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Maximum ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CE}	600	V
DC collector current, limited by $T_{vjmax}^{1)}$ $T_C = 25^\circ\text{C}$ $T_C = 115^\circ\text{C}$	I_C	80.0 60.0	A
Pulsed collector current, t_p limited by T_{vjmax}	I_{Cpuls}	180.0	A
Turn off safe operating area $V_{CE} \leq 600\text{V}$, $T_{vj} \leq 175^\circ\text{C}$	-	180.0	A
Diode forward current, limited by T_{vjmax} $T_C = 25^\circ\text{C}$ $T_C = 115^\circ\text{C}$	I_F	80.0 30.0	A
Diode pulsed current, t_p limited by T_{vjmax}	I_{Fpuls}	90.0	A
Gate-emitter voltage	V_{GE}	± 20	V
Short circuit withstand time $V_{GE} = 15.0\text{V}$, $V_{CC} \leq 400\text{V}$ Allowed number of short circuits < 1000 Time between short circuits: $\geq 1.0\text{s}$ $T_{vj} = 150^\circ\text{C}$	t_{SC}	5	μs
Power dissipation $T_C = 25^\circ\text{C}$	P_{tot}	416.0	W
Operating junction temperature	T_{vj}	-40...+175	$^\circ\text{C}$
Storage temperature	T_{stg}	-55...+150	$^\circ\text{C}$
Soldering temperature, wave soldering 1.6 mm (0.063 in.) from case for 10s		260	$^\circ\text{C}$
Mounting torque, M3 screw Maximum of mounting processes: 3	M	0.6	Nm

Thermal Resistance

Parameter	Symbol	Conditions	Max. Value	Unit
Characteristic				
IGBT thermal resistance, junction - case	$R_{th(j-c)}$		0.36	K/W
Diode thermal resistance, junction - case	$R_{th(j-c)}$		1.05	K/W
Thermal resistance junction - ambient	$R_{th(j-a)}$		40	K/W

¹⁾ 80A value limited by bondwire