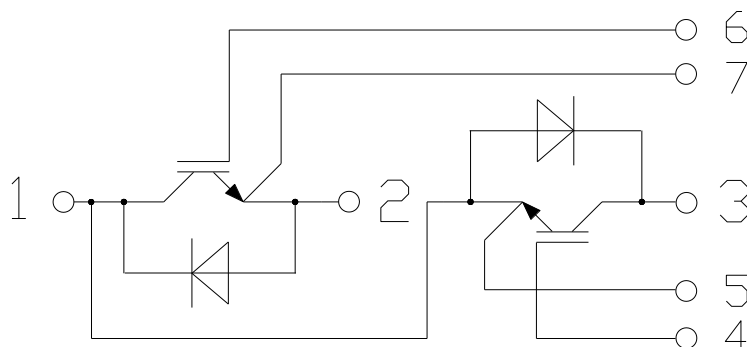
Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Isolation Voltage	V _{isol}	t=1min,f=50Hz	2500			V
Maximum Junction Temperature	T _{jmax}				150	°C
Operating Junction Temperature	T _{vj op}		-40		125	°C
Storage Temperature	T _{stg}		-40		125	°C
Thermal Resistance Junction to Case	R _{θJC}	per IGBT			0.18	K/W
		per Diode			0.50	
Thermal Resistance Case to Sink	R _{θCS}	Conductive grease applied		0.05		K/W
Module Electrodes Torque	M _t	Recommended(M5)	2.5		5.0	N·m
Module to Sink Torque	M _s	Recommended(M6)	3.0		5.0	N·m
Weight of Module	G			150		g







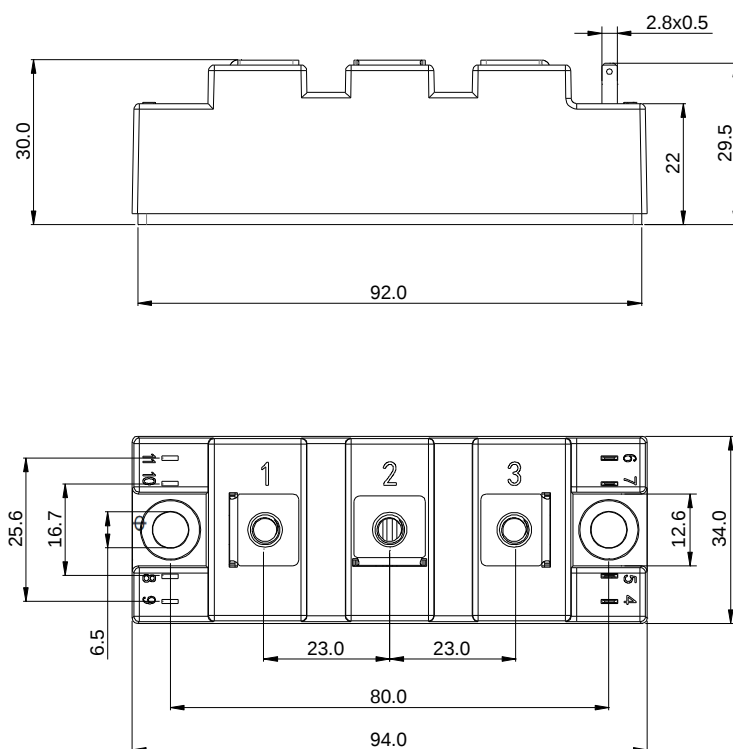
- **Circuit Diagram**



● Package Outline Information

Dimensions in Millimeters

screwing depth max 10mm





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IGBTs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.

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