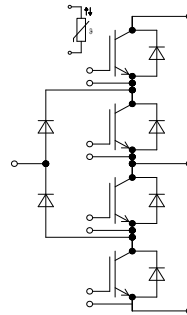
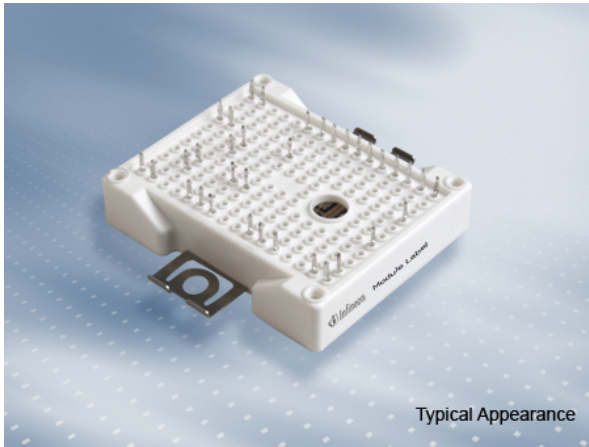


EasyPACK™ 模块 采用 TRENCHSTOP™ 5 和 CoolSiC™ 二极管 带有pressfit压接管脚和温度检测NTC
 EasyPACK™ module with TRENCHSTOP™ 5 and CoolSiC™ Schottky diode and PressFIT / NTC



$V_{CES} = 650V$
 $I_{C\ nom} = 100A / I_{CRM} = 200A$

潜在应用

- UPS系统
- 三电平应用
- 太阳能应用
- 电机传动

Potential Applications

- UPS systems
- 3-level-applications
- Solar applications
- Motor drives

电气特性

- CoolSiC™ 碳化硅肖特基二极管第5代
- 低开关损耗
- 增加阻断电压至650V

Electrical Features

- CoolSiC™ Schottky diode gen 5
- Low switching losses
- Increased blocking voltage capability up to 650V

机械特性

- PressFIT 压接技术
- 低热阻的三氧化二铝 Al_2O_3 衬底
- 紧凑型设计
- 集成的安装夹使安装坚固

Mechanical Features

- PressFIT contact technology
- Al_2O_3 substrate with low thermal resistance
- Compact design
- Rugged mounting due to integrated mounting clamps

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, T1 / T4 / IGBT, T1 / T4

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}	650	V
集电极电流 Implemented collector current		I_{CN}	200	A
连续集电极直流电流 Continuous DC collector current	$T_H = 65^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	I_{CDC}	95	A
集电极重复峰值电流 Repetitive peak collector current	$t_p = 1\text{ ms}$	I_{CRM}	400	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	$I_C = 100\text{ A}$ $V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$		1,17 1,20 1,21	1,38	V V V
栅极阈值电压 Gate threshold voltage	$I_C = 2,00\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{Geth}	3,25	4,00	4,75	V
栅极电荷 Gate charge	$V_{GE} = -15 / 15\text{ V}, V_{CE} = 400\text{ V}$		Q_G		0,84		μC
内部栅极电阻 Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}		0,0		Ω
输入电容 Input capacitance	$f = 100\text{ kHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		C_{ies}		14,3		nF
反向传输电容 Reverse transfer capacitance	$f = 100\text{ kHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		C_{res}		0,05		nF
集电极-发射极截止电流 Collector-emitter cut-off current	$V_{CE} = 650\text{ V}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	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	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{don}		0,097 0,087 0,082		μs μs μs
上升时间(电感负载) Rise time, inductive load	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r		0,046 0,05 0,054		μs μs μs
关断延迟时间(电感负载) Turn-off delay time, inductive load	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 39\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{doff}		0,654 0,687 0,704		μs μs μs
下降时间(电感负载) Fall time, inductive load	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 39\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f		0,029 0,033 0,033		μs μs μs
开通损耗能量(每脉冲) Turn-on energy loss per pulse	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}, L\sigma = 35\text{ nH}$ $di/dt = 1800\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}		2,79 3,20 3,51		mJ mJ mJ
关断损耗能量(每脉冲) Turn-off energy loss per pulse	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}, L\sigma = 35\text{ nH}$ $du/dt = 3700\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Goff} = 39\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}		1,21 1,48 1,61		mJ mJ mJ
短路数据 SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 360\text{ V}$ $V_{CE\max} = V_{CES} - L_{sCE} \cdot di/dt$	$t_p \leq 0\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$	I_{SC}		1600		A
结 - 散热器热阻 Thermal resistance, junction to heatsink	每个 IGBT / per IGBT		R_{thJH}		0,814		K/W
在开关状态下温度 Temperature under switching conditions			$T_{vj\text{ op}}$	-40		150	$^{\circ}\text{C}$

IGBT, T2 / T3 / IGBT, T2 / T3

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}	650	V
集电极电流 Implemented collector current		I_{CN}	200	A
连续集电极直流电流 Continuous DC collector current	$T_H = 65^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	I_{CDC}	95	A
集电极重复峰值电流 Repetitive peak collector current	$t_p = 1\text{ ms}$	I_{CRM}	400	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	$I_C = 100\text{ A}$ $V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	1,17 1,20 1,21	1,38 V V V
栅极阈值电压 Gate threshold voltage	$I_C = 2,00\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{GETH}	3,25 4,00 4,75	V
栅极电荷 Gate charge	$V_{GE} = -15 / 15\text{ V}, V_{CE} = 400\text{ V}$		Q_G	0,84	μC
内部栅极电阻 Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	0,0	Ω
输入电容 Input capacitance	$f = 100\text{ kHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		C_{ies}	14,3	nF
反向传输电容 Reverse transfer capacitance	$f = 100\text{ kHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$		C_{res}	0,05	nF
集电极-发射极截止电流 Collector-emitter cut-off current	$V_{CE} = 650\text{ V}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	I_{CES}		0,044 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	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{don}	0,098 0,087 0,085	μs μs μs
上升时间(电感负载) Rise time, inductive load	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,037 0,043 0,046	μs μs μs
关断延迟时间(电感负载) Turn-off delay time, inductive load	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 39\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{doff}	0,651 0,685 0,695	μs μs μs
下降时间(电感负载) Fall time, inductive load	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 39\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,018 0,024 0,026	μs μs μs
开通损耗能量(每脉冲) Turn-on energy loss per pulse	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}, L\sigma = 35\text{ nH}$ $di/dt = 2200\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Gon} = 20\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	2,18 2,56 2,79	mJ mJ mJ
关断损耗能量(每脉冲) Turn-off energy loss per pulse	$I_C = 100\text{ A}, V_{CE} = 300\text{ V}, L\sigma = 35\text{ nH}$ $du/dt = 3500\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $V_{GE} = -15 / 15\text{ V}, R_{Goff} = 39\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	1,28 1,65 1,80	mJ mJ mJ
短路数据 SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 360\text{ V}$ $V_{CE\max} = V_{CES} - L_{SCE} \cdot di/dt$	$t_p \leq 0\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$	I_{SC}	1600	A
结 - 散热器热阻 Thermal resistance, junction to heatsink	每个 IGBT / per IGBT		R_{thJH}	0,814	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, D1 / D4 / Diode, D1 / D4

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}	650	V
正向电流 Implemented forward current		I_{FN}	120	A
连续正向直流电流 Continuous DC forward current		I_F	100	A
正向重复峰值电流 Repetitive peak forward current	$t_P = 1\text{ ms}$	I_{FRM}	240	A
I ² t-值 I ² t - 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	700 690	A ² s A ² s

特征值 / Characteristic Values

				min.	typ.	max.	
正向电压 Forward voltage	$I_F = 100\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 100\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 100\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F		1,38 1,49 1,52	1,65	V V V
反向恢复峰值电流 Peak reverse recovery current	$I_F = 100\text{ A}, -di_F/dt = 1800\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}		58,3 74,4 77,6		A A A
恢复电荷 Recovered charge	$I_F = 100\text{ A}, -di_F/dt = 1800\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r		3,10 5,40 5,50		μC μC μC
反向恢复损耗 (每脉冲) Reverse recovery energy	$I_F = 100\text{ A}, -di_F/dt = 1800\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}		0,50 0,57 0,69		mJ mJ mJ
结 - 散热器热阻 Thermal resistance, junction to heatsink	每个二极管 / per diode		R_{thJH}		1,15		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, D2 / D3 / Diode, D2 / D3

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}	650	V
正向电流 Implemented forward current		I_{FN}	150	A
连续正向直流电流 Continuous DC forward current		I_F	100	A
正向重复峰值电流 Repetitive peak forward current	$t_P = 1\text{ ms}$	I_{FRM}	300	A
I ² t-值 I ² t - 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	770 690	A ² s A ² s

