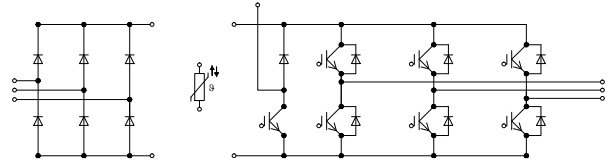


EconoPIM™3 模块 采用第四代高速沟槽栅/场终止IGBT和第四代发射极控制二极管 带有温度检测NTC  
 EconoPIM™3 module with fast Trench/Fieldstop IGBT4 and Emitter Controlled 4 diode and NTC



Typical appearance



$V_{CES} = 1200V$   
 $I_{C\ nom} = 75A / I_{CRM} = 150A$

### 潜在应用

- 伺服驱动器
- 医疗应用
- 电机传动
- 辅助逆变器

### Potential Applications

- Servo drives
- Medical applications
- Motor drives
- Auxiliary inverters

### 电气特性

- $T_{vj\ op} = 150^{\circ}C$
- $V_{CESat}$  带正温度系数
- 低  $V_{CESat}$
- 低开关损耗

### Electrical Features

- $T_{vj\ op} = 150^{\circ}C$
- $V_{CESat}$  with positive temperature coefficient
- Low  $V_{CESat}$
- Low switching losses

### 机械特性

- 标准封装
- 焊接技术
- 铜基板
- 集成NTC温度传感器
- 高功率循环和温度循环能力

### Mechanical Features

- Standard housing
- Solder contact technology
- Copper base plate
- Integrated NTC temperature sensor
- High power and thermal cycling capability

## Module Label Code

Barcode Code 128



DMX - Code



Content of the Code

Content of the Code	Digit
Module Serial Number	1 - 5
Module Material Number	6 - 11
Production Order Number	12 - 19
Datecode (Production Year)	20 - 21
Datecode (Production Week)	22 - 23

## IGBT, 逆变器 / IGBT, Inverter

### 最大额定值 / Maximum Rated Values

集电极 - 发射极电压 Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	$V_{CES}$	1200	V
连续集电极直流电流 Continuous DC collector current	$T_C = 95^{\circ}\text{C}, T_{vj\text{max}} = 175^{\circ}\text{C}$	$I_{C\text{nom}}$	75	A
集电极重复峰值电流 Repetitive peak collector current	$t_P = 1\text{ ms}$	$I_{CRM}$	150	A
栅极 - 发射极峰值电压 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 Collector-emitter saturation voltage	$I_C = 75\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 75\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 75\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{sat}}$	1,85 2,15 2,25	2,15 V V V
栅极阈值电压 Gate threshold voltage	$I_C = 2,40\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		$V_{GEth}$	5,20 5,80 6,40	V
栅极电荷 Gate charge	$V_{GE} = -15 / 15\text{ V}$		$Q_G$	0,57	$\mu\text{C}$
内部栅极电阻 Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		$R_{Gint}$	10	$\Omega$
输入电容 Input capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		$C_{ies}$	4,30	nF
反向传输电容 Reverse transfer capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		$C_{res}$	0,16	nF
集电极-发射极截止电流 Collector-emitter cut-off current	$V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$		$I_{CES}$		1,0 mA
栅极-发射极漏电流 Gate-emitter leakage current	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}, T_{vj} = 25^{\circ}\text{C}$		$I_{GES}$		100 nA
开通延迟时间(电感负载) Turn-on delay time, inductive load	$I_C = 75\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{don}$	0,16 0,17 0,17	$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
上升时间(电感负载) Rise time, inductive load	$I_C = 75\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_r$	0,03 0,04 0,04	$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
关断延迟时间(电感负载) Turn-off delay time, inductive load	$I_C = 75\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{doff}$	0,34 0,43 0,45	$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
下降时间(电感负载) Fall time, inductive load	$I_C = 75\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_f$	0,08 0,15 0,17	$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
开通损耗能量(每脉冲) Turn-on energy loss per pulse	$I_C = 75\text{ A}, V_{CE} = 600\text{ V}, L_{\sigma} = 40\text{ nH}$ $di/dt = 2500\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Gon} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$E_{on}$	3,10 6,60 7,65	mJ mJ mJ
关断损耗能量(每脉冲) Turn-off energy loss per pulse	$I_C = 75\text{ A}, V_{CE} = 600\text{ V}, L_{\sigma} = 40\text{ nH}$ $du/dt = 3600\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Goff} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$E_{off}$	4,20 6,40 7,20	mJ mJ mJ
短路数据 SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 800\text{ V}$ $V_{CEmax} = V_{CES} - L_{SCE} \cdot di/dt$ $t_P \leq 10\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$		$I_{SC}$	270	A
结 - 外壳热阻 Thermal resistance, junction to case	每个 IGBT / per IGBT		$R_{thJC}$		0,390 K/W
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个 IGBT / per IGBT $\lambda_{Paste} = 1\text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$		$R_{thCH}$	0,130	K/W
在开关状态下温度 Temperature under switching conditions			$T_{vj\text{op}}$	-40	150 $^{\circ}\text{C}$

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

反向重复峰值电压 Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	$V_{RRM}$	1200	V
连续正向直流电流 Continuous DC forward current		$I_F$	75	A
正向重复峰值电流 Repetitive peak forward current	$t_p = 1\text{ ms}$	$I_{FRM}$	150	A
I <sup>2</sup> t-值 I <sup>2</sup> t - value	$V_R = 0\text{ V}, t_p = 10\text{ ms}, T_{vj} = 125^{\circ}\text{C}$	$I^2t$	960	A <sup>2</sup> s

