FEATURES

- V

IGBT, Inverter

Maximum Rated Values

Collector-emitter voltage	Tvj = 25 ℃	V_{CES}	1200	V
Continuous DC collector current	Tc = 95 ℃, Tvj max = 175 ℃	I_C	200	A
Repetitive peak collector current	t_P = 1 ms	I_{CRM}	400	A
Total power dissipation	TC = 25 ℃, Tvj max = 175 ℃	P_{tot}	1071	W
Gate-emitter peak voltage		V_{GES}	±20	V

Characteristic Values

Collector-emitter saturation voltage	I_C = 200A, V_{GE} = 15 V Tvj = 25 ℃ Tvj = 125 ℃ Tvj = 150 ℃	V_{CEsat}		1.85 2.10 2.25	2.4	V
Gate threshold voltage	I_C = 3 mA, V_{CE} = V_{GE} Tvj = 25 ℃	V_{GEth}	5.1	5.7	6.2	V
Gate charge	V_{GE} = -15 / 15 V	Q_G		0.9		µC
Internal gate resistor	Tvj = 25 ℃	R_{Gint}		2.1		
Input capacitance	f = 1 MHz, Tvj = 25 ℃, V_{CE} = 25 V, V_{GE} = 0 V	C_{ies}		35.16		nF
Reverse transfer capacitance		C_{res}		1.29		nF
Collector-emitter cut-off current	V_{CE} = 1200 V, V_{GE} = 0 V, Tvj = 25 ℃	I_{CES}			1.0	mA
Gate-emitter leakage current	V_{CE} = 0 V, V_{GE} = 20 V, Tvj = 25 ℃	I_{GES}			400	nA
Turn-on delay time, inductive load	I_C = 200A ,V_{CE} = 600V, Tvj = 25 ℃ V_{GE} = 15V Tvj =125 ℃ R_g=5.1 Tvj = 150 ℃	t_{don}		0.16		µs
Rise time, inductive load		t_r		0.094		µs
Turn-off delay time, inductive load		t_{doff}		0.35		µs
Fall time, inductive load		t_f		0.096		µs
Turn-on energy loss per pulse		E_{on}		10.7 26.1 29.4		mJ
Turn-off energy loss per pulse		E_{off}		10.8 12.8 13.2		mJ

Thermal resistance, junction to case	per IGBT	R_{thJC}			0.14	K/W
Thermal resistance, case to heatsink	per IGBT λ_{Paste}=1 W/(m·K) /λ_{grease}=1 W/(m K)	R_{thCH}		0.035		K/W
Temperature under switching conditions		Tvj op	-40		150	℃

Diode, Inverter

Module

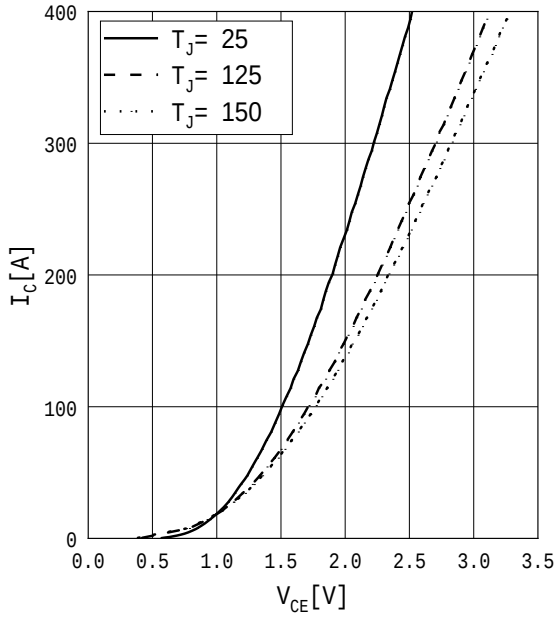
Maximum Rated Values

Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V_{ISOL}	2.5	kV
Internal isolation	basic insulation (class 1, IEC 61140)		Al_2O_3	
Creepage distance	terminal to heatsink terminal to terminal		29 23	mm
Clearance	terminal to heatsink terminal to terminal		23 11	mm
Comperative tracking index		CTI	400	

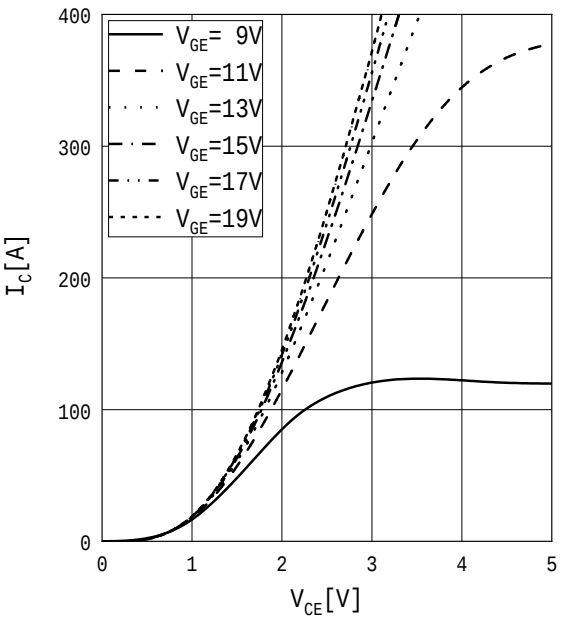
Characteristic Values

Stray inductance module and fixture		L_{sCE}		20		nH
Module lead resistance, terminals - chip	TC = 25 ℃ per switch	$R_{CC'+EE}$		0.7		mΩ
Storage temperature		T_{stg}	-40		125	℃
Mountig force per clamp		F	3		6	N
Weight		G		345		g

