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**Maximum ratings**

| Parameter   | Symbol      | Value         | Unit               |
|---|-------------|---------------|--------------------|
| Collector-emitter voltage, $T_{vj} \geq 25^{\circ}\text{C}$   | $V_{CE}$    | 600           | V                  |
| DC collector current, limited by $T_{vjmax}$<br>$T_C = 25^{\circ}\text{C}$<br>$T_C = 100^{\circ}\text{C}$   | $I_C$       | 40.0<br>20.0  | A                  |
| Pulsed collector current, $t_p$ limited by $T_{vjmax}$  | $I_{Cpuls}$ | 80.0          | A                  |
| Turn off safe operating area<br>$V_{CE} \leq 600\text{V}$ , $T_{vj} \leq 175^{\circ}\text{C}$ , $t_p = 1\mu\text{s}$  | -           | 80.0          | A                  |
| Diode forward current, limited by $T_{vjmax}$<br>$T_C = 25^{\circ}\text{C}$<br>$T_C = 100^{\circ}\text{C}$  | $I_F$       | 20.0<br>10.0  | A                  |
| Diode pulsed current, $t_p$ limited by $T_{vjmax}$  | $I_{Fpuls}$ | 80.0          | A                  |
| Gate-emitter voltage  | $V_{GE}$    | $\pm 20$      | V                  |
| Short circuit withstand time<br>$V_{GE} = 15.0\text{V}$ , $V_{CC} \leq 400\text{V}$<br>Allowed number of short circuits < 1000<br>Time between short circuits: $\geq 1.0\text{s}$<br>$T_{vj} = 150^{\circ}\text{C}$ | $t_{SC}$    | 5             | $\mu\text{s}$      |
| Power dissipation $T_C = 25^{\circ}\text{C}$<br>Power dissipation $T_C = 100^{\circ}\text{C}$   | $P_{tot}$   | 170.0<br>85.0 | W                  |
| Operating junction temperature  | $T_{vj}$    | -40...+175    | $^{\circ}\text{C}$ |
| Storage temperature   | $T_{stg}$   | -55...+150    | $^{\circ}\text{C}$ |
| Soldering temperature,<br>wave soldering 1.6 mm (0.063 in.) from case for 10s   |             | 260           | $^{\circ}\text{C}$ |
| Mounting torque, M3 screw<br>Maximum of mounting processes: 3   | $M$         | 0.6           | Nm                 |

**Thermal Resistance**

| Parameter                                    | Symbol        | Conditions | Max. Value | Unit |
|--|---------------|------------|------------|------|
| <b>Characteristic</b>                        |               |            |            |      |
| IGBT thermal resistance,<br>junction - case  | $R_{th(j-c)}$ |            | 0.88       | K/W  |
| Diode thermal resistance,<br>junction - case | $R_{th(j-c)}$ |            | 1.89       | K/W  |
| Thermal resistance<br>junction - ambient     | $R_{th(j-a)}$ |            | 62         | K/W  |