## 特征值 / Characteristic Values

		min. typ. max.					
正向电压 Forward voltage	$I_F = 75\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 75\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 75\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_F$		1,70 1,65 1,65	2,15	V V V
反向恢复峰值电流 Peak reverse recovery current	$I_F = 75\text{ A}, -di_F/dt = 2500\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$I_{RM}$		88,0 89,0 90,0		A A A
恢复电荷 Recovered charge	$I_F = 75\text{ A}, -di_F/dt = 2500\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$Q_r$		7,30 13,0 14,5		$\mu\text{C}$ $\mu\text{C}$ $\mu\text{C}$
反向恢复损耗 (每脉冲) Reverse recovery energy	$I_F = 75\text{ A}, -di_F/dt = 2500\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$E_{rec}$		2,65 4,60 5,65		mJ mJ mJ
结 - 外壳热阻 Thermal resistance, junction to case	每个二极管 / per diode		$R_{thJC}$			0,620	K/W
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个二极管 / per diode $\lambda_{Paste} = 1\text{ W}/(\text{m}\cdot\text{K}) / \lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$		$R_{thCH}$		0,205		K/W
在开关状态下温度 Temperature under switching conditions			$T_{vj\text{ op}}$	-40		150	$^{\circ}\text{C}$

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

反向重复峰值电压 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) 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 Maximum RMS current at rectifier output	$T_c = 80^{\circ}\text{C}$	$I_{RMSM}$	140	A
正向浪涌电流 Surge forward current	$t_p = 10\text{ ms}, T_{vj} = 25^{\circ}\text{C}$ $t_p = 10\text{ ms}, T_{vj} = 150^{\circ}\text{C}$	$I_{FSM}$	600 470	A A
I <sup>2</sup> t-值 I <sup>2</sup> t - value	$t_p = 10\text{ ms}, T_{vj} = 25^{\circ}\text{C}$ $t_p = 10\text{ ms}, T_{vj} = 150^{\circ}\text{C}$	$I^2t$	1800 1100	A <sup>2</sup> s A <sup>2</sup> s

## 特征值 / Characteristic Values

		min. typ. max.				
正向电压 Forward voltage	$T_{vj} = 150^{\circ}\text{C}, I_F = 75\text{ A}$	$V_F$		1,15		V
反向电流 Reverse current	$T_{vj} = 150^{\circ}\text{C}, V_R = 1600\text{ V}$	$I_R$		1,00		mA
结 - 外壳热阻 Thermal resistance, junction to case	每个二极管 / per diode	$R_{thJC}$			0,650	K/W
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个二极管 / per diode $\lambda_{Paste} = 1\text{ W}/(\text{m}\cdot\text{K}) / \lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$	$R_{thCH}$		0,215		K/W
在开关状态下温度 Temperature under switching conditions		$T_{vj\text{ op}}$	-40		150	$^{\circ}\text{C}$

## 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 Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	$V_{CES}$	1200	V
连续集电极直流电流 Continuous DC collector current	$T_C = 95^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	$I_{C\text{nom}}$	50	A
集电极重复峰值电流 Repetitive peak collector current	$t_P = 1\text{ ms}$	$I_{CRM}$	100	A
栅极 - 发射极峰值电压 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 Collector-emitter saturation voltage	$I_C = 50\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 50\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 50\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{sat}}$	1,85 2,15 2,25	2,15	V V V
栅极阈值电压 Gate threshold voltage	$I_C = 1,60\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		$V_{GEth}$	5,20	5,80	6,40 V
栅极电荷 Gate charge	$V_{GE} = -15 / 15\text{ V}$		$Q_G$	0,38		$\mu\text{C}$
内部栅极电阻 Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		$R_{Gint}$	4,0		$\Omega$
输入电容 Input capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		$C_{ies}$	2,80		nF
反向传输电容 Reverse transfer capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		$C_{res}$	0,10		nF
集电极-发射极截止电流 Collector-emitter cut-off current	$V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$		$I_{CES}$		1,0	mA
栅极-发射极漏电流 Gate-emitter leakage current	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}, T_{vj} = 25^{\circ}\text{C}$		$I_{GES}$		100	nA
开通延迟时间(电感负载) Turn-on delay time, inductive load	$I_C = 50\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 15\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{don}$	0,16 0,17 0,17		$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
上升时间(电感负载) Rise time, inductive load	$I_C = 50\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 15\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_r$	0,03 0,04 0,04		$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
关断延迟时间(电感负载) Turn-off delay time, inductive load	$I_C = 50\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 15\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{doff}$	0,33 0,43 0,45		$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
下降时间(电感负载) Fall time, inductive load	$I_C = 50\text{ A}, V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 15\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_f$	0,08 0,15 0,17		$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
开通损耗能量(每脉冲) Turn-on energy loss per pulse	$I_C = 50\text{ A}, V_{CE} = 600\text{ V}, L_{\sigma} = 20\text{ nH}$ $V_{GE} = -15 / 15\text{ V}, R_{Gon} = 15\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$E_{on}$	5,70 7,70 8,40		mJ mJ mJ
关断损耗能量(每脉冲) Turn-off energy loss per pulse	$I_C = 50\text{ A}, V_{CE} = 600\text{ V}, L_{\sigma} = 20\text{ nH}$ $V_{GE} = -15 / 15\text{ V}, R_{Goff} = 15\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$E_{off}$	2,80 4,30 4,80		mJ mJ mJ
短路数据 SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 800\text{ V}$ $V_{CEmax} = V_{CES} - L_{SCE} \cdot di/dt$ $t_P \leq 10\ \mu\text{s}, T_{vj} = 125^{\circ}\text{C}$		$I_{SC}$	180		A
结 - 外壳热阻 Thermal resistance, junction to case	每个 IGBT / per IGBT		$R_{thJC}$		0,540	K/W
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个 IGBT / per IGBT $\lambda_{Paste} = 1\text{ W/(m}\cdot\text{K)} / \lambda_{grease} = 1\text{ W/(m}\cdot\text{K)}$		$R_{thCH}$	0,245		K/W
在开关状态下温度 Temperature under switching conditions			$T_{vj\text{op}}$	-40	150	$^{\circ}\text{C}$

## 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 Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	$V_{RRM}$	1200	V
连续正向直流电流 Continuous DC forward current		$I_F$	25	A
正向重复峰值电流 Repetitive peak forward current	$t_p = 1 \text{ ms}$	$I_{FRM}$	50	A
$I^2t$ -值 $I^2t$ - value	$V_R = 0 \text{ V}, t_p = 10 \text{ ms}, T_{vj} = 125^{\circ}\text{C}$ $V_R = 0 \text{ V}, t_p = 10 \text{ ms}, T_{vj} = 150^{\circ}\text{C}$	$I^2t$	90,0 80,0	$\text{A}^2\text{s}$ $\text{A}^2\text{s}$

