

**IGBT, 逆变器 / IGBT, Inverter**

**最大额定值 / Maximum Rated Values**

|  |  |                            |          |        |
|--|--|----------------------------|----------|--------|
| 集电极 - 发射极电压<br>Collector-emitter voltage       | $T_{vj} = 25^{\circ}\text{C}$  | $V_{CES}$                  | 1200     | V      |
| 连续集电极直流电流<br>Continuous DC collector current   | $T_C = 80^{\circ}\text{C}, T_{vj\max} = 150^{\circ}\text{C}$<br>$T_C = 25^{\circ}\text{C}, T_{vj\max} = 150^{\circ}\text{C}$ | $I_{C\text{nom}}$<br>$I_C$ | 50<br>75 | A<br>A |
| 集电极重复峰值电流<br>Repetitive peak collector current | $t_P = 1\text{ ms}$  | $I_{CRM}$                  | 100      | A      |
| 总功率损耗<br>Total power dissipation               | $T_C = 25^{\circ}\text{C}, T_{vj\max} = 150$   | $P_{\text{tot}}$           | 280      | W      |
| 栅极 - 发射极峰值电压<br>Gate-emitter peak voltage      |  | $V_{GES}$                  | +/-20    | V      |

**特征值 / Characteristic Values**

|   |  |   | min.               | typ.         | max. |                                |
|---|--|---|--------------------|--------------|------|--------------------------------|
| 集电极 - 发射极饱和电压<br>Collector-emitter saturation voltage | $I_C = 50\text{ A}, V_{GE} = 15\text{ V}$<br>$I_C = 50\text{ A}, V_{GE} = 15\text{ V}$   | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $V_{CE\text{sat}}$ | 1,70<br>2,00 | 2,15 | V<br>V                         |
| 栅极阈值电压<br>Gate threshold voltage                      | $I_C = 2,00\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$   |   | $V_{G\text{Eth}}$  | 5,0          | 5,8  | 6,5 V                          |
| 栅极电荷<br>Gate charge                                   | $V_{GE} = -15\text{ V} \dots +15\text{ V}$   |   | $Q_G$              | 0,47         |      | $\mu\text{C}$                  |
| 内部栅极电阻<br>Internal gate resistor                      | $T_{vj} = 25^{\circ}\text{C}$  |   | $R_{G\text{int}}$  | 4,0          |      | $\Omega$                       |
| 输入电容<br>Input capacitance                             | $f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$                                     |   | $C_{\text{ies}}$   | 3,50         |      | nF                             |
| 反向传输电容<br>Reverse transfer capacitance                | $f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$                                     |   | $C_{\text{res}}$   | 0,13         |      | nF                             |
| 集电极-发射极截止电流<br>Collector-emitter cut-off current      | $V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$   |   | $I_{CES}$          |              | 5,0  | mA                             |
| 栅极-发射极漏电流<br>Gate-emitter leakage current             | $V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}, T_{vj} = 25^{\circ}\text{C}$   |   | $I_{GES}$          |              | 400  | nA                             |
| 开通延迟时间(电感负载)<br>Turn-on delay time, inductive load    | $I_C = 50\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{on}} = 18\ \Omega$                      | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $t_{d\text{on}}$   | 0,09<br>0,09 |      | $\mu\text{s}$<br>$\mu\text{s}$ |
| 上升时间(电感负载)<br>Rise time, inductive load               | $I_C = 50\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{on}} = 18\ \Omega$                      | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $t_r$              | 0,03<br>0,05 |      | $\mu\text{s}$<br>$\mu\text{s}$ |
| 关断延迟时间(电感负载)<br>Turn-off delay time, inductive load   | $I_C = 50\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{off}} = 18\ \Omega$                     | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $t_{d\text{off}}$  | 0,42<br>0,52 |      | $\mu\text{s}$<br>$\mu\text{s}$ |
| 下降时间(电感负载)<br>Fall time, inductive load               | $I_C = 50\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{off}} = 18\ \Omega$                     | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $t_f$              | 0,07<br>0,09 |      | $\mu\text{s}$<br>$\mu\text{s}$ |
| 开通损耗能量(每脉冲)<br>Turn-on energy loss per pulse          | $I_C = 50\text{ A}, V_{CE} = 600\text{ V}, L_S = 45\text{ nH}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{on}} = 18\ \Omega$  | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $E_{\text{on}}$    | 4,90<br>6,60 |      | mJ<br>mJ                       |
| 关断损耗能量(每脉冲)<br>Turn-off energy loss per pulse         | $I_C = 50\text{ A}, V_{CE} = 600\text{ V}, L_S = 45\text{ nH}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{off}} = 18\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $E_{\text{off}}$   | 4,00<br>5,80 |      | mJ<br>mJ                       |
| 短路数据<br>SC data                                       | $V_{GE} \leq 15\text{ V}, V_{CC} = 900\text{ V}$<br>$V_{CE\text{max}} = V_{CES} - L_{S\text{CE}} \cdot di/dt$                  | $t_P \leq 10\ \mu\text{s}, T_{vj} = 125^{\circ}\text{C}$        | $I_{SC}$           | 200          |      | A                              |
| 结 - 外壳热阻<br>Thermal resistance, junction to case      | 每个 IGBT / per IGBT   |   | $R_{\text{thJC}}$  |              | 0,45 | K/W                            |
| 在开关状态下温度<br>Temperature under switching conditions    |  |   | $T_{vj\text{op}}$  | -40          | 125  | $^{\circ}\text{C}$             |

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**二极管, 逆变器 / Diode, Inverter**  
**最大额定值 / Maximum Rated Values**

|  |  |           |      |                  |
|--|--|-----------|------|------------------|
| 反向重复峰值电压<br>Repetitive peak reverse voltage    | $T_{vj} = 25^{\circ}\text{C}$  | $V_{RRM}$ | 1200 | V                |
| 连续正向直流电流<br>Continuous DC forward current      |  | $I_F$     | 50   | A                |
| 正向重复峰值电流<br>Repetitive peak forward current    | $t_P = 1\text{ ms}$  | $I_{FRM}$ | 100  | A                |
| I <sup>2</sup> t-值<br>I <sup>2</sup> t - value | $V_R = 0\text{ V}, t_P = 10\text{ ms}, T_{vj} = 125^{\circ}\text{C}$ | $I^2t$    | 690  | A <sup>2</sup> s |

