

Features

- Low Switching Losses
- $V_{ce(sat)}$ with positive temperature coefficient
- Low Inductance
- Isolated copper baseplate using DBC technology
- Maximum Junction Temperature 175°C
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note 1) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

IGBT Modules

1200V 100A

Applications

- AC and DC motor control
- PFC
- SMPS
- Brake switch

Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage@ $V_{GE}=0V, I_c=1mA, T_{vj}=25^\circ C$	V_{CES}	1200	V
Continuous Collector Current @ $T_c=80^\circ C$	I_c	100	A
Repetitive Peak Collector Current @ $T_p=1ms$	I_{CRM}	200	A
Gate-Emitter Voltage@ $T_{vj}=25^\circ C$	V_{GE}	± 20	V
Isolation Voltage @ $f=50Hz, t=1min$	V_{isol}	2500(Min)	V
Weight of Module	G	35	g
Module Electrodes Torque:M4	M_t	0.7~1.5	N^*m
Module-to-Sink Torque :M4	M_s	0.7~1.5	N^*m
Total Power Dissipation (IGBT-Inverter)	$T_c=25^\circ C$ $T_{vjmax}=175^\circ C$	P_{tot}	535
			W

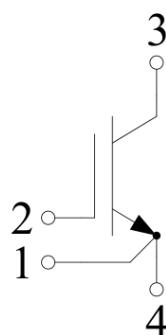
Note:

1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7a.

GJ



Circuit Diagram



Electrical Characteristics of IGBT @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate-emitter Threshold Voltage	$V_{GE(th)}$	$I_C=4\text{mA}, V_{CE}=V_{GE}, T_{vj}=25^\circ\text{C}$	5.0	5.8	6.5	V
Collector-Emitter Cut-off Current	I_{CES}	$V_{CE}=1200\text{V}, V_{GE}=0\text{V}, T_{vj}=25^\circ\text{C}$			1.0	mA
		$V_{CE}=1200\text{V}, V_{GE}=0\text{V}, T_{vj}=125^\circ\text{C}$			5.0	mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c=100\text{A}, V_{GE}=15\text{V}, T_{vj}=25^\circ\text{C}$		1.75	2.25	V
		$I_c=100\text{A}, V_{GE}=15\text{V}, T_{vj}=125^\circ\text{C}$		2.15		
		$I_c=100\text{A}, V_{GE}=15\text{V}, T_{vj}=150^\circ\text{C}$		2.20		
Input Capacitance	C_{ies}	$V_{CE}=25\text{V}, V_{GE}=0\text{V}, f=1\text{MHz}, T_{vj}=25^\circ\text{C}$		5.80		nF
Output Capacitance	C_{oes}			0.54		
Reverse Transfer Capacitance	C_{res}			0.35		
Internal Gate Resistance	R_{gint}			2.5		Ω
Turn-On Delay Time	$td_{(on)}$	$V_{CE}=600\text{V}, I_c=100\text{A}, V_{GE}=\pm 15\text{V}, R_G=10\Omega, T_{vj}=25^\circ\text{C}$		122		ns
Rise Time	t_r			50		
Turn-Off Delay Time	$td_{(off)}$			335		
Fall Time	t_f			72		
Turn-On Energy	E_{on}			13.5		mJ
Turn-Off Energy	E_{off}			7.0		
Turn-On Delay Time	$td_{(on)}$	$V_{CE}=600\text{V}, I_c=100\text{A}, V_{GE}=\pm 15\text{V}, R_G=10\Omega, T_J=125^\circ\text{C}$		135		ns
Rise Time	t_r			55		
Turn-Off Delay Time	$td_{(off)}$			460		
Fall Time	t_f			76		
Turn-On Energy	E_{on}			18.6		mJ
Turn-Off Energy	E_{off}			10.2		
SC Data	I_{sc}	$t_p \leq 10\text{us}, V_{GE}=15\text{V}, T_{vj}=150^\circ\text{C}, V_{cc}=600\text{V}, V_{CEM} \leq 1200\text{V}$		350		A

Module Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Isolation voltage	V_{isol}	$t=1\text{min}, f=50\text{Hz}$	2500			V
Maximum Junction Temperature	T_{jmax}				175	°C
Operating Junction Temperature	$T_{vj\ op}$		-40		150	°C
Storage Temperature	T_{stg}		-40		125	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	per IGBT			0.28	K/W
Thermal Resistance Case-to Sink	$R_{\theta CS}$	Conductive grease applied		0.15		K/W