### 特征值 / Characteristic Values

		min. typ. max.			
正向电压 Forward voltage	$I_F = 25 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 25 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 25 \text{ A}, V_{GE} = 0 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_F$	1,75 1,75 1,75	2,15 V V V
反向恢复峰值电流 Peak reverse recovery current	$I_F = 25 \text{ A}, -di_F/dt = 1200 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$I_{RM}$	39,0 40,0 41,0	A A A
恢复电荷 Recovered charge	$I_F = 25 \text{ A}, -di_F/dt = 1200 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$Q_r$	2,40 4,10 4,40	$\mu\text{C}$ $\mu\text{C}$ $\mu\text{C}$
反向恢复损耗 (每脉冲) Reverse recovery energy	$I_F = 25 \text{ A}, -di_F/dt = 1200 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$E_{rec}$	0,90 1,50 1,70	mJ mJ mJ
结 - 外壳热阻 Thermal resistance, junction to case	每个二极管 / per diode		$R_{thJC}$		1,35 K/W
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个二极管 / per diode $\lambda_{\text{Paste}} = 1 \text{ W}/(\text{m}\cdot\text{K}) / \lambda_{\text{grease}} = 1 \text{ W}/(\text{m}\cdot\text{K})$		$R_{thCH}$	0,610	K/W
在开关状态下温度 Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150 $^{\circ}\text{C}$

## 负温度系数热敏电阻 / NTC-Thermistor

### 特征值 / Characteristic Values

		min. typ. max.		
额定电阻值 Rated resistance	$T_{NTC} = 25^{\circ}\text{C}$	$R_{25}$	5,00	$\text{k}\Omega$
R100 偏差 Deviation of R100	$T_{NTC} = 100^{\circ}\text{C}, R_{100} = 493 \Omega$	$\Delta R/R$	-5	5 %
耗散功率 Power dissipation	$T_{NTC} = 25^{\circ}\text{C}$	$P_{25}$	20,0	mW
B-值 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 B-value	$R_2 = R_{25} \exp [B_{25/80}(1/T_2 - 1/(298,15 \text{ K}))]$	$B_{25/80}$	3411	K
B-值 B-value	$R_2 = R_{25} \exp [B_{25/100}(1/T_2 - 1/(298,15 \text{ K}))]$	$B_{25/100}$	3433	K

根据应用手册标定

Specification according to the valid application note.

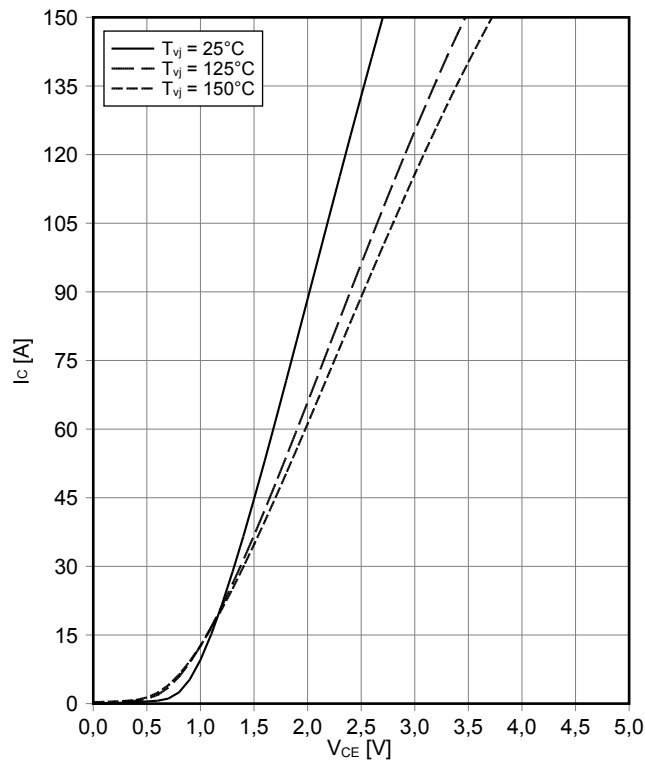
## 模块 / Module

绝缘测试电压 Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V <sub>ISOL</sub>	2,5		kV
模块基板材料 Material of module baseplate			Cu		
内部绝缘 Internal isolation	基本绝缘 (class 1, IEC 61140) basic insulation (class 1, IEC 61140)		Al <sub>2</sub> O <sub>3</sub>		
爬电距离 Creepage distance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal		10,0		mm
电气间隙 Clearance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal		7,5		mm
相对电痕指数 Comperative tracking index		CTI	> 200		
			min.	typ.	max.
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个模块 / per module $\lambda_{\text{Paste}} = 1 \text{ W/(m}\cdot\text{K)} / \lambda_{\text{grease}} = 1 \text{ W/(m}\cdot\text{K)}$	R <sub>thCH</sub>		0,009	K/W
杂散电感, 模块 Stray inductance module		L <sub>sCE</sub>		40	nH
模块引线电阻, 端子-芯片 Module lead resistance, terminals - chip	T <sub>c</sub> = 25°C, 每个开关 / per switch	R <sub>CC'+EE'</sub> R <sub>AA'+CC'</sub>		4,00 3,00	mΩ
储存温度 Storage temperature		T <sub>stg</sub>	-40		125 °C
模块安装的安装扭矩 Mounting torque for modul mounting	螺丝 M5 根据相应的应用手册进行安装 Screw M5 - Mounting according to valid application note	M	3,00		6,00 Nm
重量 Weight		G		300	g

输出特性 IGBT, 逆变器 (典型)

output characteristic IGBT, Inverter (typical)