**特征值 / Characteristic Values**

|  |   |   | min.               | typ.         | max. |                                |
|--|---|---|--------------------|--------------|------|--------------------------------|
| 正向电压<br>Forward voltage                            | $I_F = 50\text{ A}, V_{GE} = 0\text{ V}$<br>$I_F = 50\text{ A}, V_{GE} = 0\text{ V}$  | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $V_F$              | 1,65<br>1,65 | 2,15 | V<br>V                         |
| 反向恢复峰值电流<br>Peak reverse recovery current          | $I_F = 50\text{ A}, -di_F/dt = 1200\text{ A}/\mu\text{s} (T_{vj}=125^{\circ}\text{C})$<br>$V_R = 600\text{ V}$<br>$V_{GE} = -15\text{ V}$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $I_{RM}$           | 51,0<br>50,0 |      | A<br>A                         |
| 恢复电荷<br>Recovered charge                           | $I_F = 50\text{ A}, -di_F/dt = 1200\text{ A}/\mu\text{s} (T_{vj}=125^{\circ}\text{C})$<br>$V_R = 600\text{ V}$<br>$V_{GE} = -15\text{ V}$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $Q_r$              | 6,20<br>12,0 |      | $\mu\text{C}$<br>$\mu\text{C}$ |
| 反向恢复损耗 (每脉冲)<br>Reverse recovery energy            | $I_F = 50\text{ A}, -di_F/dt = 1200\text{ A}/\mu\text{s} (T_{vj}=125^{\circ}\text{C})$<br>$V_R = 600\text{ V}$<br>$V_{GE} = -15\text{ V}$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $E_{rec}$          | 2,10<br>4,40 |      | mJ<br>mJ                       |
| 结 - 外壳热阻<br>Thermal resistance, junction to case   | 每个二极管 / per diode   |   | $R_{thJC}$         |              | 0,75 | K/W                            |
| 在开关状态下温度<br>Temperature under switching conditions |   |   | $T_{vj\text{ op}}$ | -40          | 125  | $^{\circ}\text{C}$             |

**二极管, 整流器 / Diode, Rectifier**  
**最大额定值 / Maximum Rated Values**

|   |   |             |             |                                      |
|---|---|-------------|-------------|--------------------------------------|
| 反向重复峰值电压<br>Repetitive peak reverse voltage             | $T_{vj} = 25^{\circ}\text{C}$   | $V_{RRM}$   | 1600        | V                                    |
| 最大正向均方根电流(每芯片)<br>Maximum RMS forward current per chip  | $T_C = 80^{\circ}\text{C}$  | $I_{FRMSM}$ | 80          | A                                    |
| 最大整流器输出均方根电流<br>Maximum RMS current at rectifier output | $T_C = 80^{\circ}\text{C}$  | $I_{RMSM}$  | 115         | A                                    |
| 正向浪涌电流<br>Surge forward current                         | $t_p = 10\text{ ms}, T_{vj} = 25^{\circ}\text{C}$<br>$t_p = 10\text{ ms}, T_{vj} = 150^{\circ}\text{C}$ | $I_{FSM}$   | 500<br>400  | A<br>A                               |
| I <sup>2</sup> t-值<br>I <sup>2</sup> t - value          | $t_p = 10\text{ ms}, T_{vj} = 25^{\circ}\text{C}$<br>$t_p = 10\text{ ms}, T_{vj} = 150^{\circ}\text{C}$ | $I^2t$      | 1250<br>800 | A <sup>2</sup> s<br>A <sup>2</sup> s |

**特征值 / Characteristic Values**

|  |   |            | min.               | typ. | max. |                    |
|--|---|------------|--------------------|------|------|--------------------|
| 正向电压<br>Forward voltage                            | $T_{vj} = 150^{\circ}\text{C}, I_F = 50\text{ A}$   | $V_F$      |                    | 1,00 |      | V                  |
| 阈值电压<br>Threshold voltage                          | $T_{vj} = 150^{\circ}\text{C}$                      | $V_{TO}$   |                    | 0,80 |      | V                  |
| 斜率电阻<br>Slope resistance                           | $T_{vj} = 150^{\circ}\text{C}$                      | $r_T$      |                    | 6,00 |      | m $\Omega$         |
| 反向电流<br>Reverse current                            | $T_{vj} = 150^{\circ}\text{C}, V_R = 1600\text{ V}$ | $I_R$      |                    | 3,00 |      | mA                 |
| 结 - 外壳热阻<br>Thermal resistance, junction to case   | 每个二极管 / per diode                                   | $R_{thJC}$ |                    |      | 0,65 | K/W                |
| 在开关状态下温度<br>Temperature under switching conditions |   |            | $T_{vj\text{ op}}$ |      |      | $^{\circ}\text{C}$ |

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**IGBT, 制动-斩波器 / IGBT, Brake-Chopper**  
**最大额定值 / Maximum Rated Values**

|  |  |                            |          |        |
|--|--|----------------------------|----------|--------|
| 集电极 - 发射极电压<br>Collector-emitter voltage       | $T_{vj} = 25^{\circ}\text{C}$  | $V_{CES}$                  | 1200     | V      |
| 连续集电极直流电流<br>Continuous DC collector current   | $T_C = 80^{\circ}\text{C}, T_{vj\max} = 150^{\circ}\text{C}$<br>$T_C = 25^{\circ}\text{C}, T_{vj\max} = 150^{\circ}\text{C}$ | $I_{C\text{nom}}$<br>$I_C$ | 40<br>55 | A<br>A |
| 集电极重复峰值电流<br>Repetitive peak collector current | $t_P = 1\text{ ms}$  | $I_{CRM}$                  | 80       | A      |
| 总功率损耗<br>Total power dissipation               | $T_C = 25^{\circ}\text{C}, T_{vj\max} = 150$   | $P_{\text{tot}}$           | 210      | W      |
| 栅极 - 发射极峰值电压<br>Gate-emitter peak voltage      |  | $V_{GES}$                  | +/-20    | V      |