特征值 / Characteristic Values

				min.	typ.	max.	
正向电压 Forward voltage	$I_F = 100\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 100\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 100\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F		1,33 1,29 1,26	1,55	V V V
反向恢复峰值电流 Peak reverse recovery current	$I_F = 100\text{ A}, -di_F/dt = 2200\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}		47,6 49,8 52,7		A A A
恢复电荷 Recovered charge	$I_F = 100\text{ A}, -di_F/dt = 2200\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r		1,90 2,00 2,10		μC μC μC
反向恢复损耗 (每脉冲) Reverse recovery energy	$I_F = 100\text{ A}, -di_F/dt = 2200\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}		0,527 0,965 1,11		mJ mJ mJ
结 - 散热器热阻 Thermal resistance, junction to heatsink	每个二极管 / per diode		R_{thJH}		0,953		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, D5-D6 / Diode, D5-D6

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}	650	V
正向电流 Implemented forward current		I_{FN}	120	A
连续正向直流电流 Continuous DC forward current		I_F	100	A
正向重复峰值电流 Repetitive peak forward current	$t_p = 1 \text{ ms}$	I_{FRM}	240	A
I ² t-值 I ² t - 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	700 690	A ² s A ² s

特征值 / Characteristic Values

				min.	typ.	max.	
正向电压 Forward voltage	$I_F = 100 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 100 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 100 \text{ A}, V_{GE} = 0 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F		1,38 1,49 1,52	1,65	V V V
反向恢复峰值电流 Peak reverse recovery current	$I_F = 100 \text{ A}, -di_F/dt = 1800 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}		58,3 74,4 77,6		A A A
恢复电荷 Recovered charge	$I_F = 100 \text{ A}, -di_F/dt = 1800 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r		3,10 5,40 5,50		μC μC μC
反向恢复损耗 (每脉冲) Reverse recovery energy	$I_F = 100 \text{ A}, -di_F/dt = 1800 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}		0,50 0,57 0,69		mJ mJ mJ
结 - 散热器热阻 Thermal resistance, junction to heatsink	每个二极管 / per diode		R_{thJH}		1,15		K/W
在开关状态下温度 Temperature under switching conditions			$T_{vj op}$	-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		k Ω
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.

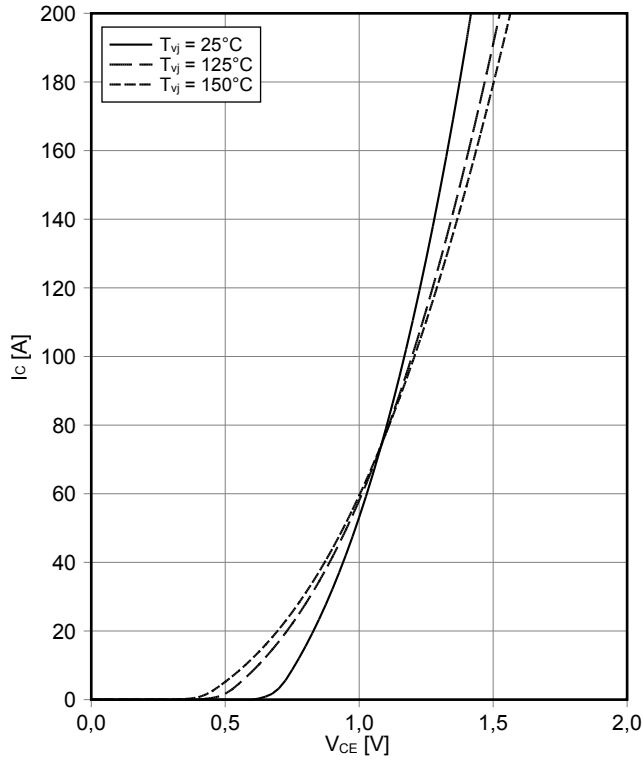
模块 / Module

绝缘测试电压 Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V _{ISOL}	2,5		kV
内部绝缘 Internal isolation	基本绝缘 (class 1, IEC 61140) basic insulation (class 1, IEC 61140)		Al ₂ O ₃		
爬电距离 Creepage distance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal		11,5 6,3		mm
电气间隙 Clearance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal		10,0 5,0		mm
相对电痕指数 Comperative tracking index		CTI	> 200		
相对温度指数 (电) RTI Elec.	住房 housing	RTI	140		°C
			min.	typ.	max.
杂散电感, 模块 Stray inductance module		L _{sCE}		20	nH
储存温度 Storage temperature		T _{stg}	-40		125 °C
Anpresskraft für mech. Bef. pro Feder mounting force per clamp		F	40	-	80 N
重量 Weight		G		39	g

Der Strom im Dauerbetrieb ist auf 25A effektiv pro Anschlusspin begrenzt.
The current under continuous operation is limited to 25A rms per connector pin.

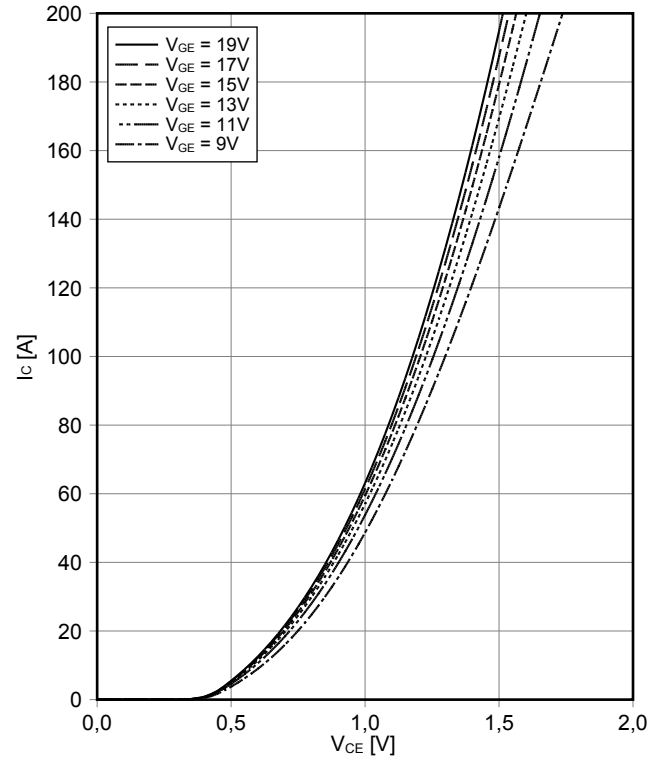
输出特性 IGBT, T1 / T4 (典型)
output characteristic IGBT, T1 / T4 (typical)

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



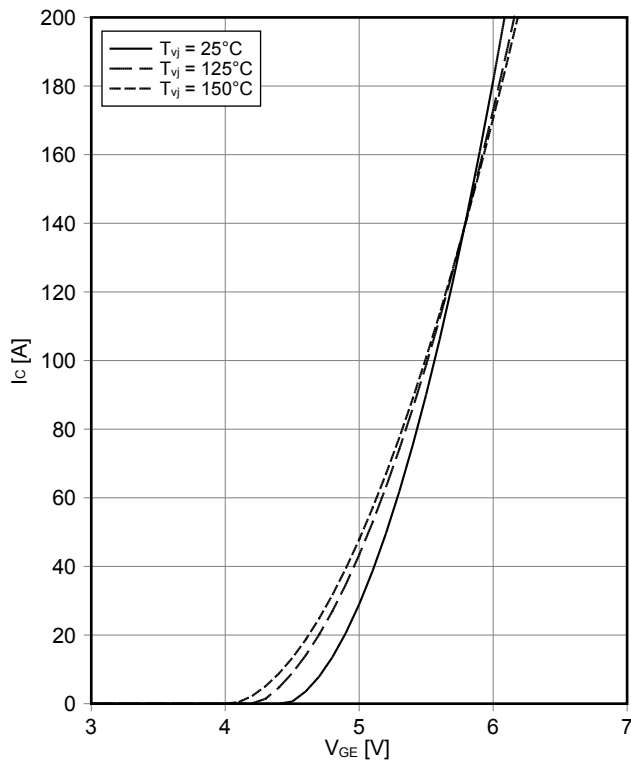
输出特性 IGBT, T1 / T4 (典型)
output characteristic IGBT, T1 / T4 (typical)