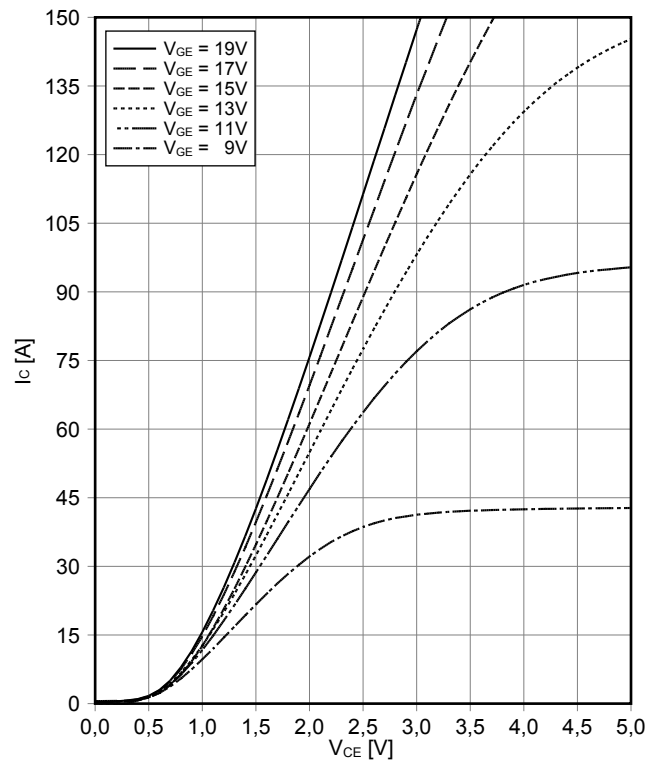
$I_C = f(V_{CE})$   
 $V_{GE} = 15\text{ V}$



输出特性 IGBT, 逆变器 (典型)

output characteristic IGBT, Inverter (typical)

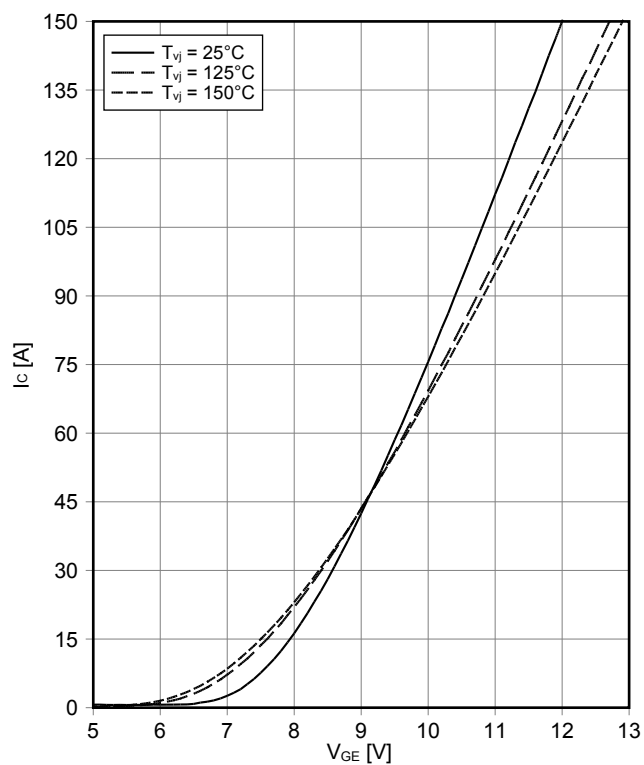
$I_C = f(V_{CE})$   
 $T_{vj} = 150^\circ\text{C}$



传输特性 IGBT, 逆变器 (典型)

transfer characteristic IGBT, Inverter (typical)

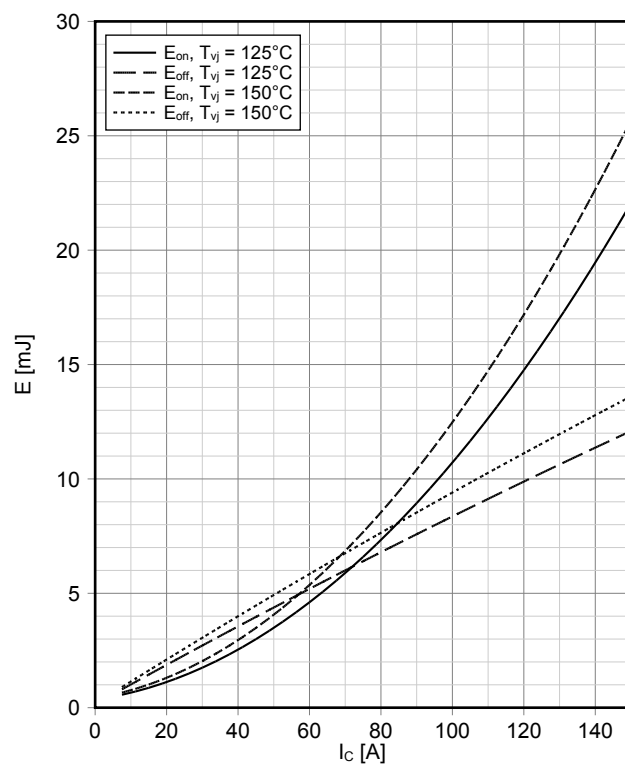
$I_C = f(V_{GE})$   
 $V_{CE} = 20\text{ V}$



开关损耗 IGBT, 逆变器 (典型)

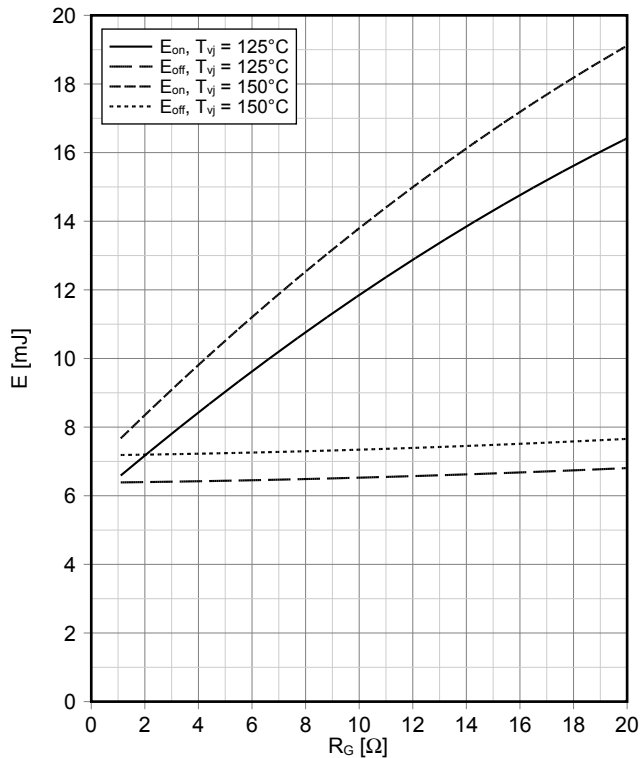
switching losses IGBT, Inverter (typical)