Curve Characteristics

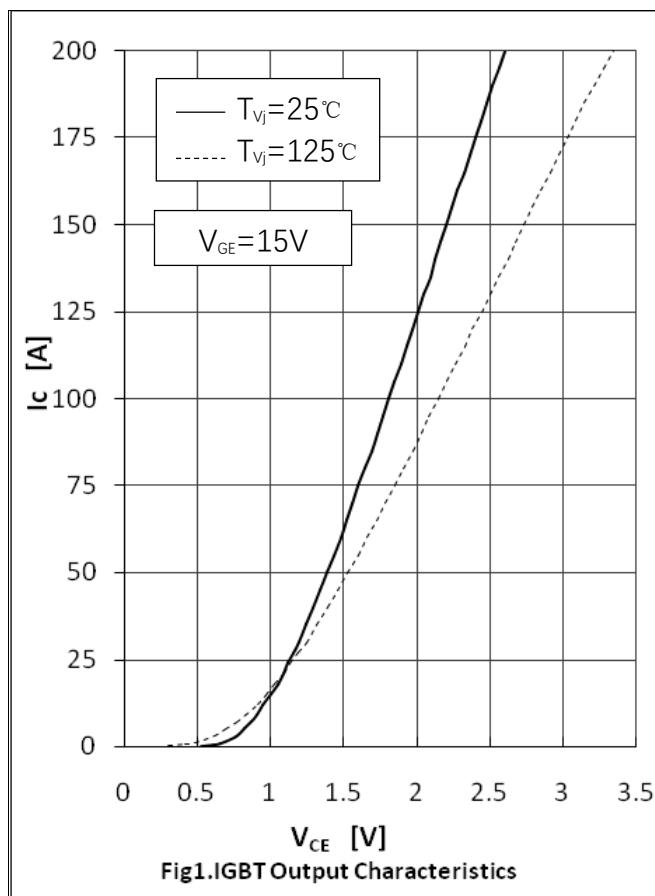


Fig1. IGBT Output Characteristics

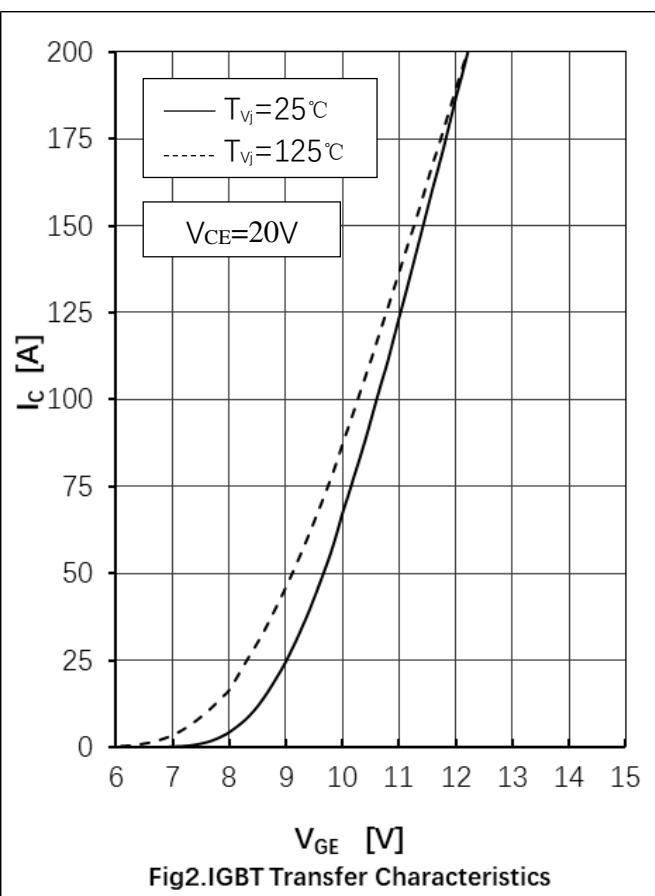


Fig2. IGBT Transfer Characteristics

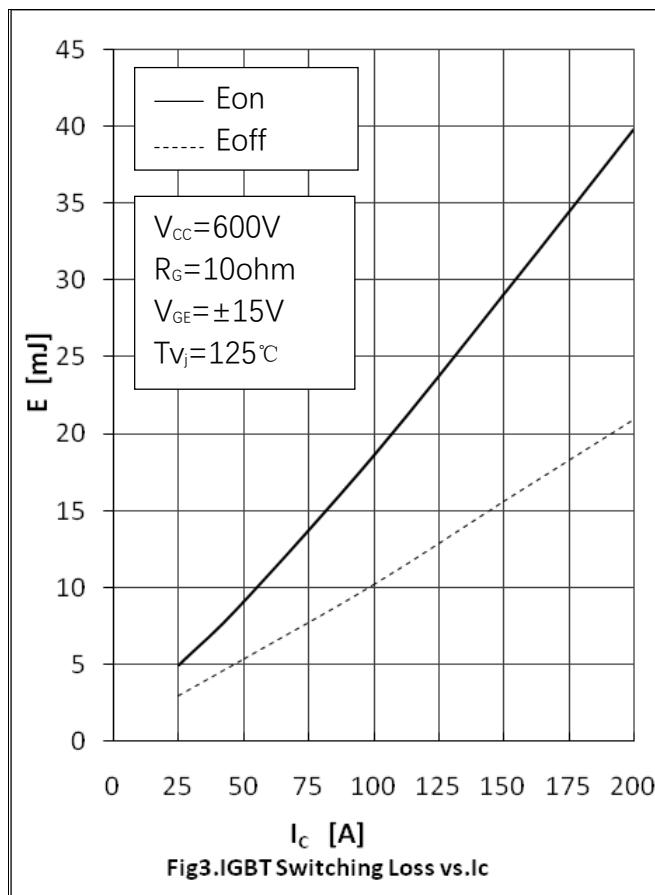


Fig3. IGBT Switching Loss vs. I_c