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



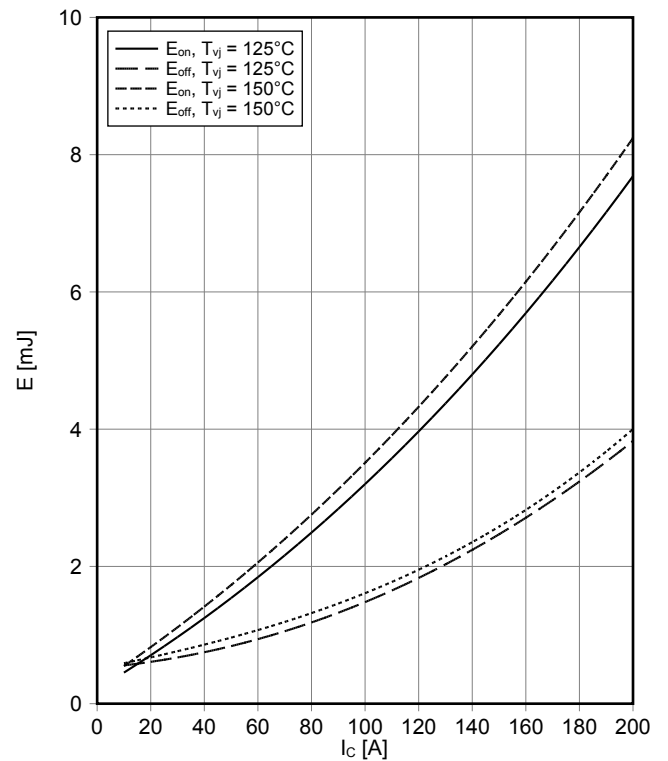
传输特性 IGBT, T1 / T4 (典型)
transfer characteristic IGBT, T1 / T4 (typical)

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

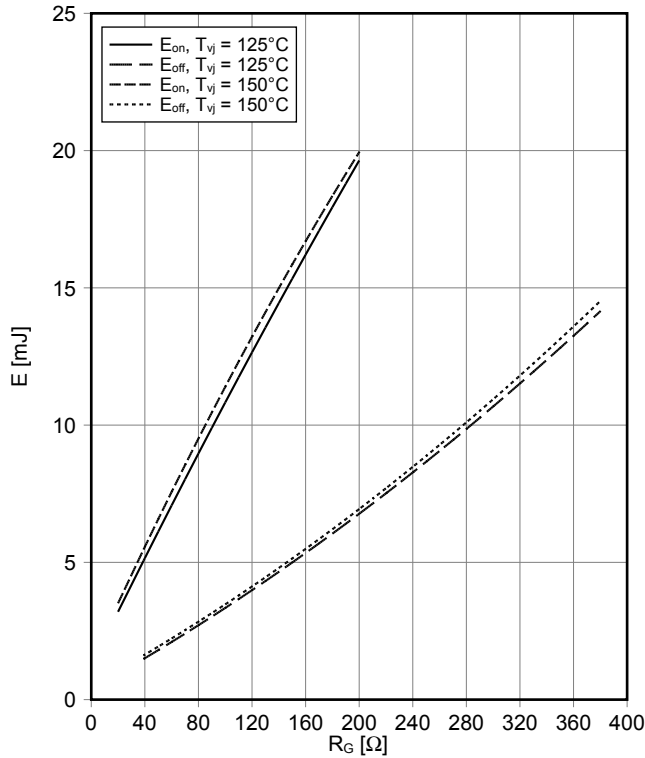


开关损耗 IGBT, T1 / T4 (典型)
switching losses IGBT, T1 / T4 (typical)

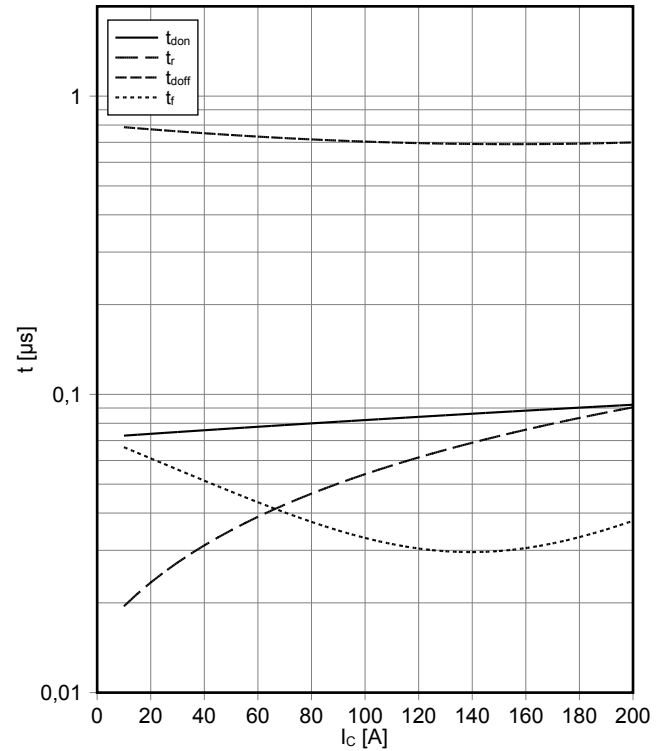
$E_{on} = f(I_C)$, $E_{off} = f(I_C)$
 $V_{GE} = \pm 15\text{ V}$, $R_{Gon} = 20\ \Omega$, $R_{Goff} = 39\ \Omega$, $V_{CE} = 300\text{ V}$



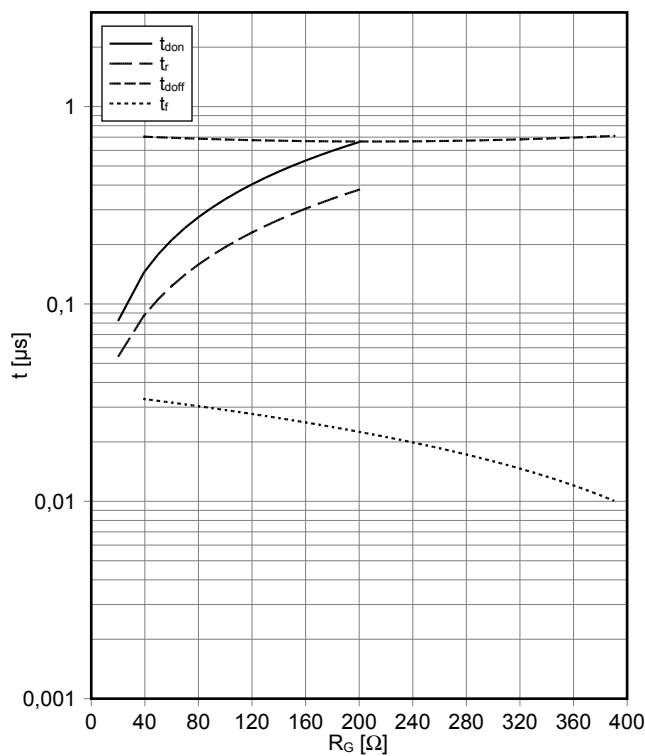
开关损耗 IGBT, T1 / T4 (典型)
switching losses IGBT, T1 / T4 (typical)
 $E_{on} = f(R_G), E_{off} = f(R_G)$
 $V_{GE} = \pm 15\text{ V}, I_C = 100\text{ A}, V_{CE} = 300\text{ V}$



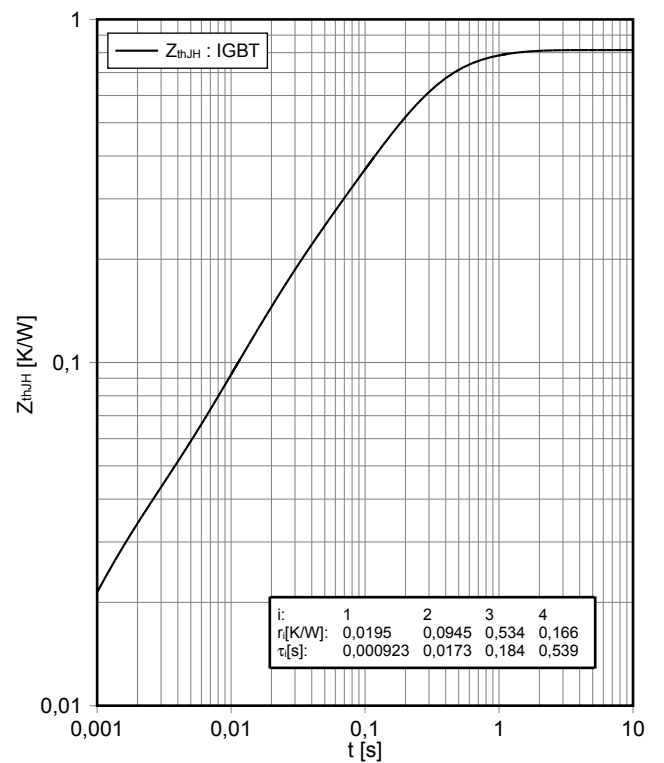
??? IGBT, T1 / T4 (典型)
switching times IGBT, T1 / T4 (typical)
 $t_{don} = f(I_C), t_r = f(I_C), t_{doff} = f(I_C), t_f = f(I_C)$
 $V_{GE} = \pm 15\text{ V}, R_{Gon} = 20\ \Omega, R_{Goff} = 39\ \Omega, V_{CE} = 300\text{ V}, T_{vj} = 150^\circ\text{C}$