$E_{on} = f(I_C)$ ,  $E_{off} = f(I_C)$   
 $V_{GE} = \pm 15\text{ V}$ ,  $R_{Gon} = 1.1\ \Omega$ ,  $R_{Goff} = 1.1\ \Omega$ ,  $V_{CE} = 600\text{ V}$

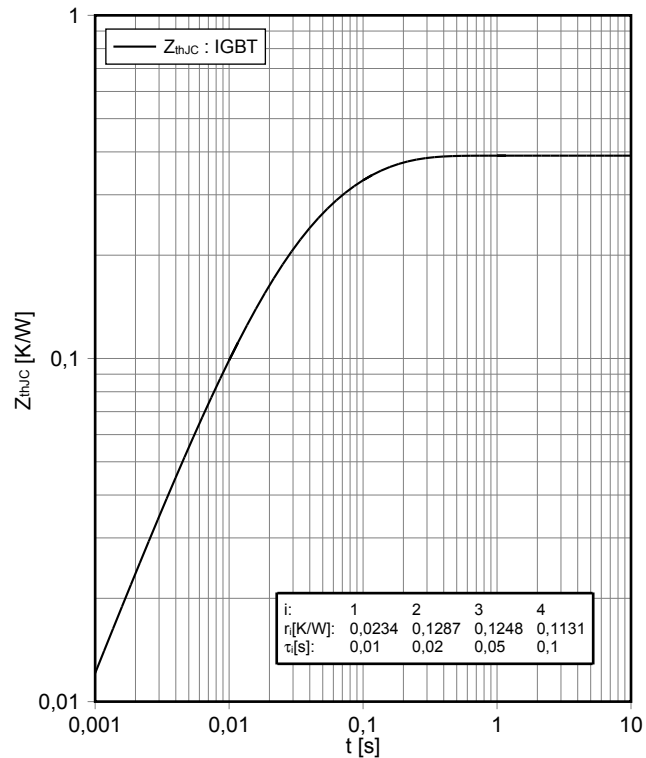


开关损耗 IGBT, 逆变器 (典型)  
**switching losses IGBT, Inverter (typical)**

$E_{on} = f(R_G)$ ,  $E_{off} = f(R_G)$   
 $V_{GE} = \pm 15\text{ V}$ ,  $I_C = 75\text{ A}$ ,  $V_{CE} = 600\text{ V}$

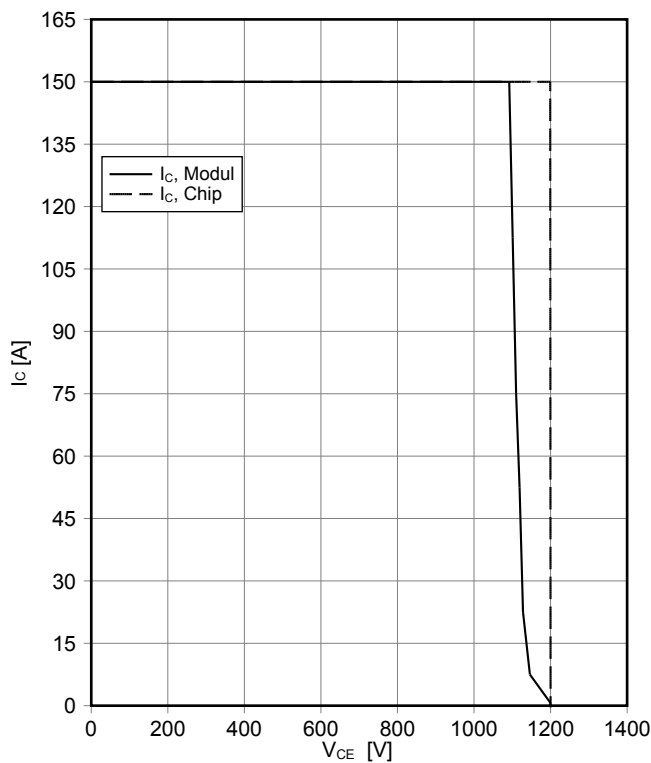


瞬态热阻抗 IGBT, 逆变器  
**transient thermal impedance IGBT, Inverter**  
 $Z_{thJC} = f(t)$

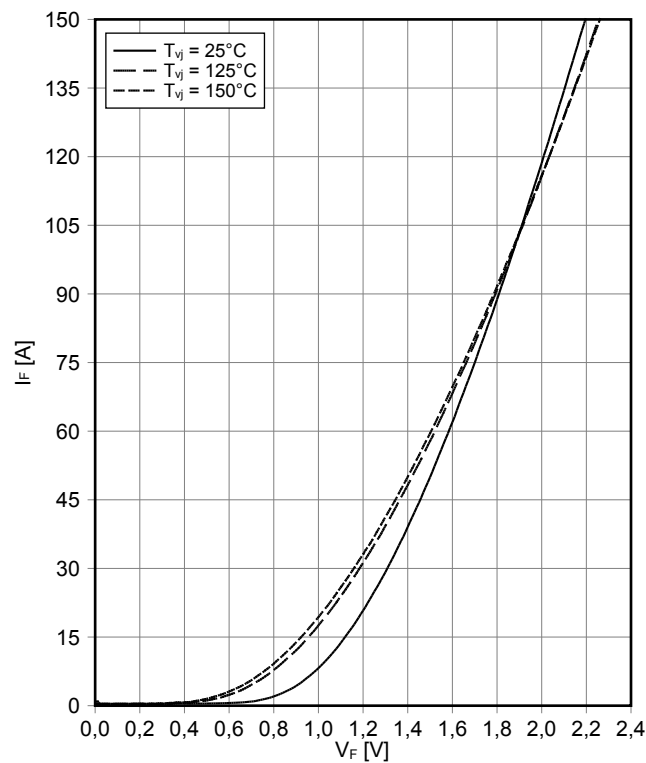


反偏安全工作区 IGBT, 逆变器 (RBSOA)  
**reverse bias safe operating area IGBT, Inverter (RBSOA)**