**特征值 / Characteristic Values**

|   |  |   | min.               | typ.         | max. |                                |   |
|---|--|---|--------------------|--------------|------|--------------------------------|---|
| 集电极 - 发射极饱和电压<br>Collector-emitter saturation voltage | $I_C = 40\text{ A}, V_{GE} = 15\text{ V}$<br>$I_C = 40\text{ A}, V_{GE} = 15\text{ V}$   | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $V_{CE\text{sat}}$ | 1,80<br>2,15 | 2,30 | V<br>V                         |   |
| 栅极阈值电压<br>Gate threshold voltage                      | $I_C = 1,50\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$   |   | $V_{G\text{Eth}}$  | 5,0          | 5,8  | 6,5                            | V |
| 栅极电荷<br>Gate charge                                   | $V_{GE} = -15\text{ V} \dots +15\text{ V}$   |   | $Q_G$              | 0,33         |      | $\mu\text{C}$                  |   |
| 内部栅极电阻<br>Internal gate resistor                      | $T_{vj} = 25^{\circ}\text{C}$  |   | $R_{G\text{int}}$  | 6,0          |      | $\Omega$                       |   |
| 输入电容<br>Input capacitance                             | $f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$   |   | $C_{\text{ies}}$   | 2,50         |      | nF                             |   |
| 反向传输电容<br>Reverse transfer capacitance                | $f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$   |   | $C_{\text{res}}$   | 0,09         |      | nF                             |   |
| 集电极-发射极截止电流<br>Collector-emitter cut-off current      | $V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$   |   | $I_{CES}$          |              | 5,0  | mA                             |   |
| 栅极-发射极漏电流<br>Gate-emitter leakage current             | $V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}, T_{vj} = 25^{\circ}\text{C}$   |   | $I_{GES}$          |              | 400  | nA                             |   |
| 开通延迟时间(电感负载)<br>Turn-on delay time, inductive load    | $I_C = 40\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{on}} = 27\ \Omega$                          | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $t_{d\text{on}}$   | 0,09<br>0,09 |      | $\mu\text{s}$<br>$\mu\text{s}$ |   |
| 上升时间(电感负载)<br>Rise time, inductive load               | $I_C = 40\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{on}} = 27\ \Omega$                          | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $t_r$              | 0,03<br>0,05 |      | $\mu\text{s}$<br>$\mu\text{s}$ |   |
| 关断延迟时间(电感负载)<br>Turn-off delay time, inductive load   | $I_C = 40\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{off}} = 27\ \Omega$                         | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $t_{d\text{off}}$  | 0,42<br>0,52 |      | $\mu\text{s}$<br>$\mu\text{s}$ |   |
| 下降时间(电感负载)<br>Fall time, inductive load               | $I_C = 40\text{ A}, V_{CE} = 600\text{ V}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{off}} = 27\ \Omega$                         | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $t_f$              | 0,07<br>0,09 |      | $\mu\text{s}$<br>$\mu\text{s}$ |   |
| 开通损耗能量(每脉冲)<br>Turn-on energy loss per pulse          | $I_C = 40\text{ A}, V_{CE} = 600\text{ V}, L_S = \text{t.b.d. nH}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{on}} = 27\ \Omega$  | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $E_{\text{on}}$    | 4,10<br>6,00 |      | mJ<br>mJ                       |   |
| 关断损耗能量(每脉冲)<br>Turn-off energy loss per pulse         | $I_C = 40\text{ A}, V_{CE} = 600\text{ V}, L_S = \text{t.b.d. nH}$<br>$V_{GE} = \pm 15\text{ V}$<br>$R_{G\text{off}} = 27\ \Omega$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $E_{\text{off}}$   | 3,10<br>4,20 |      | mJ<br>mJ                       |   |
| 短路数据<br>SC data                                       | $V_{GE} \leq 15\text{ V}, V_{CC} = 900\text{ V}$<br>$V_{CE\text{max}} = V_{CES} - L_{S\text{CE}} \cdot di/dt$                      | $t_P \leq 10\ \mu\text{s}, T_{vj} = 125^{\circ}\text{C}$        | $I_{SC}$           | 160          |      | A                              |   |
| 结 - 外壳热阻<br>Thermal resistance, junction to case      | 每个 IGBT / per IGBT   |   | $R_{\text{thJC}}$  |              | 0,60 | K/W                            |   |
| 在开关状态下温度<br>Temperature under switching conditions    |  |   | $T_{vj\text{op}}$  | -40          | 125  | $^{\circ}\text{C}$             |   |

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**二极管，制动-斩波器 / Diode, Brake-Chopper**  
**最大额定值 / Maximum Rated Values**

|  |  |           |      |                  |
|--|--|-----------|------|------------------|
| 反向重复峰值电压<br>Repetitive peak reverse voltage    | $T_{vj} = 25^{\circ}\text{C}$  | $V_{RRM}$ | 1200 | V                |
| 连续正向直流电流<br>Continuous DC forward current      |  | $I_F$     | 15   | A                |
| 正向重复峰值电流<br>Repetitive peak forward current    | $t_P = 1\text{ ms}$  | $I_{FRM}$ | 30   | A                |
| I <sup>2</sup> t-值<br>I <sup>2</sup> t - value | $V_R = 0\text{ V}, t_P = 10\text{ ms}, T_{vj} = 125^{\circ}\text{C}$ | $I^2t$    | 60,0 | A <sup>2</sup> s |

**特征值 / Characteristic Values**

|  |   |   | min.               | typ.         | max. |                                |
|--|---|---|--------------------|--------------|------|--------------------------------|
| 正向电压<br>Forward voltage                            | $I_F = 15\text{ A}, V_{GE} = 0\text{ V}$<br>$I_F = 15\text{ A}, V_{GE} = 0\text{ V}$                          | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $V_F$              | 1,65<br>1,65 | 2,15 | V<br>V                         |
| 反向恢复峰值电流<br>Peak reverse recovery current          | $I_F = 15\text{ A}, -di_F/dt = 400\text{ A}/\mu\text{s} (T_{vj}=125^{\circ}\text{C})$<br>$V_R = 600\text{ V}$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $I_{RM}$           | 16,0<br>15,0 |      | A<br>A                         |
| 恢复电荷<br>Recovered charge                           | $I_F = 15\text{ A}, -di_F/dt = 400\text{ A}/\mu\text{s} (T_{vj}=125^{\circ}\text{C})$<br>$V_R = 600\text{ V}$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $Q_r$              | 1,80<br>3,00 |      | $\mu\text{C}$<br>$\mu\text{C}$ |
| 反向恢复损耗 (每脉冲)<br>Reverse recovery energy            | $I_F = 15\text{ A}, -di_F/dt = 400\text{ A}/\mu\text{s} (T_{vj}=125^{\circ}\text{C})$<br>$V_R = 600\text{ V}$ | $T_{vj} = 25^{\circ}\text{C}$<br>$T_{vj} = 125^{\circ}\text{C}$ | $E_{rec}$          | 0,55<br>1,10 |      | mJ<br>mJ                       |
| 结 - 外壳热阻<br>Thermal resistance, junction to case   | 每个二极管 / per diode   |   | $R_{thJC}$         |              | 1,50 | K/W                            |
| 在开关状态下温度<br>Temperature under switching conditions |   |   | $T_{vj\text{ op}}$ | -40          | 125  | $^{\circ}\text{C}$             |