??? IGBT, T1 / T4 (典型)
switching times IGBT, T1 / T4 (typical)
 $t_{don} = f(R_G), t_r = f(R_G), t_{doff} = f(R_G), t_f = f(R_G)$
 $V_{GE} = \pm 15\text{ V}, I_C = 100\text{ A}, V_{CE} = 300\text{ V}, T_{vj} = 150^\circ\text{C}$

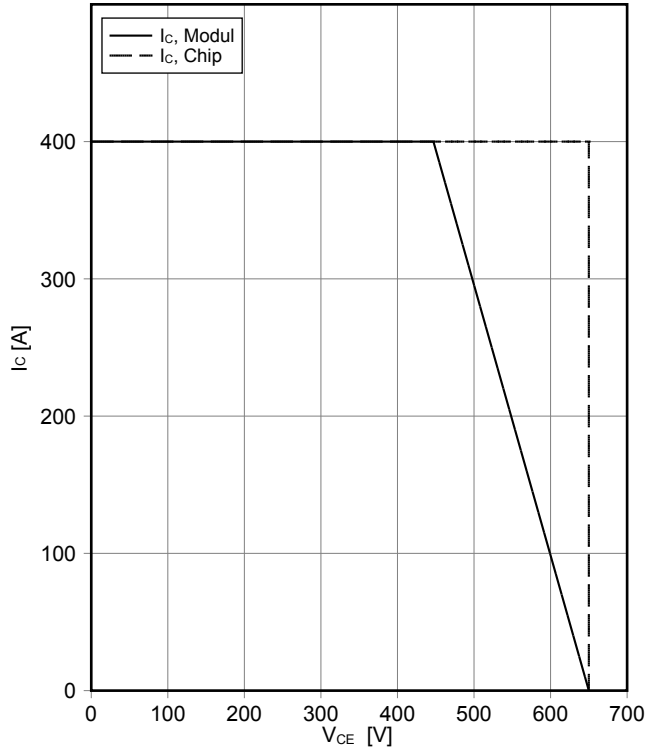


瞬态热阻抗 IGBT, T1 / T4
transient thermal impedance IGBT, T1 / T4
 $Z_{thJH} = f(t)$



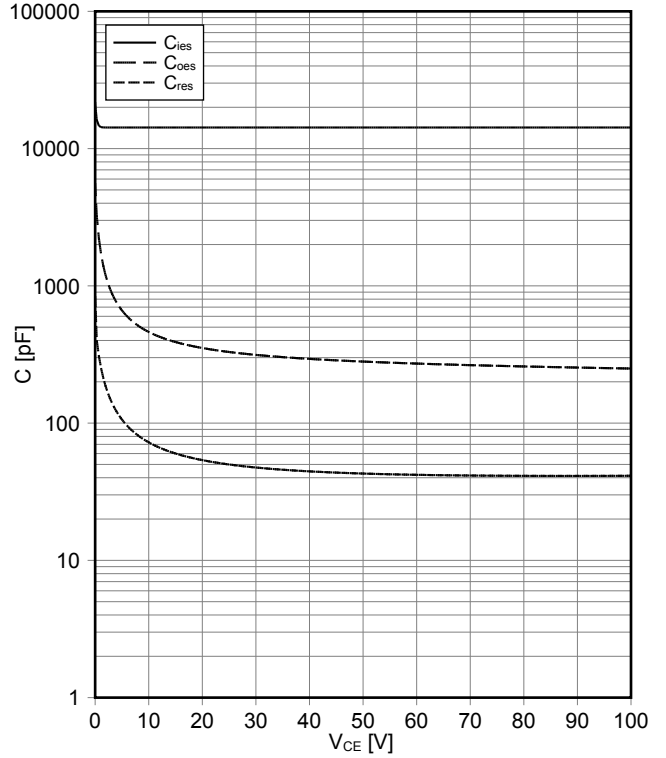
反偏安全工作区 IGBT, T1 / T4 (RBSOA)
reverse bias safe operating area IGBT, T1 / T4 (RBSOA)

$I_C = f(V_{CE})$
 $V_{GE} = \pm 15 \text{ V}$, $R_{Goff} = 39 \Omega$, $T_{vj} = 150^\circ\text{C}$



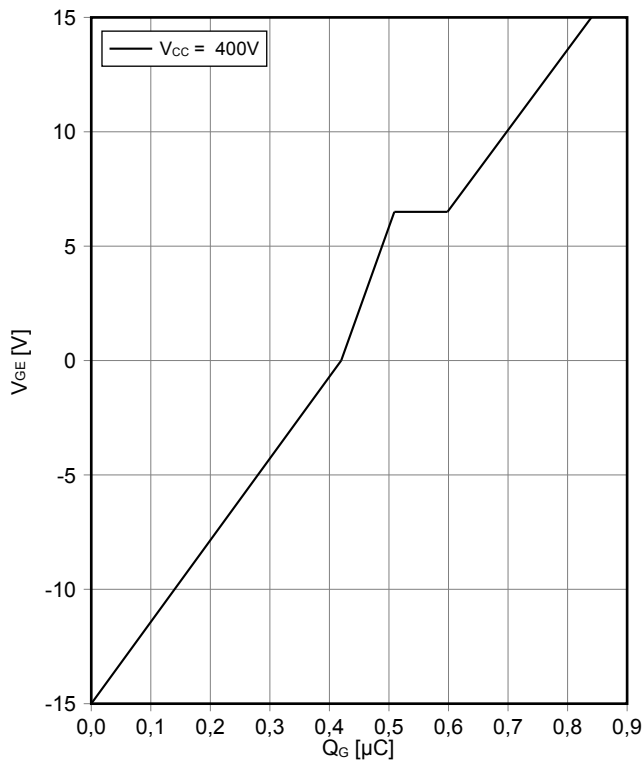
电容特性 IGBT, T1 / T4 (典型)
capacity characteristic IGBT, T1 / T4 (typical)

$C = f(V_{CE})$
 $V_{GE} = 0 \text{ V}$, $T_{vj} = 25^\circ\text{C}$, $f = 100\text{kHz}$



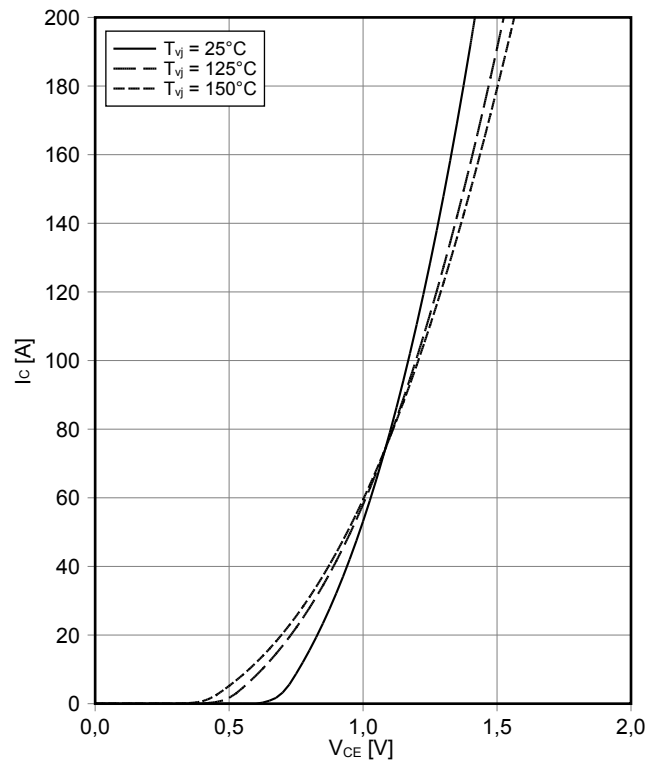
栅极电荷特性 IGBT, T1 / T4 (典型)
gate charge characteristic IGBT, T1 / T4 (typical)