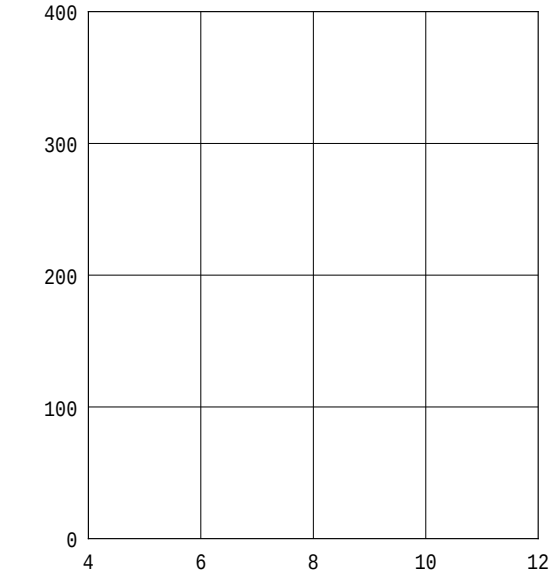
$I_C=f(V_{CE})$
$V_{GE}=15V$



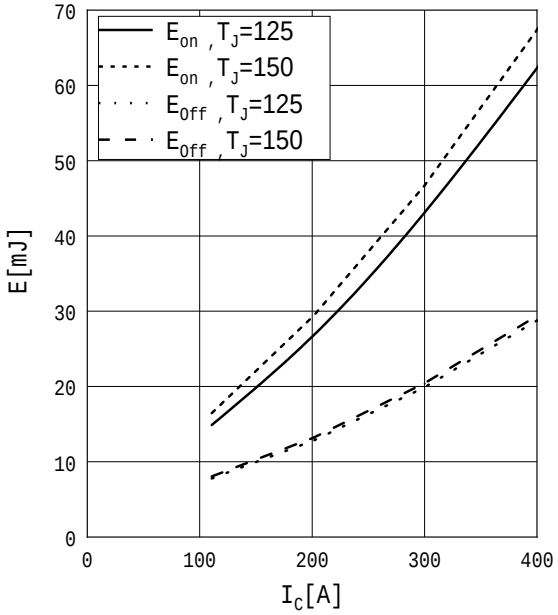
$I_C=f(V_{CE})$
$T_J=150$



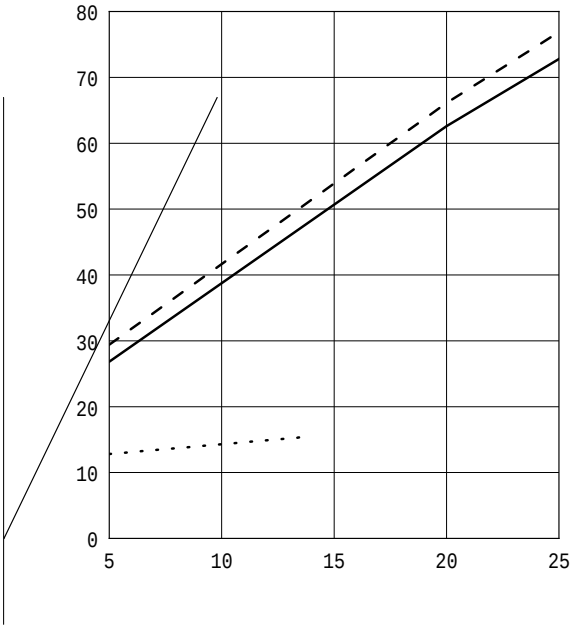
$I_C=f(V_{CE})$
$V_{CE}=20V$



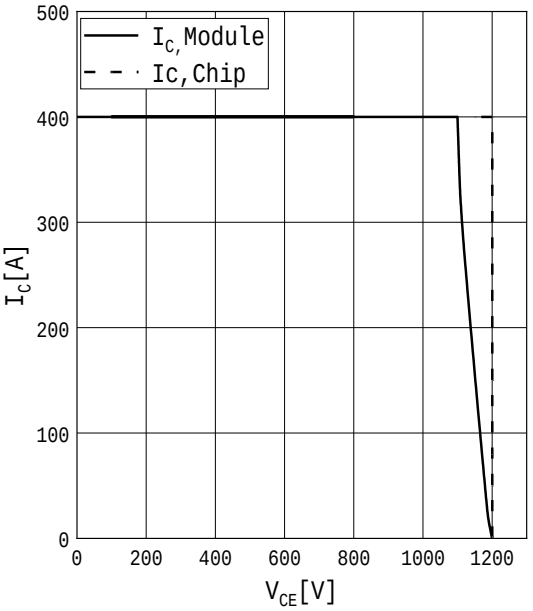
$E_{on}=f(I_C)$, $E_{off}=f(I_C)$
$V_{GE}=\pm15V, R_{Gon}=5.1\Omega, R_{Goff}=5.1\Omega, V_{CE}=600V$