**负温度系数热敏电阻 / NTC-Thermistor**

**特征值 / Characteristic Values**

|                              |   |              | min. | typ.   | max. |            |
|------------------------------|---|--------------|------|--------|------|------------|
| 额定电阻值<br>Rated resistance    | $T_C = 25^{\circ}\text{C}$                                    | $R_{25}$     |      | 5,00   |      | k $\Omega$ |
| R100 偏差<br>Deviation of R100 | $T_C = 100^{\circ}\text{C}, R_{100} = 493\ \Omega$            | $\Delta R/R$ | -5   |        | 5    | %          |
| 耗散功率<br>Power dissipation    | $T_C = 25^{\circ}\text{C}$                                    | $P_{25}$     |      |        | 20,0 | mW         |
| B-值<br>B-value               | $R_2 = R_{25} \exp [B_{25/50}(1/T_2 - 1/(298,15\text{ K}))]$  | $B_{25/50}$  |      | 3375   |      | K          |
| B-值<br>B-value               | $R_2 = R_{25} \exp [B_{25/80}(1/T_2 - 1/(298,15\text{ K}))]$  | $B_{25/80}$  |      | t.b.d. |      | K          |
| B-值<br>B-value               | $R_2 = R_{25} \exp [B_{25/100}(1/T_2 - 1/(298,15\text{ K}))]$ | $B_{25/100}$ |      | t.b.d. |      | K          |

根据应用手册标定

Specification according to the valid application note.

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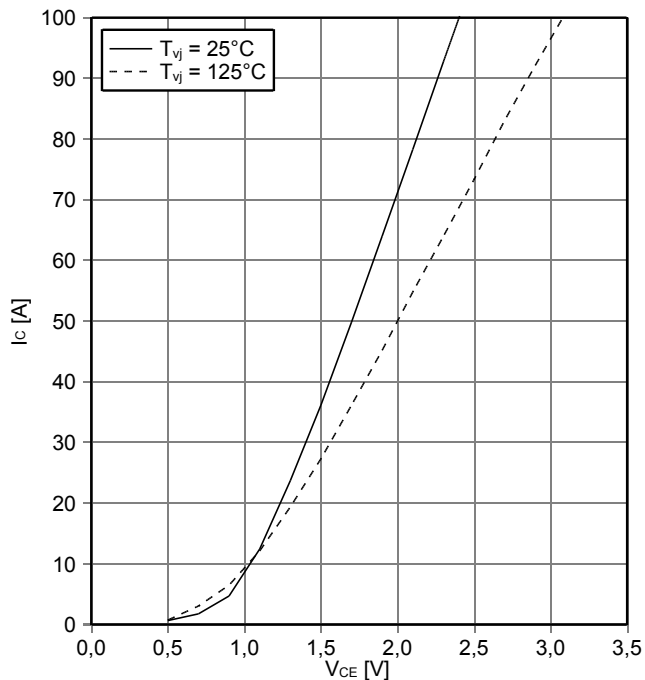
**模块 / Module**

|  |   |  |                                |     |         |
|--|---|--|--------------------------------|-----|---------|
| 绝缘测试电压<br>Isolation test voltage                         | RMS, f = 50 Hz, t = 1 min   | V <sub>ISOL</sub>                            | 2,5                            |     | kV      |
| 模块基板材料<br>Material of module baseplate                   |   |  | Cu                             |     |         |
| 内部绝缘<br>Internal isolation                               | 基本绝缘 (class 1, IEC 61140)<br>basic insulation (class 1, IEC 61140)  |  | Al <sub>2</sub> O <sub>3</sub> |     |         |
| 爬电距离<br>Creepage distance                                | 端子- 散热片 / terminal to heatsink<br>端子- 端子 / terminal to terminal   |  | 10,0                           |     | mm      |
| 电气间隙<br>Clearance  | 端子- 散热片 / terminal to heatsink<br>端子- 端子 / terminal to terminal   |  | 7,5                            |     | mm      |
| 相对电痕指数<br>Comperative tracking index                     |   | CTI  | > 225                          |     |         |
| min.    typ.    max.                                     |   |  |                                |     |         |
| 外壳 - 散热器热阻<br>Thermal resistance, case to heatsink       | 每个模块 / per module<br>$\lambda_{\text{Paste}} = 1 \text{ W/(m}\cdot\text{K)} / \lambda_{\text{grease}} = 1 \text{ W/(m}\cdot\text{K)}$ | R <sub>thCH</sub>                            | 0,009                          |     | K/W     |
| 杂散电感,模块<br>Stray inductance module                       |   | L <sub>sCE</sub>                             | 60                             |     | nH      |
| 模块引线电阻,端子-芯片<br>Module lead resistance, terminals - chip | T <sub>C</sub> = 25°C, 每个开关 / per switch  | R <sub>CC'+EE'</sub><br>R <sub>AA'+CC'</sub> | 4,00<br>2,00                   |     | mΩ      |
| 储存温度<br>Storage temperature                              |   | T <sub>stg</sub>                             | -40                            | 125 | °C      |
| 模块安装的安装扭矩<br>Mounting torque for modul mounting          | 螺丝 M5 根据相应的应用手册进行安装<br>Screw M5 - Mounting according to valid application note  | M  | 3,00                           | -   | 6,00 Nm |
| 重量<br>Weight   |   | G  | 300                            |     | g       |

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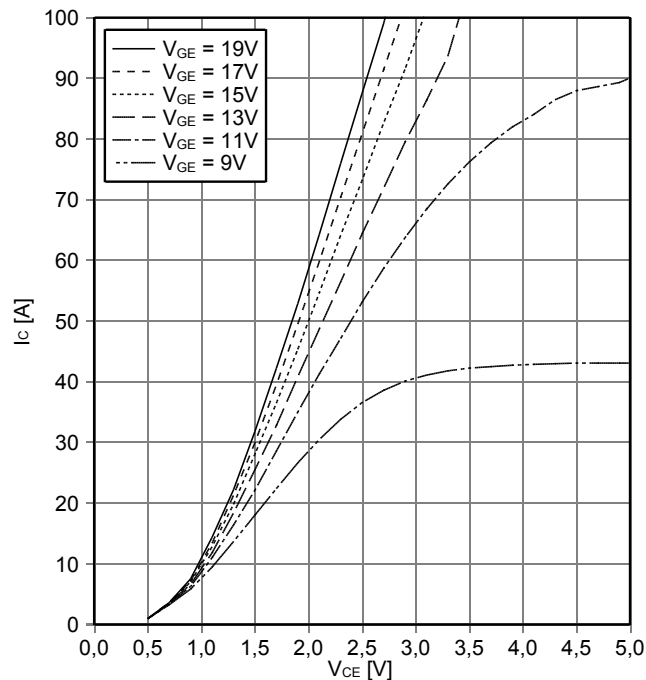
输出特性 IGBT, 逆变器 (典型)  
output characteristic IGBT, Inverter (typical)

