

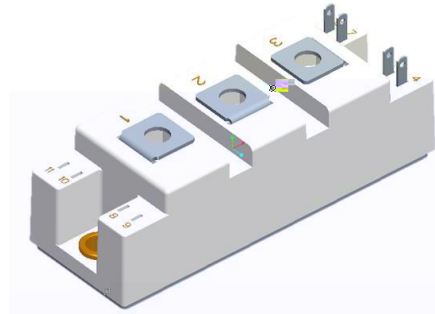
FEATURES

- V_{CEsat} with positive temperature coefficient
- Low switching losses
- Low inductance case
- Isolated copper baseplate using DBC technology

Preliminary Data

$V_{CES} = 1200V$

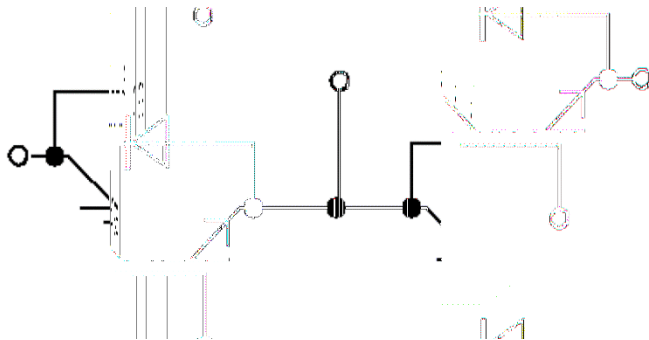
IC nom = 100A / ICRM = 200A



APPLICATION

- Welding Machine
- Switching Mode Power Supplies

Equivalent Circuit Schematic



IGBT, Inverter

Maximum Rated Values

Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{CES}	1200	V
Continuous DC collector current	$T_c = 100^{\circ}\text{C}, T_{vj} \text{ max} = 175^{\circ}\text{C}$	I_c	100	A
Repetitive peak collector current	$t_p = 1 \text{ ms}$	I_{CRM}	200	A
Total power dissipation	$T_c = 25^{\circ}\text{C}, T_{vj} \text{ max} = 175^{\circ}\text{C}$	P_{tot}	577	W
Gate-emitter peak voltage		V_{GES}	± 20	V

Characteristic Values

Collector-emitter saturation voltage	$I_c = 100\text{A}, V_{GE} = 15 \text{ V}$ $T_{vj} = 25^{\circ}\text{C}$	V_{CEsat}	1.85	V
Gate threshold voltage	$I_c = 1.5 \text{ mA}, V_{CE} = V_{GE}$ $T_{vj} = 25^{\circ}\text{C}$			

Diode, Inverter

Maximum Rated Values

Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{RRM}	1200	V
Continuous DC forward current		I_F	100	A
Repetitive peak forward current	$t_p = 1\text{ ms}$	I_{FRM}	200	A

Characteristic Values

Forward voltage	$I_F = 100\text{ A}, V_{GE} = 0\text{ V}$ $T_{vj} = 25^{\circ}\text{C}$	V_F	1.7	V
Peak reverse recovery current	$I_F = 100\text{ A}, -d_iF/d_t = 2400\text{ A}/\mu\text{s}$ $V_R = 600\text{ V}, V_{GE} = -15\text{ V}$ $R_G = 5.1\Omega$ $T_{vj} = 25^{\circ}\text{C}$	I_{RR}	140	A
Recovered charge		Q_{RR}	7	μC
Reverse recovery energy		E_{rec}	1.75	mJ
Thermal resistance, junction to case	per diode	R_{thJC}	0.52	K/W
Thermal resistance, case to heatsink	per diode $I_{paste} = 1\text{ W}/(\text{m}\cdot\text{K}) / I_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$	R_{thCH}	0.16	K/W
Temperature under switching conditions		$T_{vj\text{ op}}$	-40	150 $^{\circ}\text{C}$

Module

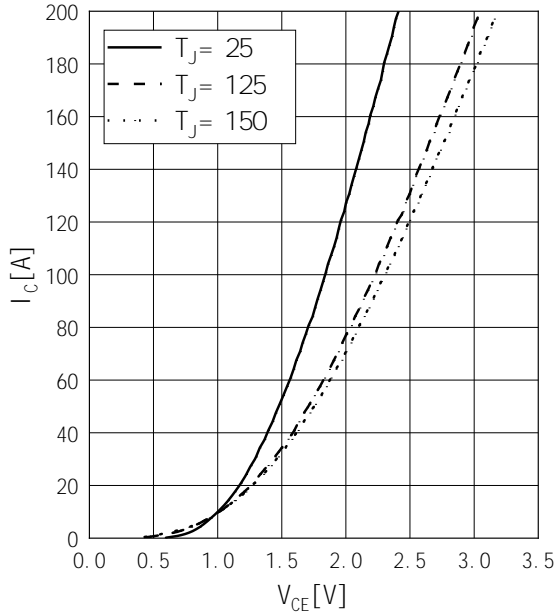
Maximum Rated Values

Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V _{ISOL}	2.5	kV
Internal isolation	basic insulation (class 1, IEC 61140)		Al ₂ O ₃	
Creepage distance	terminal to heatsink		17	mm
	terminal to terminal		20	
Clearance	terminal to heatsink		17	mm
	terminal to terminal		9.5	

