1 Electrical ratings

Table 2: Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CES}	Collector-emitter voltage (V_{GE} = 0 V)	650	V
I_C (1)	Continuous collector current at T_C = 25 °C	160	A
I_C	Continuous collector current at T_C = 100 °C	120	
I_{CP} (2)	Pulsed collector current	360	A
V_{GE}	Gate-emitter voltage	± 20	V
I_F (1)	Continuous forward current at T_C = 25 °C	160	A
I_F	Continuous forward current at T_C = 100 °C	120	
I_{FP} (2)	Pulsed forward current	360	A
P_{TOT}	Total dissipation at T_C = 25 °C	625	W
T_{STG}	Storage temperature range	- 55 to 150	°C
T_J	Operating junction temperature range	- 55 to 175	

Notes:

(1)Current level is limited by bond wires.

(2)Pulse width limited by maximum junction temperature.

Table 3: Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance junction-case IGBT	0.24	°C/W
R_{thJC}	Thermal resistance junction-case diode	0.6	
R_{thJA}	Thermal resistance junction-ambient	50	

2 Electrical characteristics

T_C = 25 °C unless otherwise specified

Table 4: Static characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CES}$	Collector-emitter breakdown voltage	V_{GE} = 0 V, I_C = 250 µA	650			V
$V_{CE(sat)}$	Collector-emitter saturation voltage	V_{GE} = 15 V, I_C = 120 A		1.65	2.15	V
		V_{GE} = 15 V, I_C = 120 A, T_J = 125 °C		1.95		
		V_{GE} = 15 V, I_C = 120 A, T_J = 175 °C		2.1		
V_F	Forward on-voltage	I_F = 120 A		1.9	2.6	V
		I_F = 120 A, T_J = 125 °C		1.7		
		I_F = 120 A, T_J = 175 °C		1.6		
$V_{GE(th)}$	Gate threshold voltage	V_{CE} = V_{GE}, I_C = 2 mA	5	6	7	V
I_{CES}	Collector cut-off current	V_{GE} = 0 V, V_{CE} = 650 V			100	µA
I_{GES}	Gate-emitter leakage current	V_{CE} = 0 V, V_{GE} = ± 20 V			± 250	µA

Table 5: Dynamic characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
C_{ies}	Input capacitance	V_{CE}= 25 V, f = 1 MHz, V_{GE} = 0 V	-	11	-	nF
C_{oes}	Output capacitance		-	0.61	-	
C_{res}	Reverse transfer capacitance		-	0.25	-	
Q_g	Total gate charge	V_{CC} = 520 V, I_C = 120 A, V_{GE} = 0 to 15 V (see *Figure 30: " Gate charge test circuit"*)	-	420	-	nC
Q_{ge}	Gate-emitter charge		-	90	-	
Q_{gc}	Gate-collector charge		-	160	-	