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



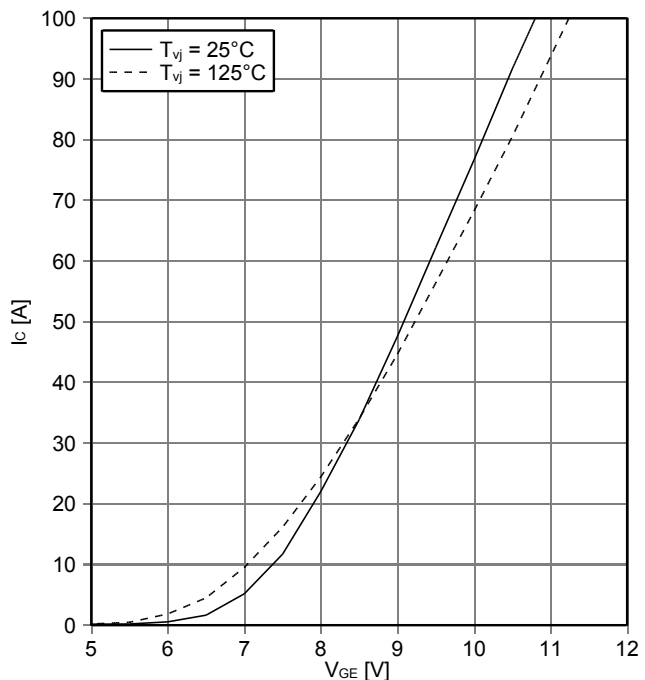
输出特性 IGBT, 逆变器 (典型)  
output characteristic IGBT, Inverter (typical)

$I_C = f(V_{CE})$   
 $T_{vj} = 125^\circ\text{C}$



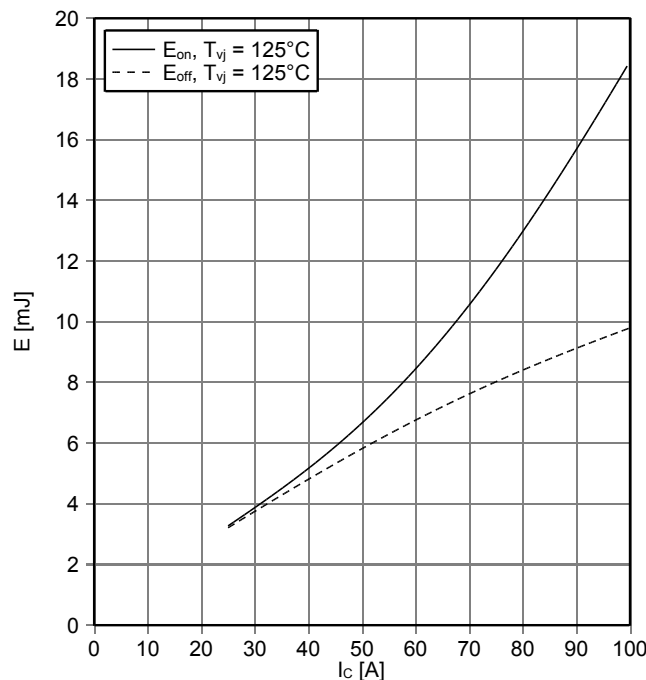
传输特性 IGBT, 逆变器 (典型)  
transfer characteristic IGBT, Inverter (typical)

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



开关损耗 IGBT, 逆变器 (典型)  
switching losses IGBT, Inverter (typical)

$E_{on} = f(I_C), E_{off} = f(I_C)$   
 $V_{GE} = \pm 15\text{ V}, R_{Gon} = 18\ \Omega, R_{Goff} = 18\ \Omega, V_{CE} = 600\text{ V}$

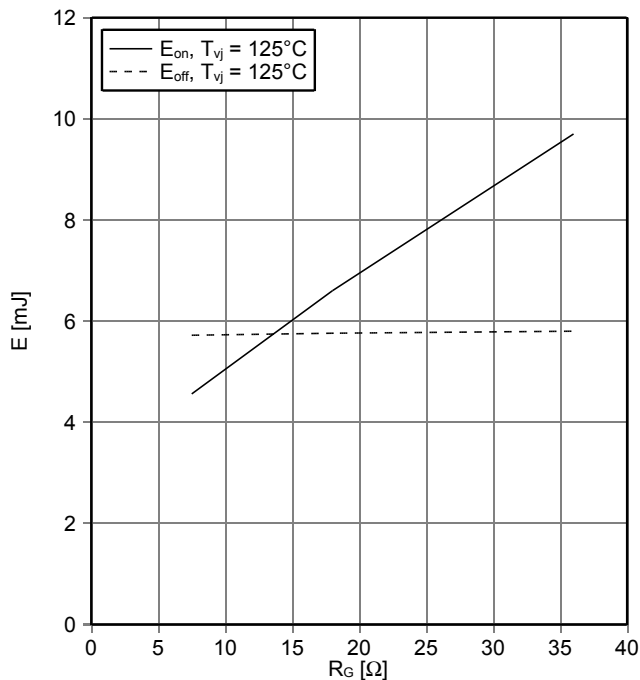


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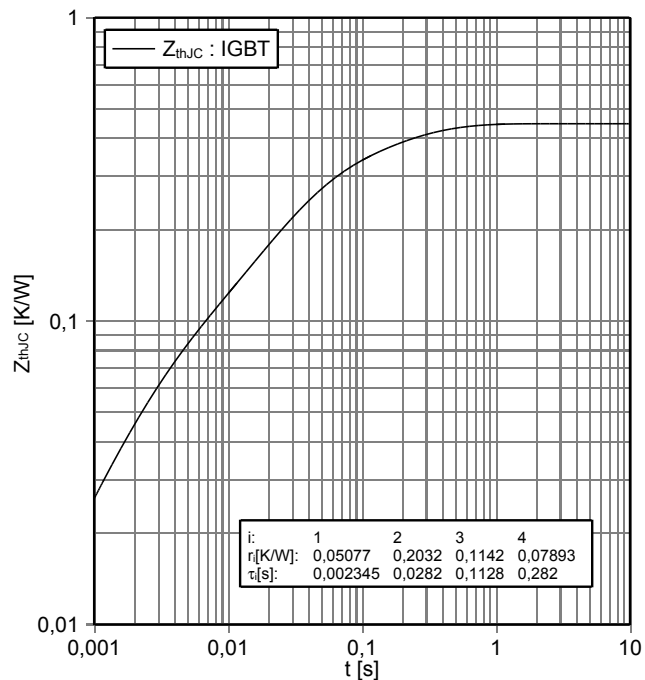
开关损耗 IGBT, 逆变器 (典型)  
switching losses IGBT, Inverter (typical)