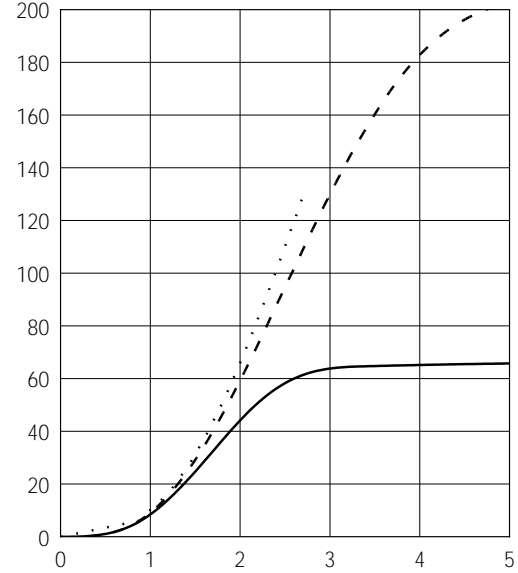
Comperative tracking index

CTI

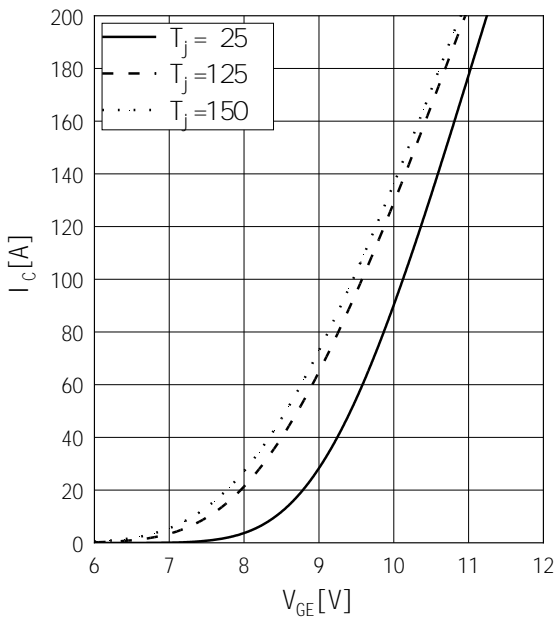
$I_C=f(V_{CE})$
 $V_{GE}=15V$



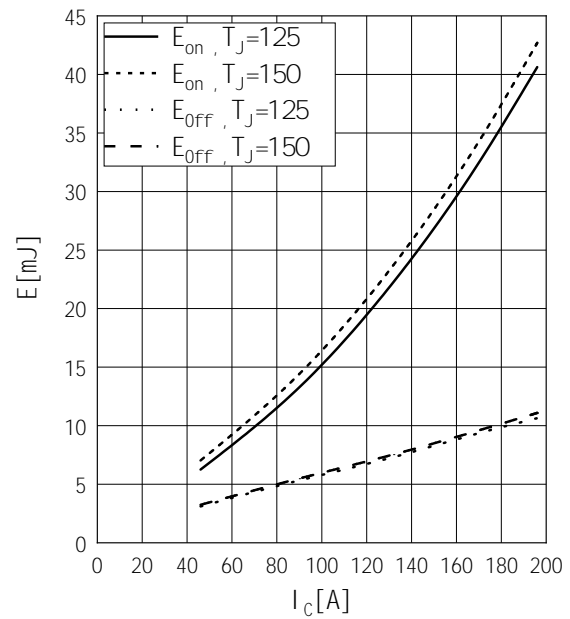
$I_C=f(V_{CE})$
 $T_J=150$



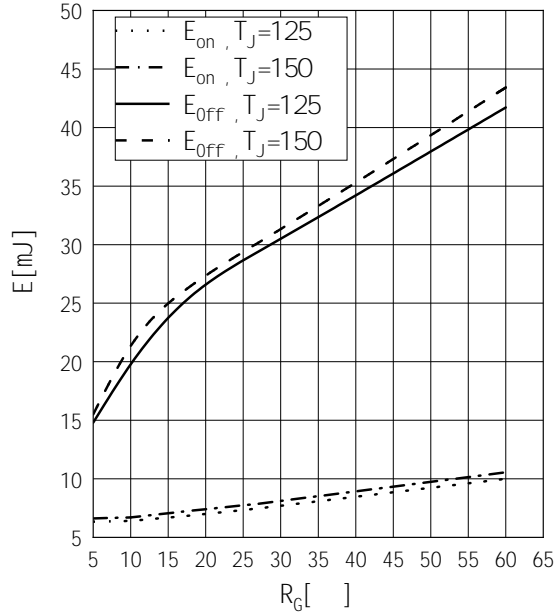
$I_C=f(V_{CE})$
 $V_{CE}=20V$



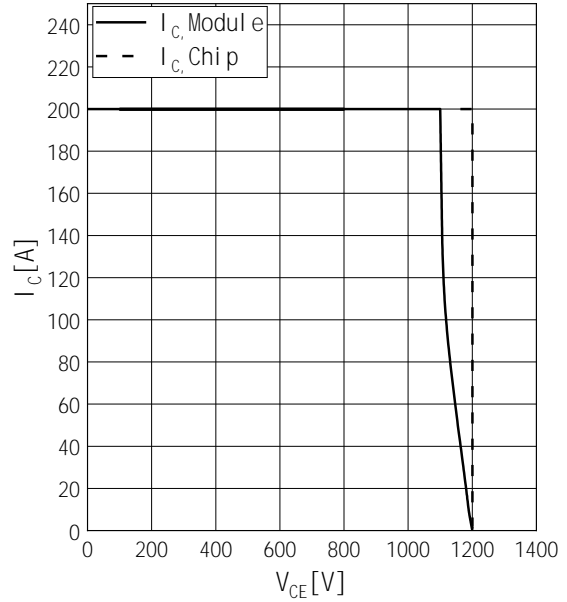
$E_{on}=f(I_C), E_{off}=f(I_C)$