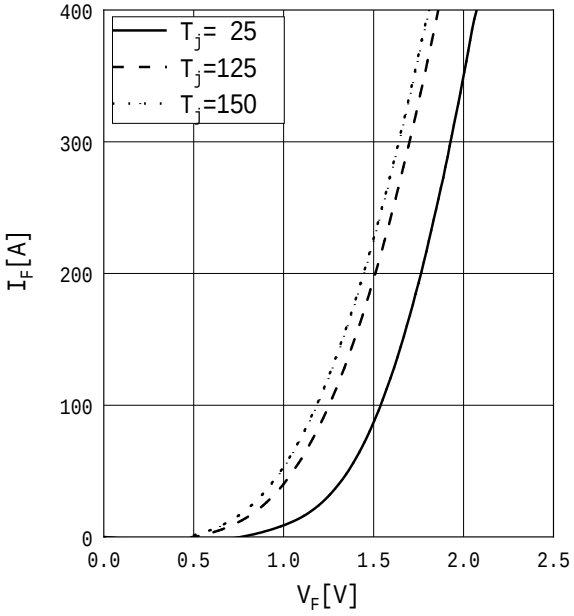
$E_{on}=f(R_G)$, $E_{off}=f(R_G)$
$V_{GE}=\pm15V, I_C=200A, V_{CE}=600V$



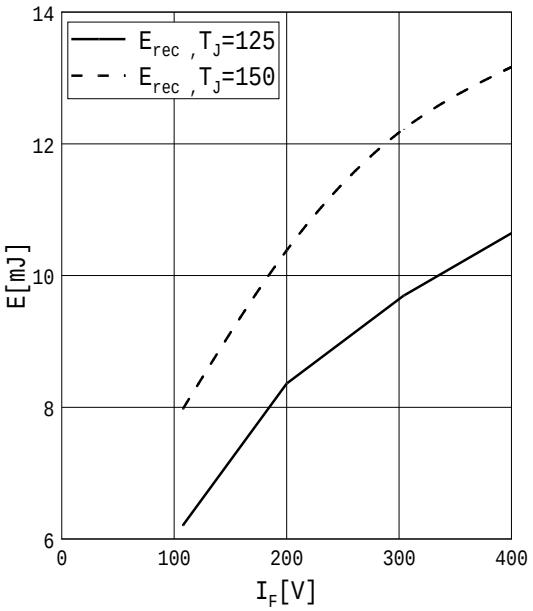
$I_C=f(V_{CE})$,
$V_{GE}=\pm15V, R_{Goff}=5.1\Omega, T_J=150$



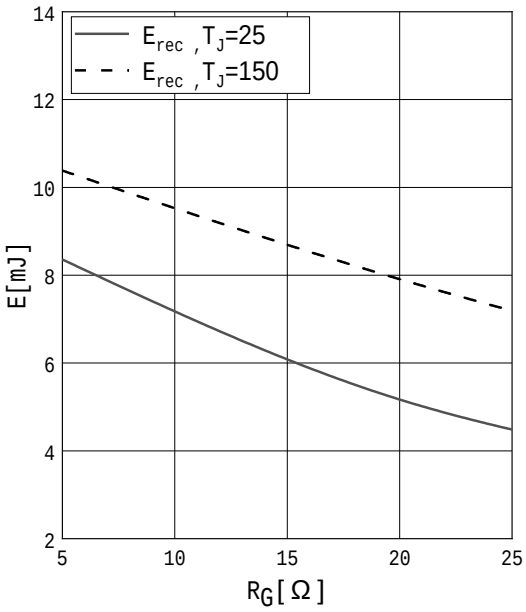
$I_F=f(V_F)$



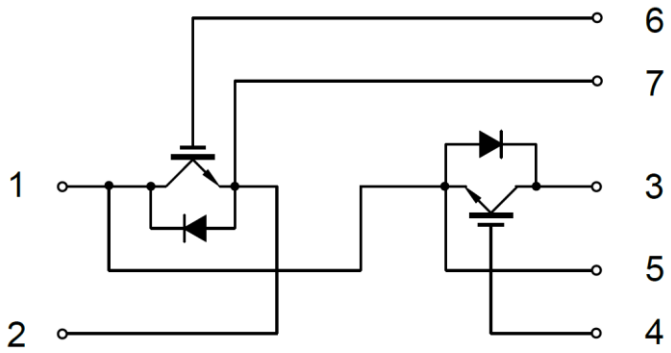
$E_{rec}=f(I_F)$
$R_{Gon}=5.1\Omega, V_{CE}=600V$



$E_{rec}=f(R_G)$
$I_F=200A, V_{CE}=600V$



Circuit diagram



Package outlines (mm)