$E_{on} = f(R_G), E_{off} = f(R_G)$   
 $V_{GE} = \pm 15\text{ V}, I_C = 50\text{ A}, V_{CE} = 600\text{ V}$



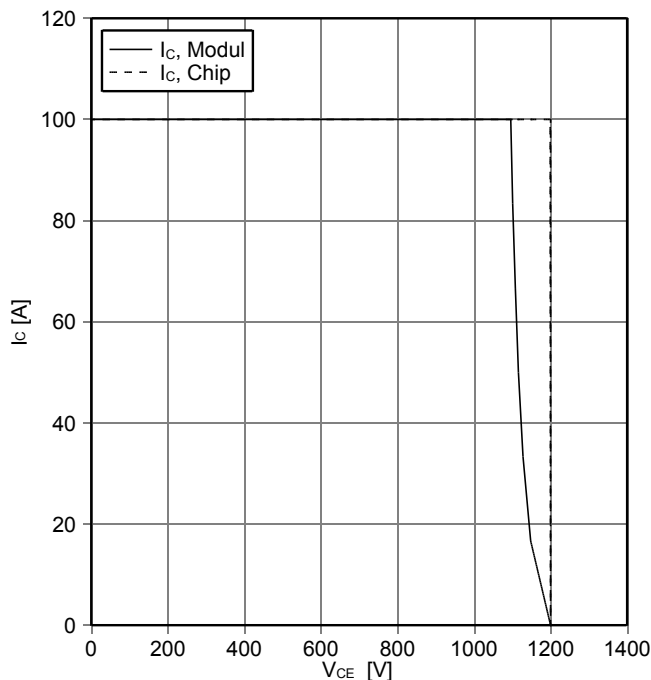
瞬态热阻抗 IGBT, 逆变器  
transient thermal impedance IGBT, Inverter

$Z_{thJC} = f(t)$



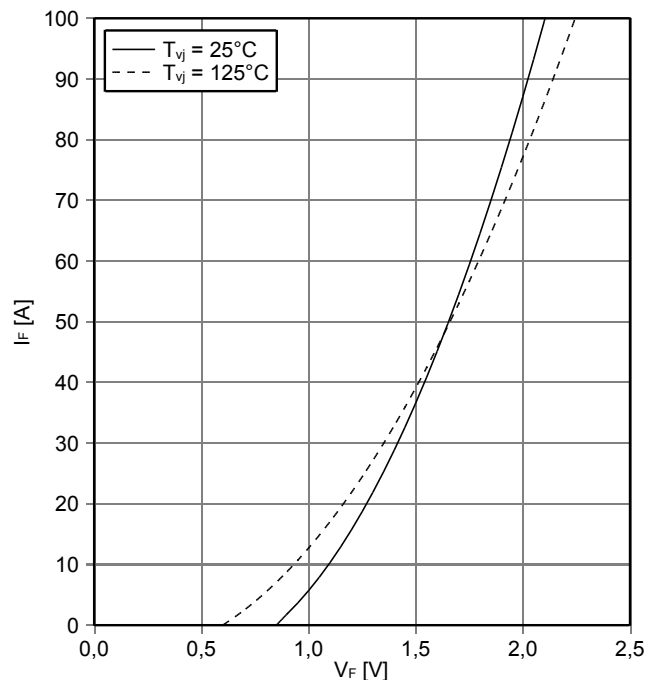
反偏安全工作区 IGBT, 逆变器 (RBSOA)  
reverse bias safe operating area IGBT, Inverter (RBSOA)

$I_C = f(V_{CE})$   
 $V_{GE} = \pm 15\text{ V}, R_{Goff} = 18\ \Omega, T_{vj} = 125^\circ\text{C}$



正向偏压特性 二极管, 逆变器 (典型)  
forward characteristic of Diode, Inverter (typical)