 $V_{GE}=\pm 15V, R_{Gon}=5.1, R_{Goff}=5.1, V_{CE}=600V$



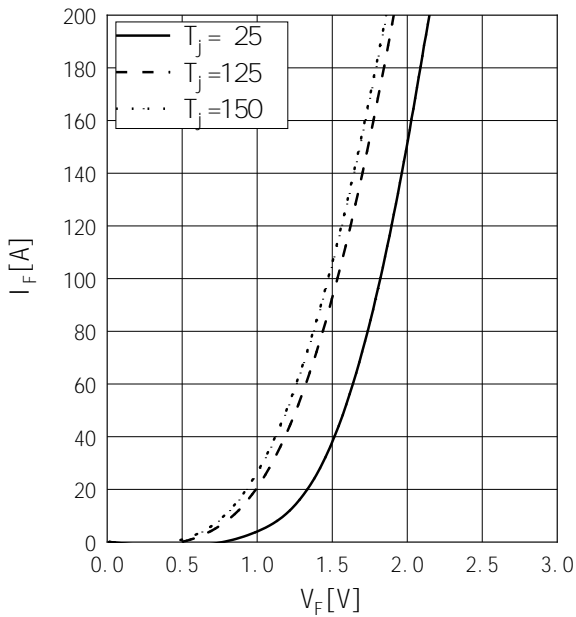
$E_{on}=f(R_G), E_{off}=f(R_G)$
 $V_{GE}=\pm 15V, I_C=100A, V_{CE}=600V$



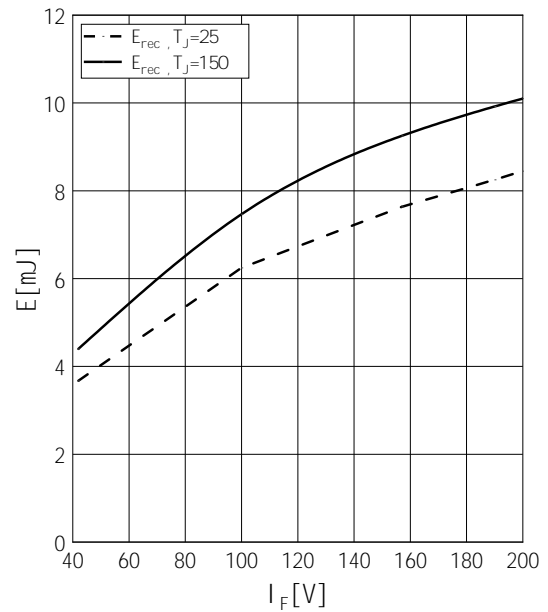
$I_C=f(V_{CE}),$
 $V_{GE}=\pm 15V, R_{Goff}=5.1, T_J=150$



$I_F=f(V_F)$



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



$E_{rec} = f(R_G)$
 $I_F = 100A, V_{CE} = 600V$