$V_{GE} = f(Q_G)$
 $I_C = 200 \text{ A}$, $T_{vj} = 25^\circ\text{C}$



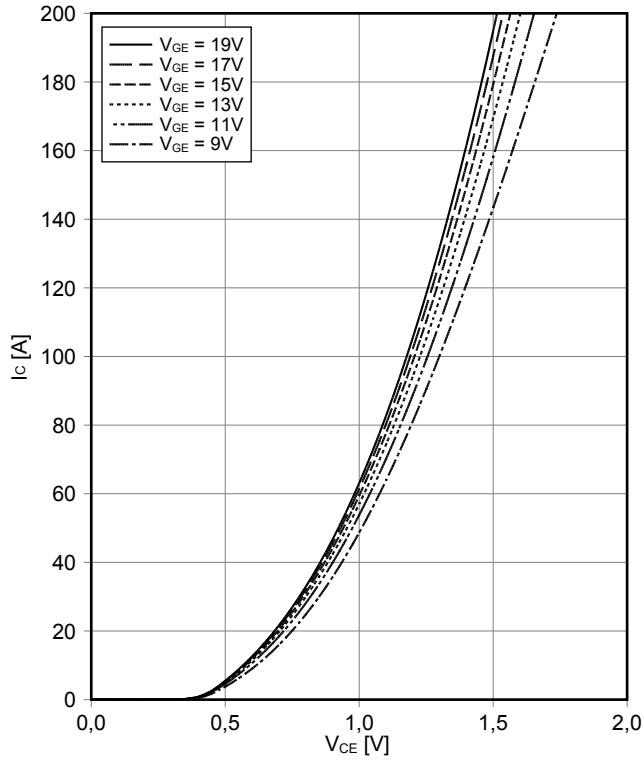
输出特性 IGBT, T2 / T3 (典型)
output characteristic IGBT, T2 / T3 (typical)

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



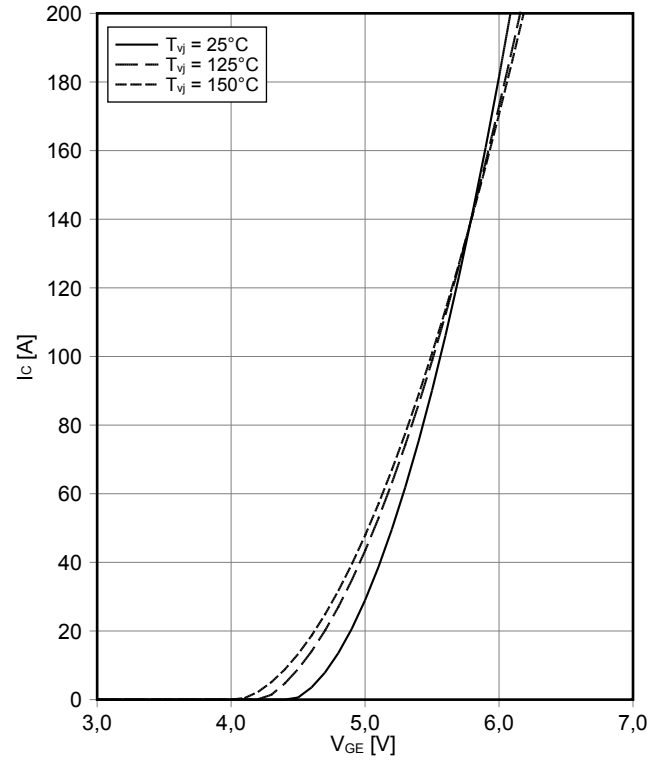
输出特性 IGBT, T2 / T3 (典型)
output characteristic IGBT, T2 / T3 (typical)

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



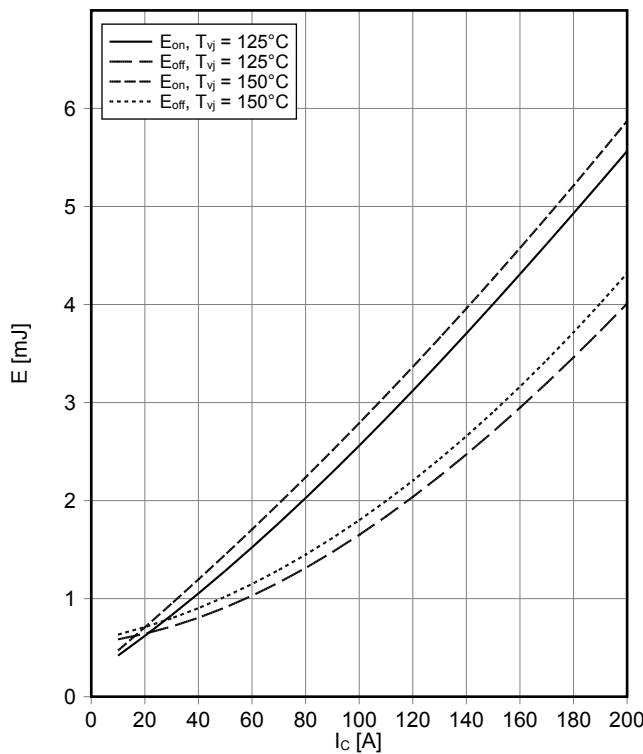
传输特性 IGBT, T2 / T3 (典型)
transfer characteristic IGBT, T2 / T3 (typical)

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



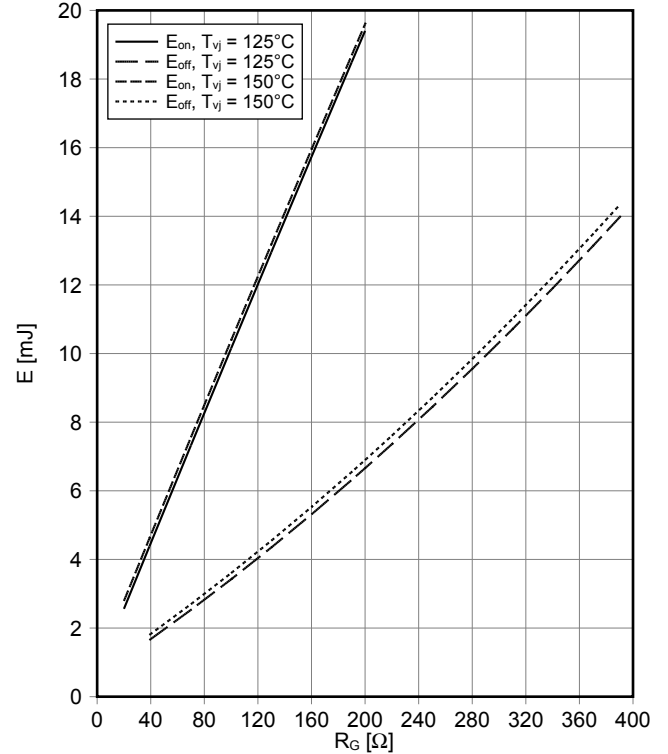
开关损耗 IGBT, T2 / T3 (典型)
switching losses IGBT, T2 / T3 (typical)

$E_{on} = f(I_C), E_{off} = f(I_C)$
 $V_{GE} = \pm 15\text{ V}, R_{Gon} = 20\ \Omega, R_{Goff} = 39\ \Omega, V_{CE} = 300\text{ V}$



开关损耗 IGBT, T2 / T3 (典型)
switching losses IGBT, T2 / T3 (typical)

$E_{on} = f(R_G), E_{off} = f(R_G)$
 $V_{GE} = \pm 15\text{ V}, I_C = 100\text{ A}, V_{CE} = 300\text{ V}$

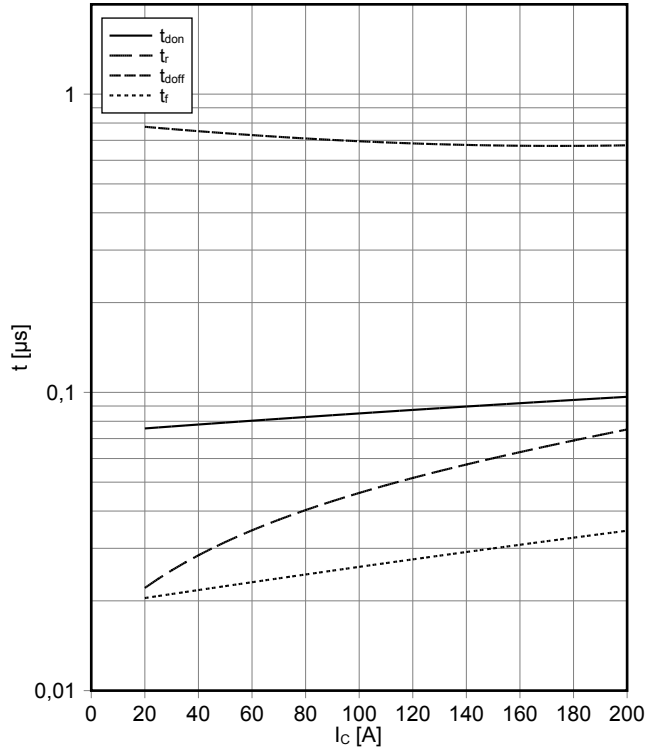


??? IGBT, T2 / T3 (典型)

switching times IGBT, T2 / T3 (typical)