$I_F = f(V_F)$

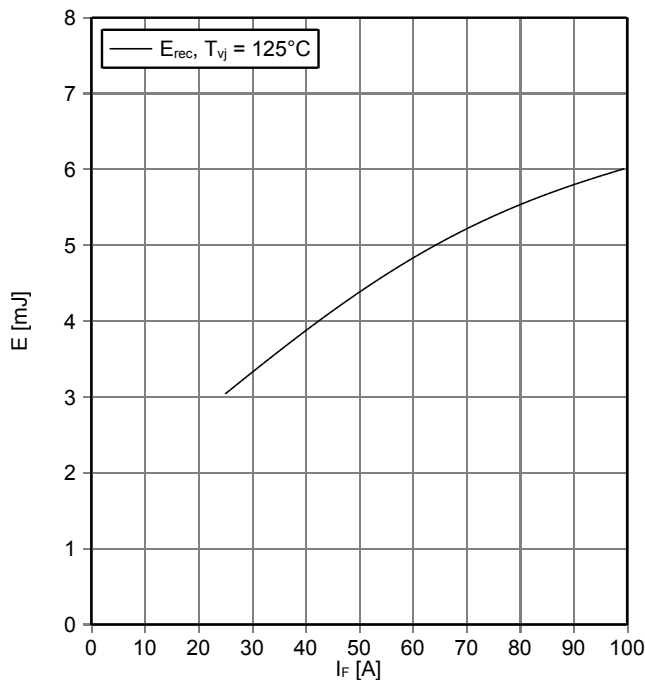


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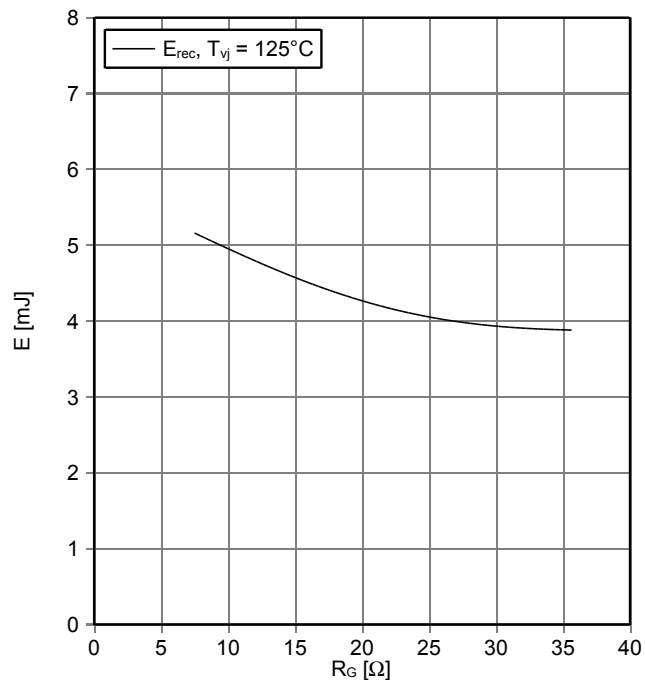
开关损耗 二极管,逆变器 (典型)  
switching losses Diode, Inverter (typical)

$E_{rec} = f(I_F)$   
 $R_{Gon} = 18 \Omega, V_{CE} = 600 V$



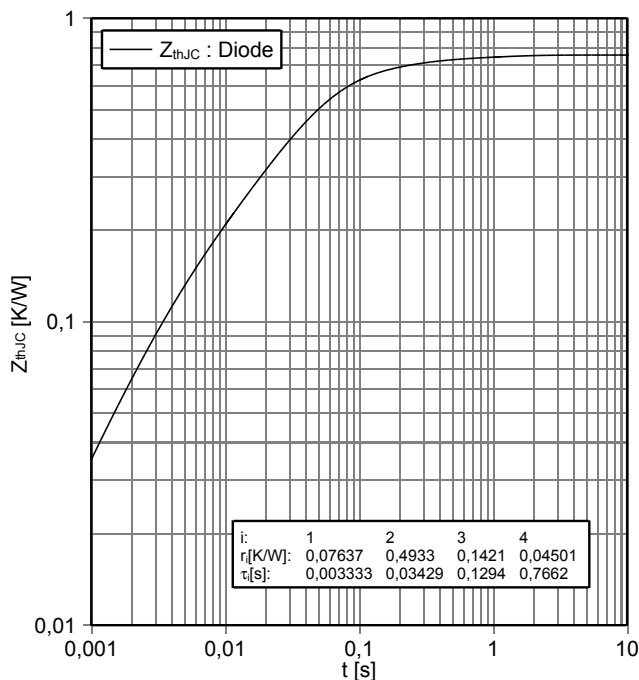
开关损耗 二极管,逆变器 (典型)  
switching losses Diode, Inverter (typical)

$E_{rec} = f(R_G)$   
 $I_F = 50 A, V_{CE} = 600 V$



瞬态热阻抗 二极管,逆变器  
transient thermal impedance Diode, Inverter

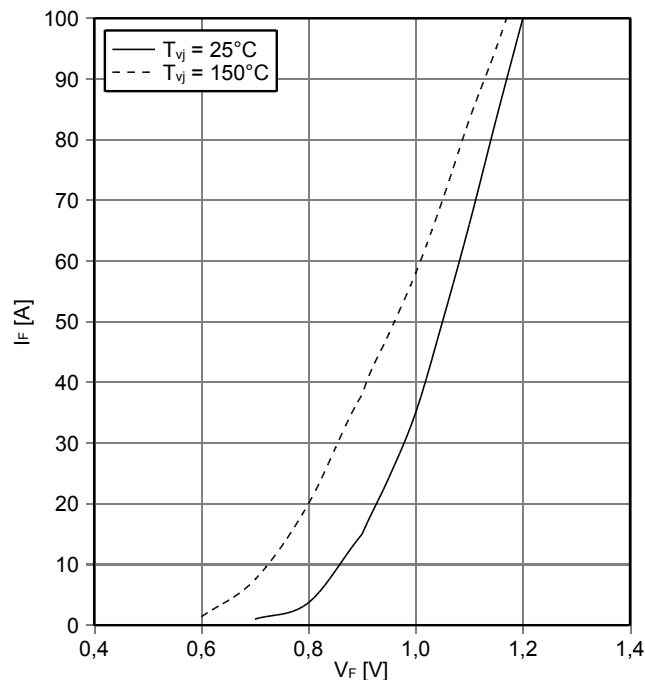
$Z_{thJC} = f(t)$



| i:      | 1        | 2       | 3      | 4       |
|---------|----------|---------|--------|---------|
| r[K/W]: | 0,07637  | 0,4933  | 0,1421 | 0,04501 |
| τ[s]:   | 0,003333 | 0,03429 | 0,1294 | 0,7662  |

正向偏压特性 二极管,整流器 (典型)  
forward characteristic of Diode, Rectifier (typical)