$I_C = f(V_{CE})$   
 $V_{GE} = \pm 15\text{ V}$ ,  $R_{Goff} = 1.1\ \Omega$ ,  $T_{vj} = 150^\circ\text{C}$



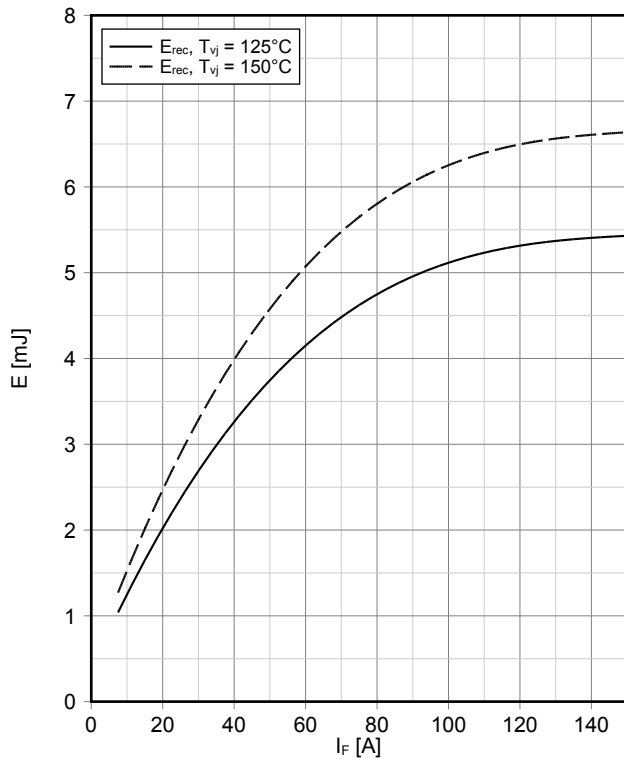
正向偏压特性 二极管, 逆变器 (典型)  
**forward characteristic of Diode, Inverter (typical)**  
 $I_F = f(V_F)$





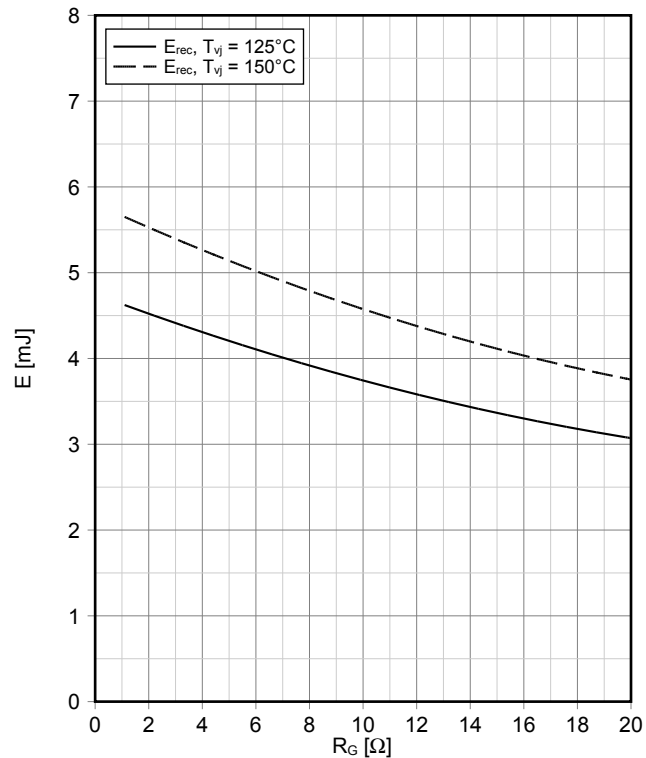
开关损耗 二极管,逆变器 (典型)  
switching losses Diode, Inverter (typical)

$E_{rec} = f(I_F)$   
 $R_{Gon} = 1.1 \Omega, V_{CE} = 600 V$



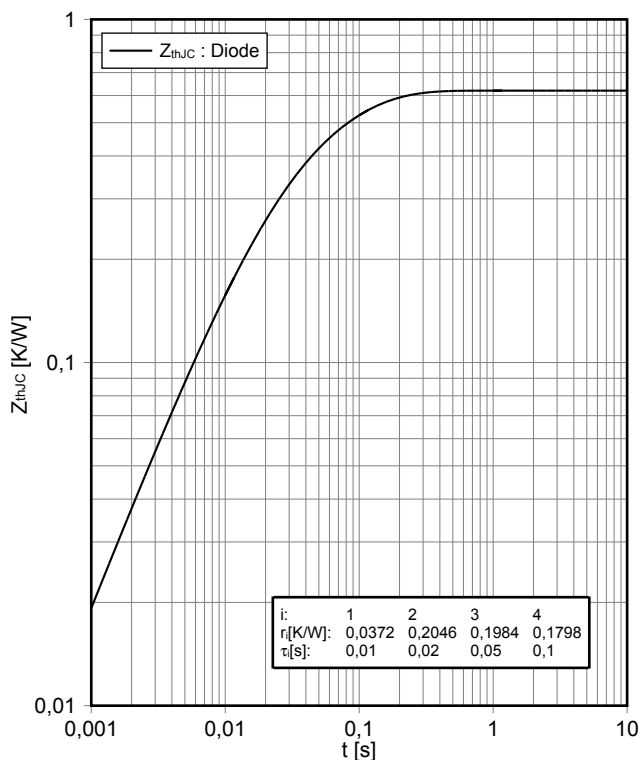
开关损耗 二极管,逆变器 (典型)  
switching losses Diode, Inverter (typical)