$t_{don} = f(I_c)$, $t_r = f(I_c)$, $t_{doff} = f(I_c)$, $t_f = f(I_c)$

$V_{GE} = \pm 15\text{ V}$, $R_{Gon} = 20\ \Omega$, $R_{Goff} = 39\ \Omega$, $V_{CE} = 300\text{ V}$, $T_{vj} = 150^\circ\text{C}$

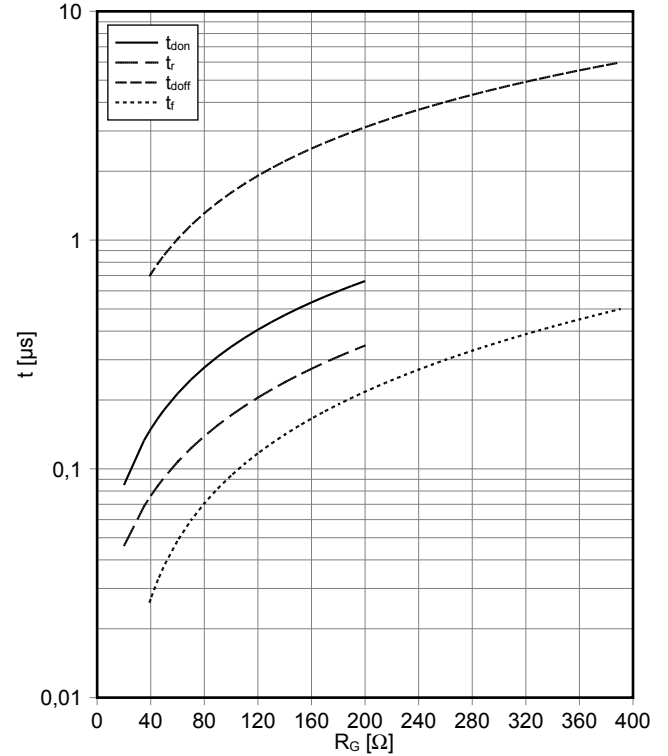


??? IGBT, T2 / T3 (典型)

switching times IGBT, T2 / T3 (typical)

$t_{don} = f(R_G)$, $t_r = f(R_G)$, $t_{doff} = f(R_G)$, $t_f = f(R_G)$

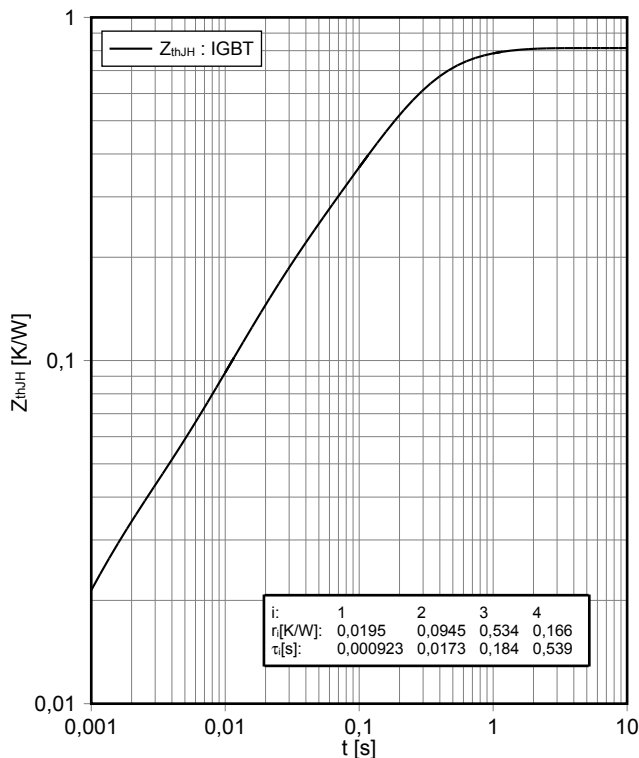
$V_{GE} = \pm 15\text{ V}$, $I_c = 100\text{ A}$, $V_{CE} = 300\text{ V}$, $T_{vj} = 150^\circ\text{C}$



瞬态热阻抗 IGBT, T2 / T3

transient thermal impedance IGBT, T2 / T3

$Z_{thJH} = f(t)$

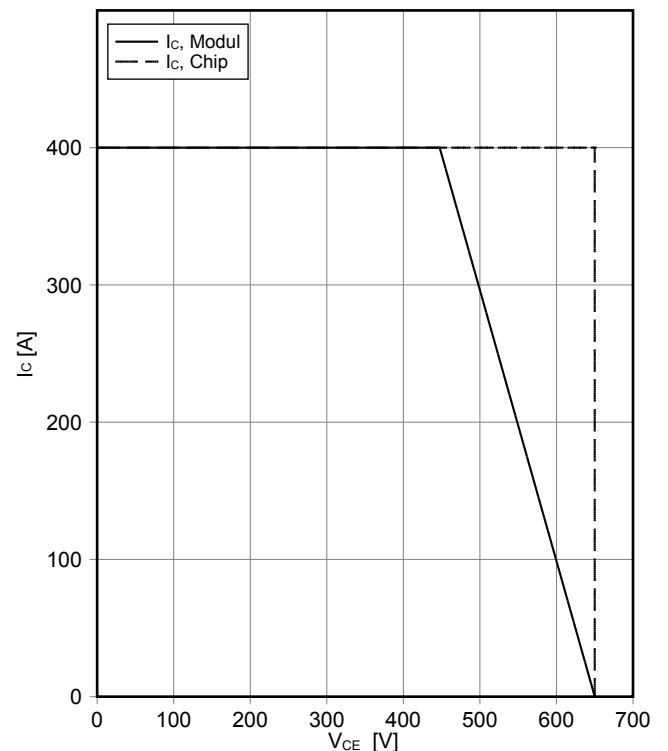


反偏安全工作区 IGBT, T2 / T3 (RBSOA)

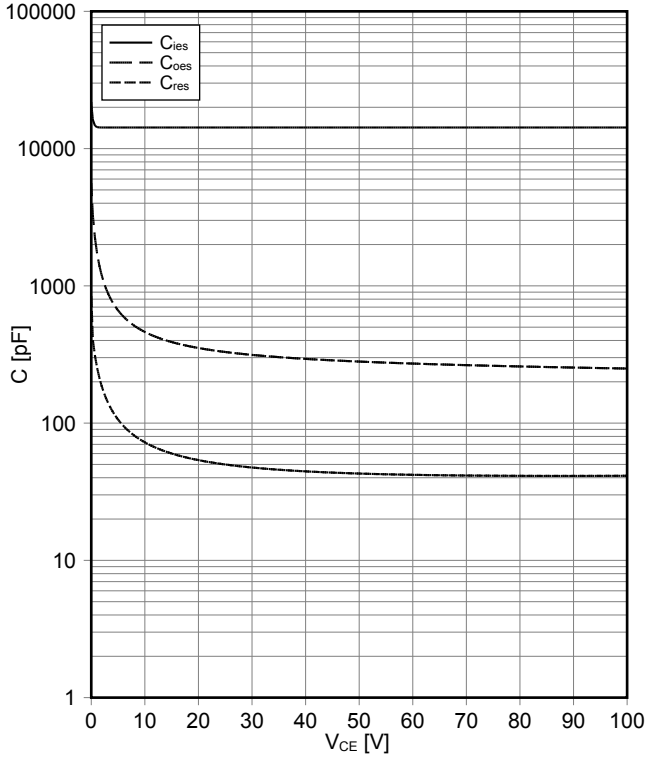
reverse bias safe operating area IGBT, T2 / T3 (RBSOA)

$I_c = f(V_{CE})$

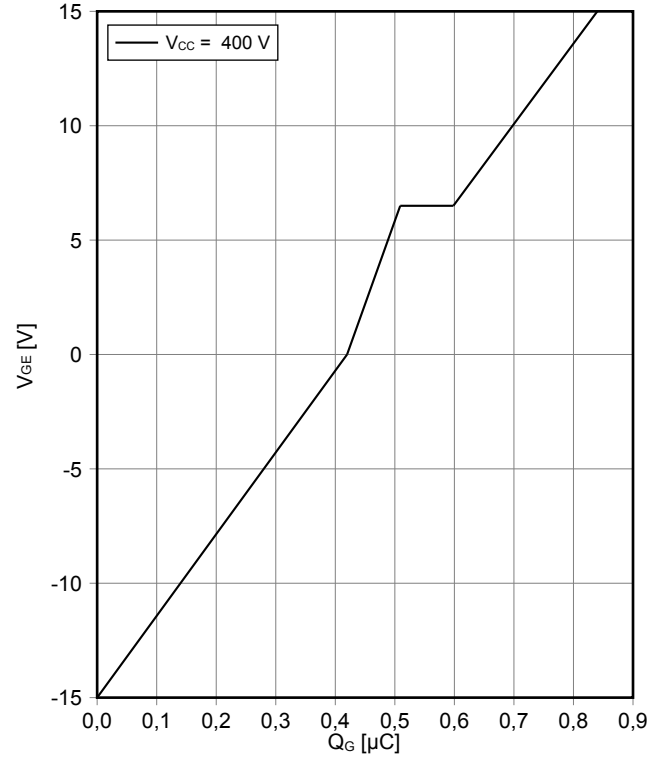
$V_{GE} = \pm 15\text{ V}$, $R_{Goff} = 39\ \Omega$, $T_{vj} = 150^\circ\text{C}$