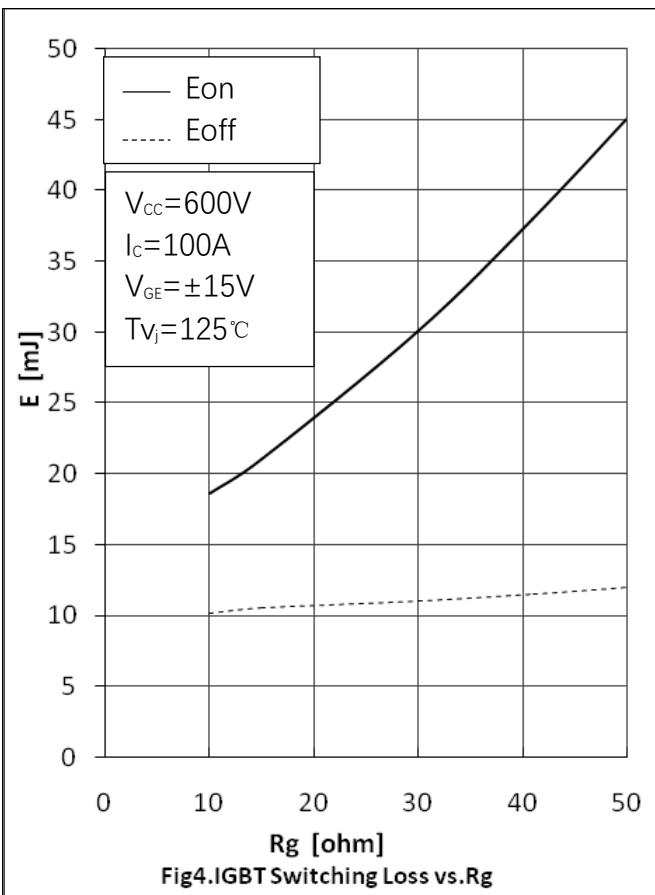


Fig4. IGBT Switching Loss vs. R_g

Curve Characteristics

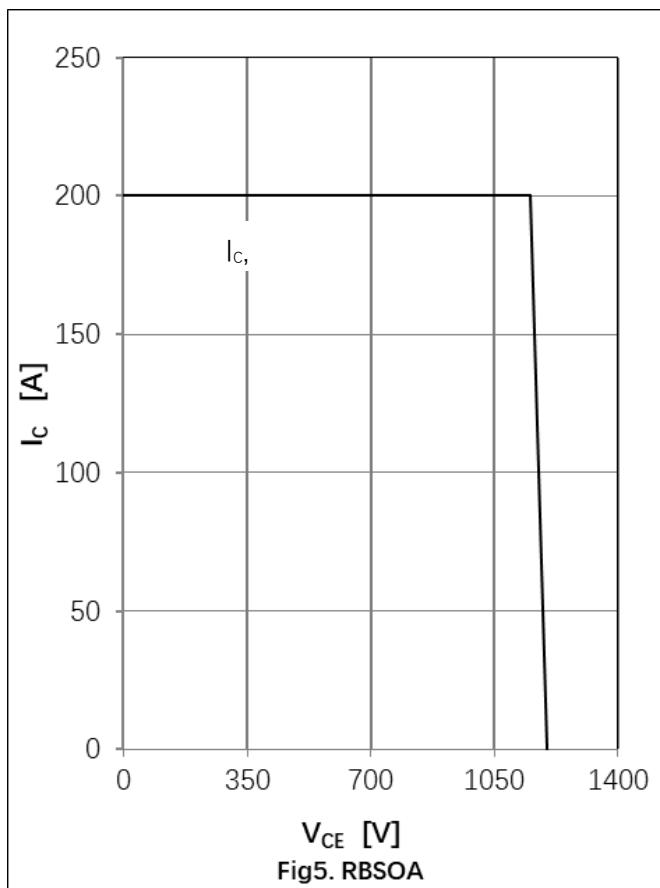


Fig5. RBSOA

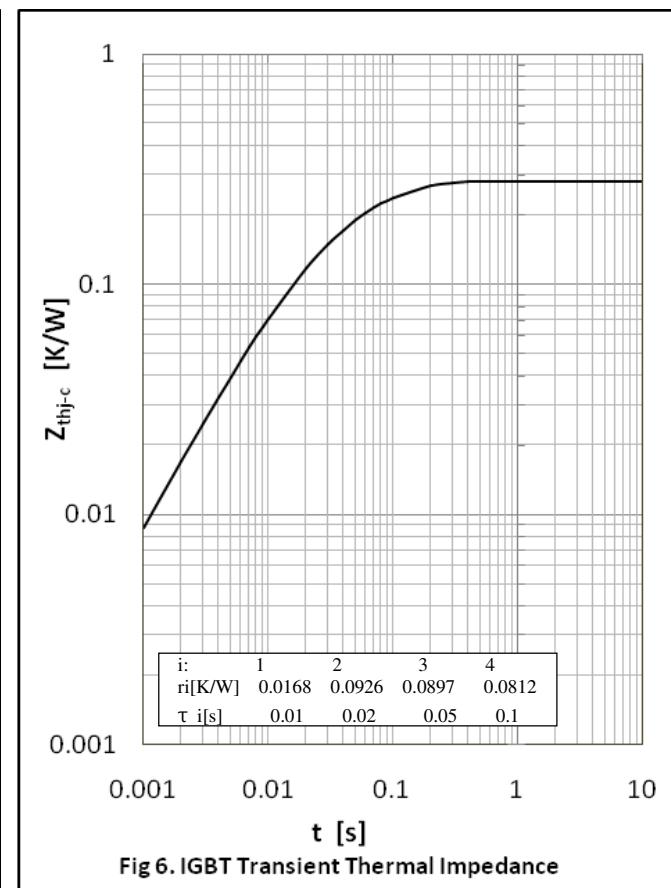
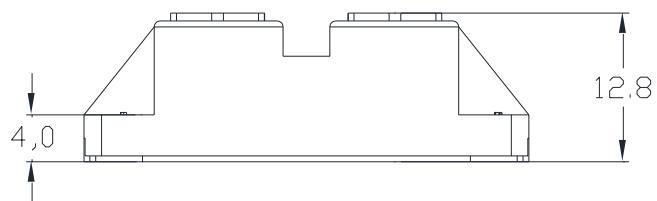
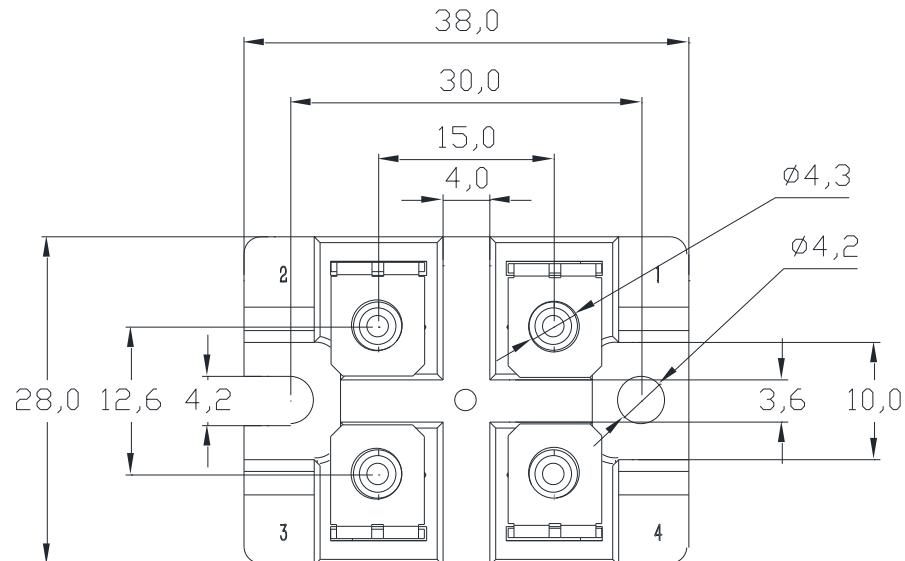


Fig 6. IGBT Transient Thermal Impedance

Package Dimensions

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Dimensions in mm



Ordering Information

Device	Packing
Part Number-BP	Bulk: 25pcs/Box ; 250pcs/Ctn

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