$E_{rec} = f(R_G)$   
 $I_F = 75 A, V_{CE} = 600 V$



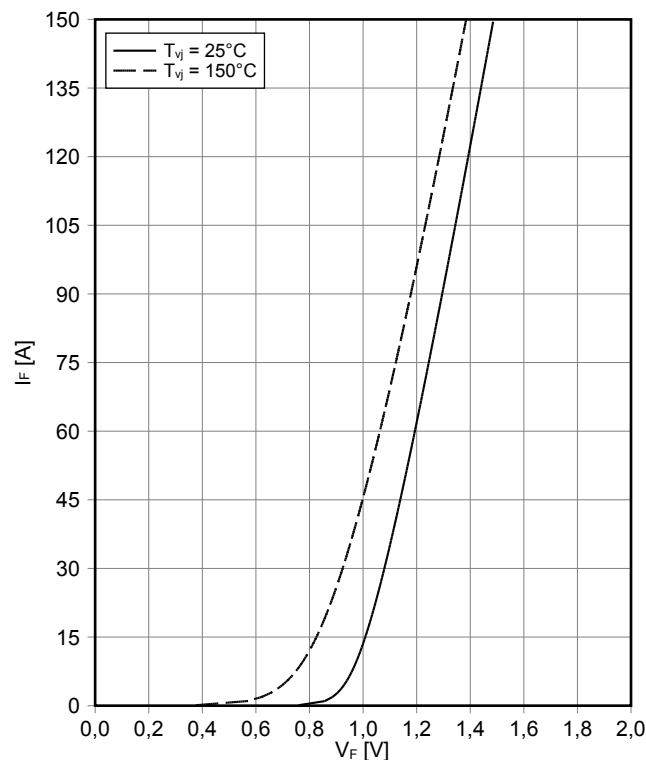
瞬态热阻抗 二极管,逆变器  
transient thermal impedance Diode, Inverter

$Z_{thJC} = f(t)$

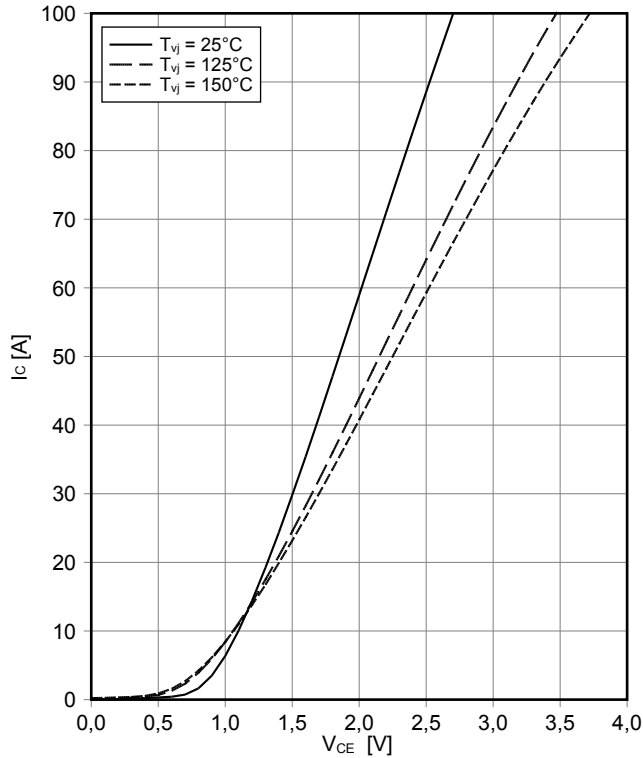


正向偏压特性 二极管,整流器 (典型)  
forward characteristic of Diode, Rectifier (typical)

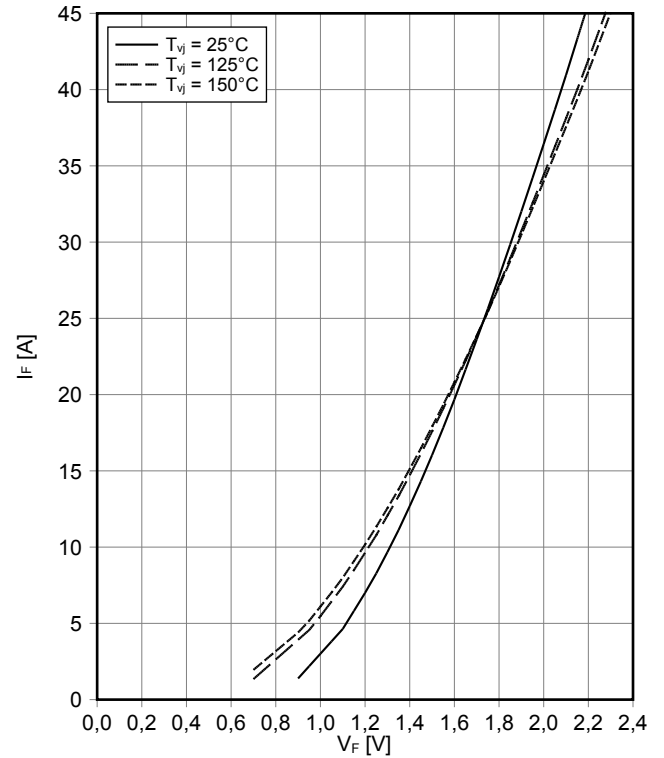
$I_F = f(V_F)$



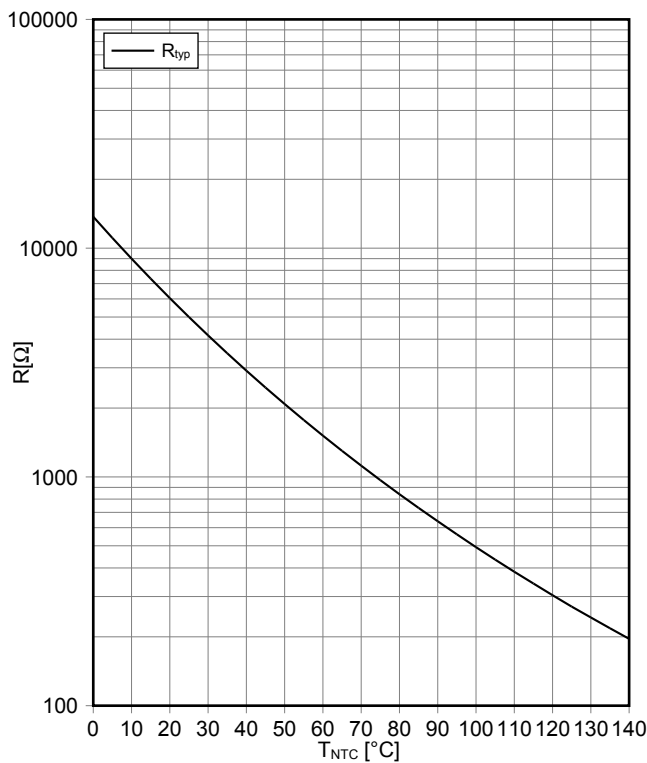
输出特性 IGBT, 制动-斩波器 (典型)  
**output characteristic IGBT, Brake-Chopper (typical)**  
 $I_C = f(V_{CE})$   
 $V_{GE} = 15\text{ V}$