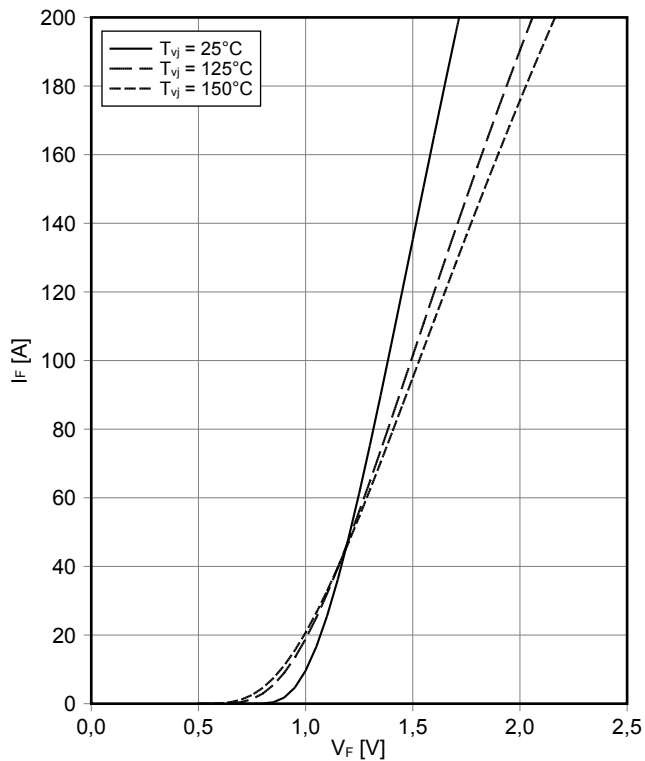
电容特性 IGBT, T2 / T3 (典型)
capacity characteristic IGBT, T2 / T3 (typical)
 $C = f(V_{CE})$
 $V_{GE} = 0 \text{ V}, T_{vj} = 25^\circ\text{C}, f = 100\text{kHz}$



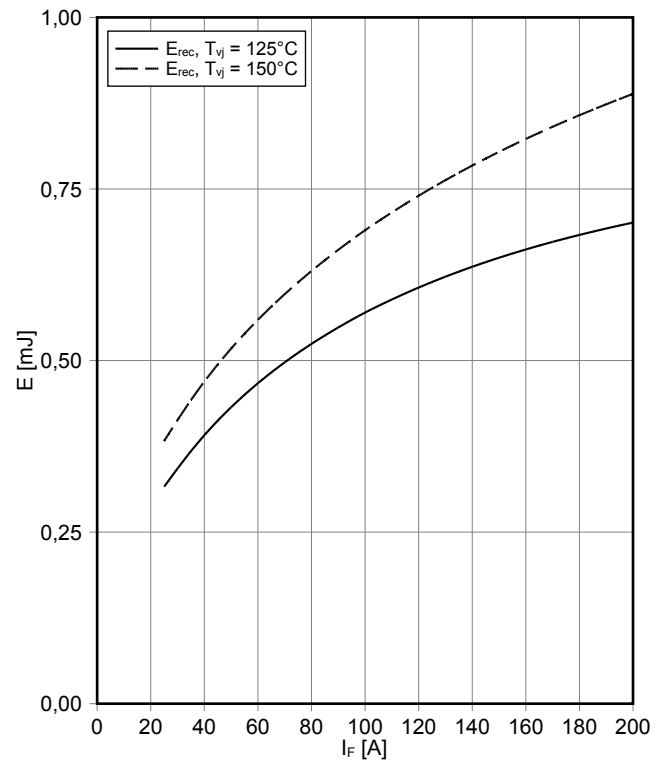
栅极电荷特性 IGBT, T2 / T3 (典型)
gate charge characteristic IGBT, T2 / T3 (typical)
 $V_{GE} = f(Q_G)$
 $I_C = 200 \text{ A}, T_{vj} = 25^\circ\text{C}$



正向偏压特性 二极管, D1 / D4 (典型)
forward characteristic of Diode, D1 / D4 (typical)
 $I_F = f(V_F)$

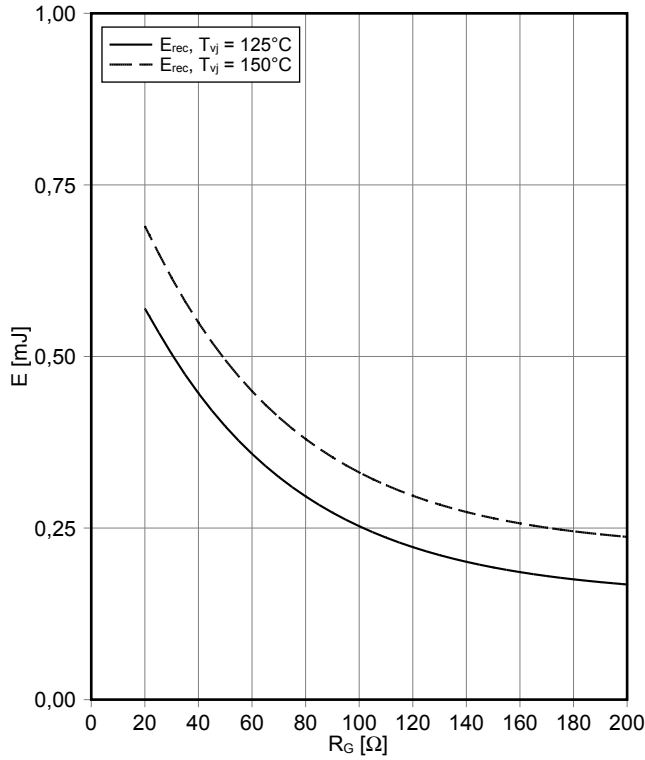


开关损耗 二极管, D1 / D4 (典型)
switching losses Diode, D1 / D4 (typical)
 $E_{rec} = f(I_F)$
 $R_{Gon} = 20 \Omega, V_{CE} = 300 \text{ V}$



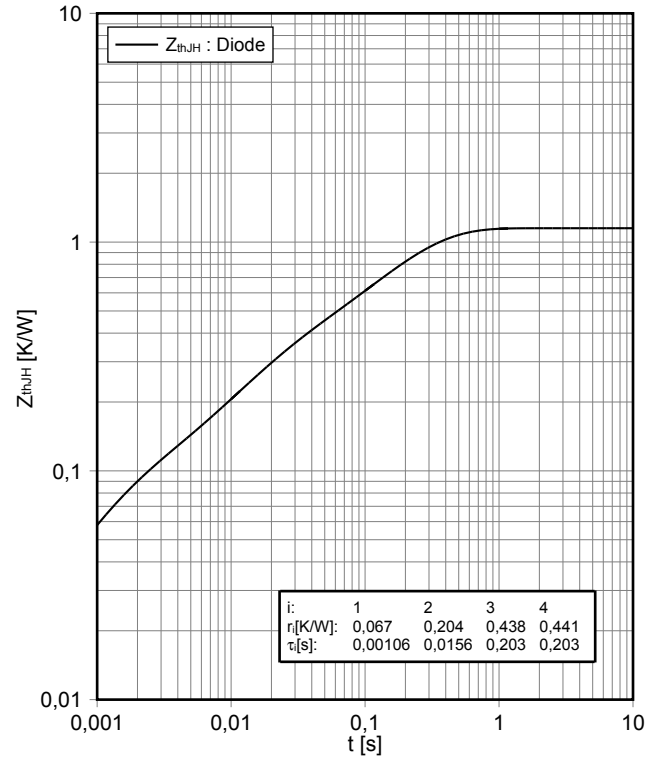
开关损耗 二极管, D1 / D4 (典型)
switching losses Diode, D1 / D4 (typical)