$I_F = f(V_F)$

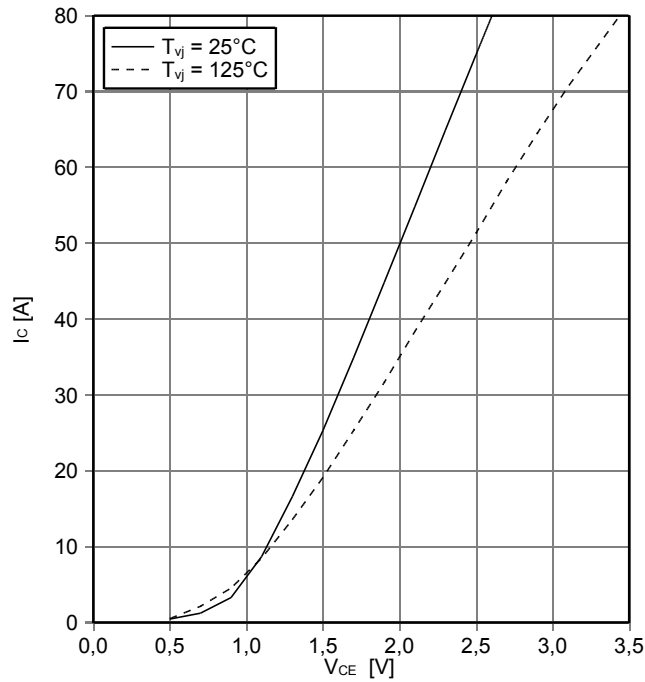


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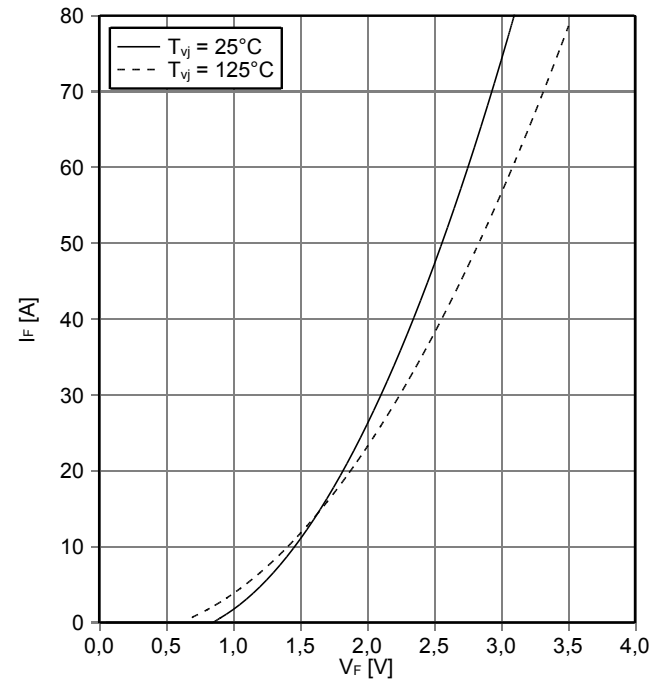
输出特性 IGBT, 制动-斩波器 (典型)  
output characteristic IGBT, Brake-Chopper (typical)

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



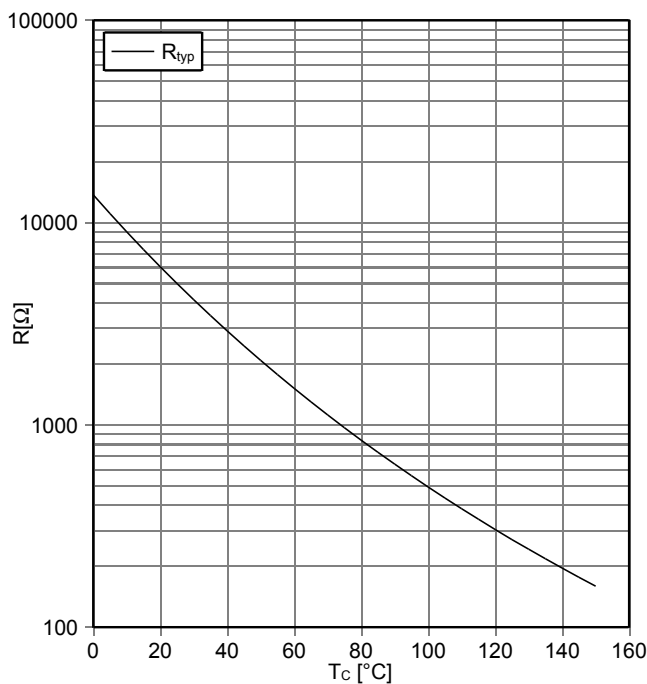
正向偏压特性 二极管, 制动-斩波器 (典型)  
forward characteristic of Diode, Brake-Chopper (typical)

$I_F = f(V_F)$



负温度系数热敏电阻 温度特性  
NTC-Thermistor-temperature characteristic (typical)

$R = f(T)$



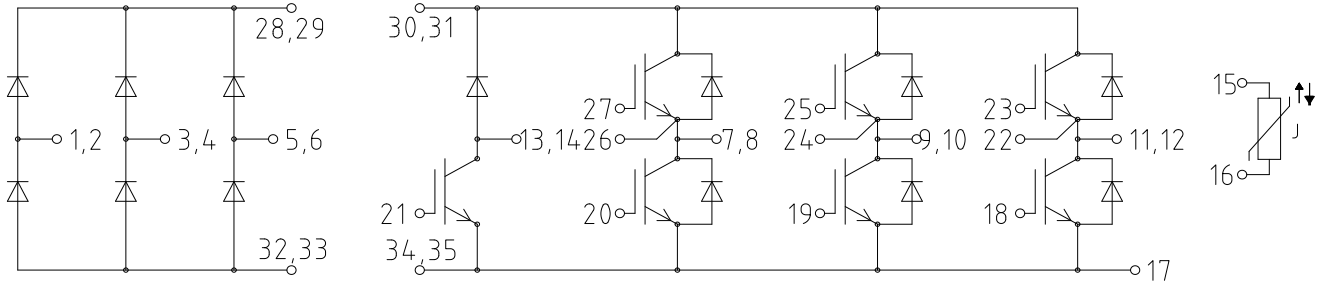
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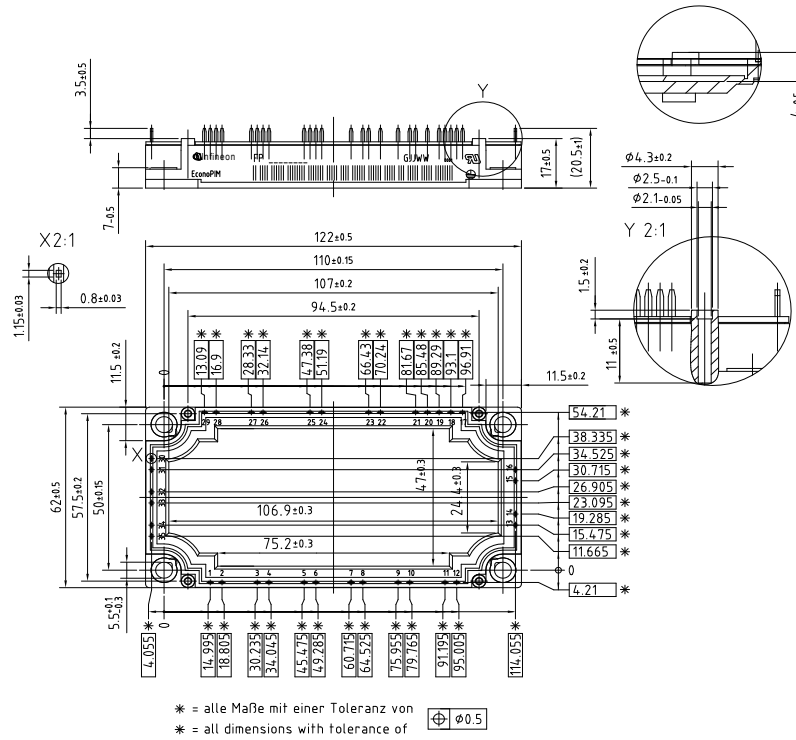
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## 接线图 / circuit\_diagram\_headline



## 封装尺寸 / package outlines



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