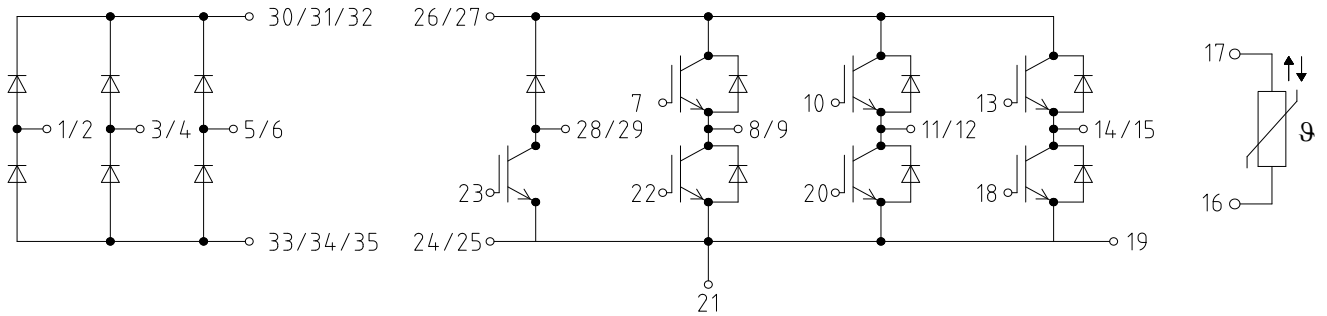
正向偏压特性 二极管, 制动-斩波器 (典型)  
**forward characteristic of Diode, Brake-Chopper (typical)**  
 $I_F = f(V_F)$



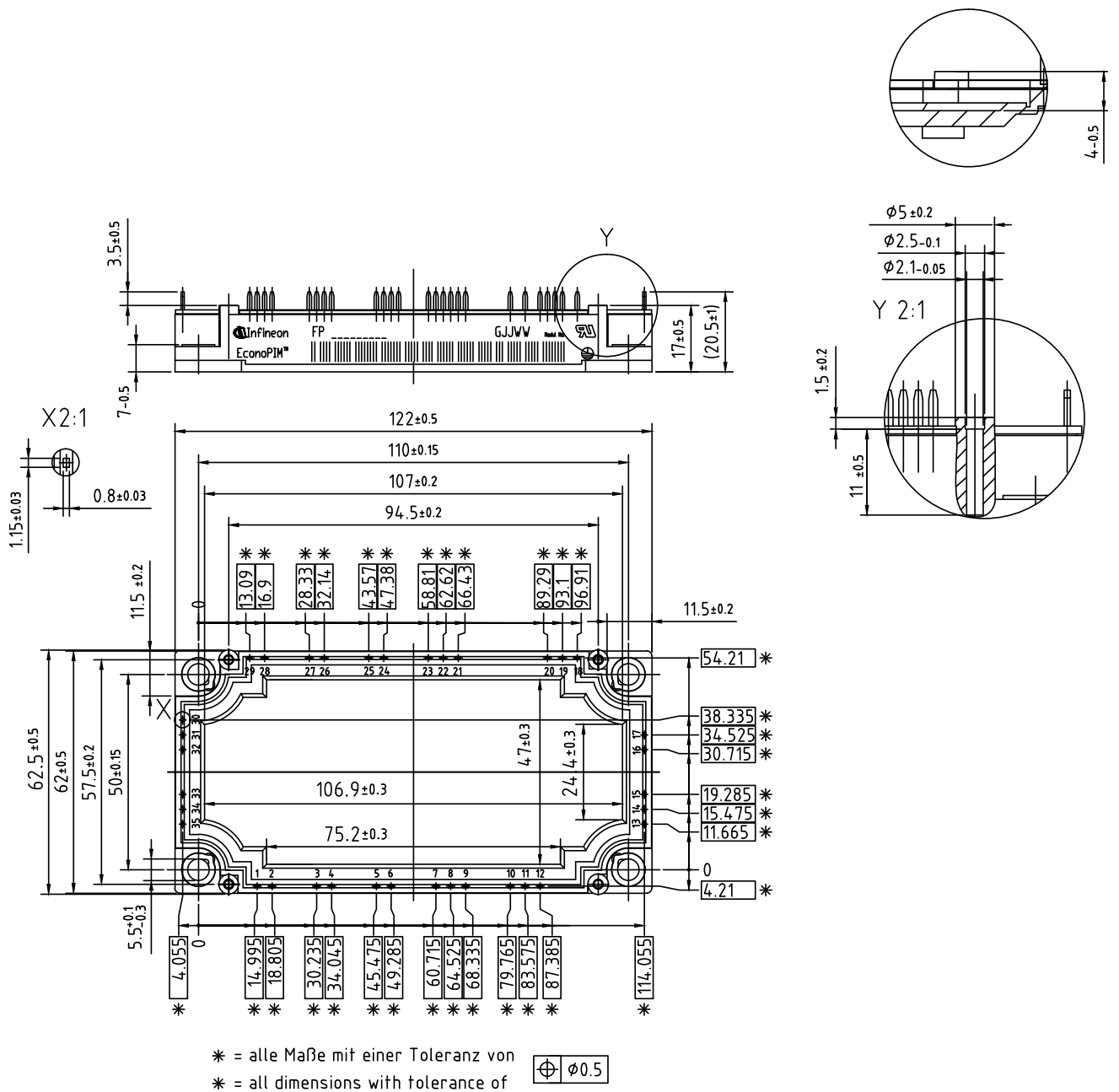
负温度系数热敏电阻 温度特性  
**NTC-Thermistor-temperature characteristic (typical)**  
 $R = f(T)$



## 接线图 / Circuit diagram



## 封装尺寸 / Package outlines



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