$E_{rec} = f(R_G)$
 $I_F = 100\text{ A}, V_{CE} = 300\text{ V}$



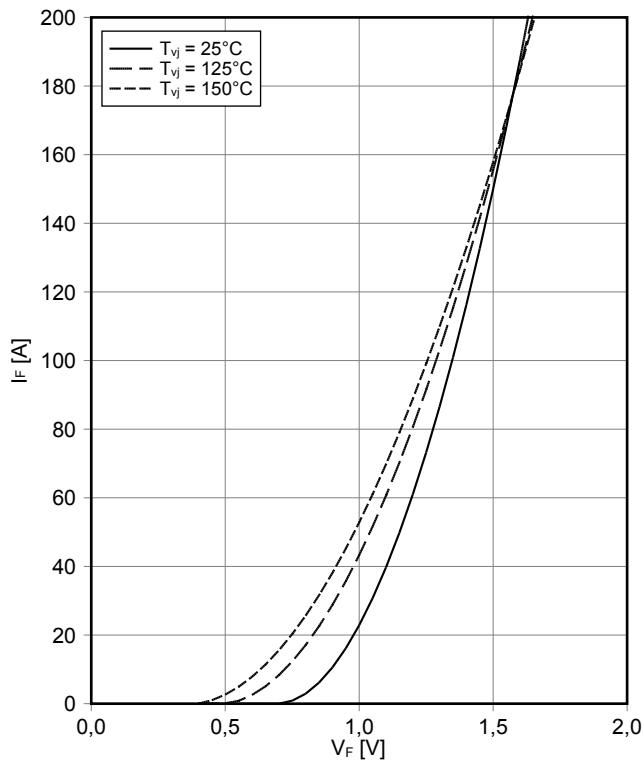
瞬态热阻抗 二极管, D1 / D4
transient thermal impedance Diode, D1 / D4

$Z_{thJH} = f(t)$



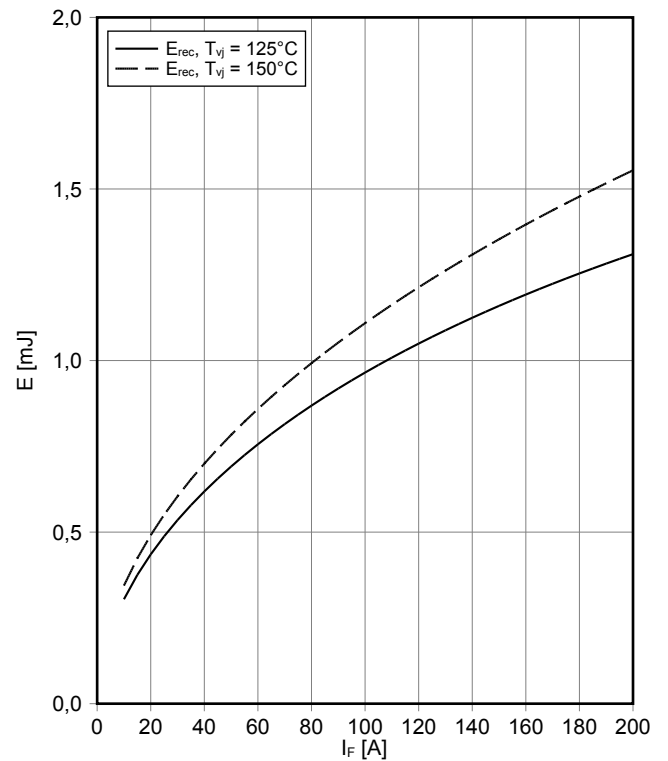
正向偏压特性 二极管, D2 / D3 (典型)
forward characteristic of Diode, D2 / D3 (typical)

$I_F = f(V_F)$



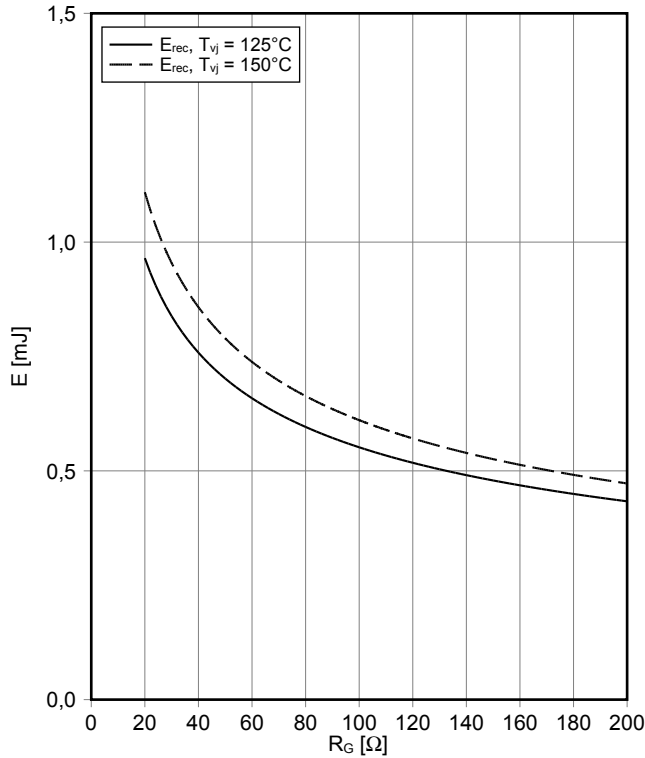
开关损耗 二极管, D2 / D3 (典型)
switching losses Diode, D2 / D3 (typical)

$E_{rec} = f(I_F)$
 $R_{Gon} = 20\ \Omega, V_{CE} = 300\text{ V}$



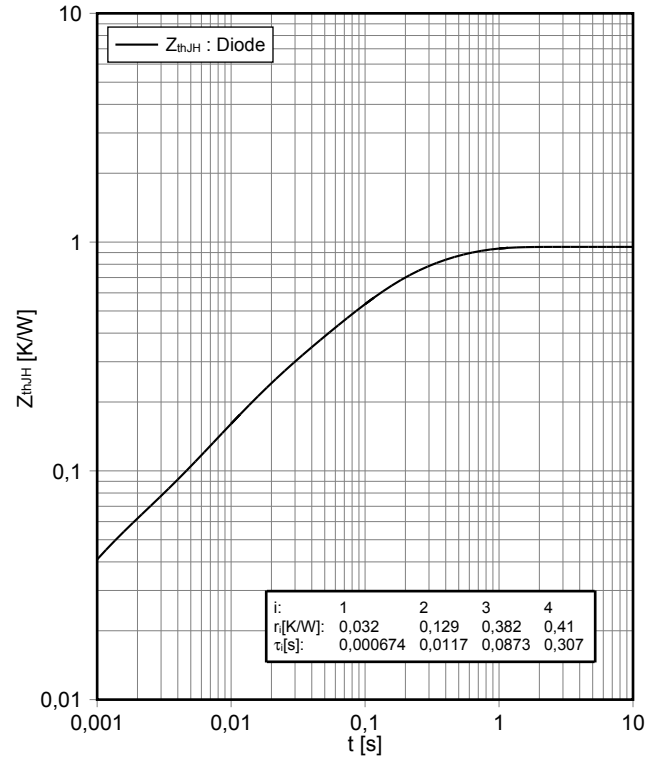
开关损耗 二极管, D2 / D3 (典型)
switching losses Diode, D2 / D3 (typical)

$E_{rec} = f(R_G)$
 $I_F = 100\text{ A}, V_{CE} = 300\text{ V}$



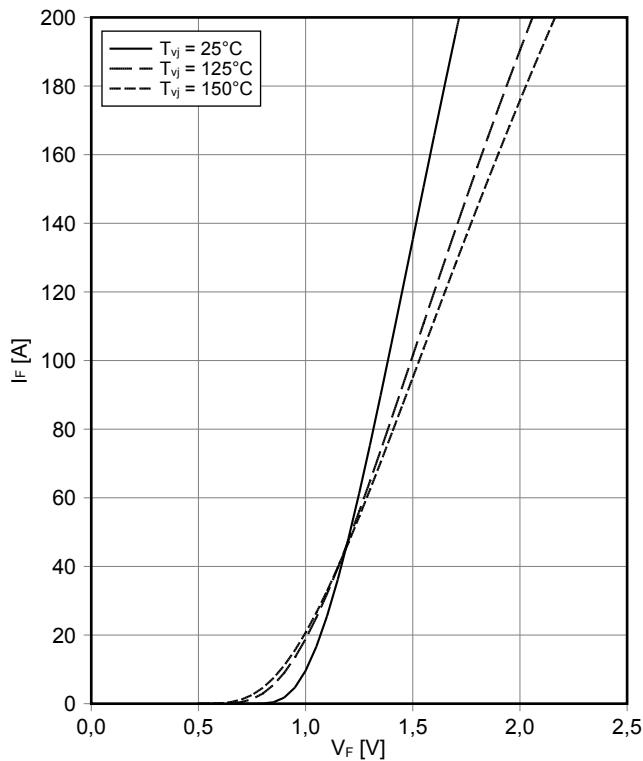
瞬态热阻抗 二极管, D2 / D3
transient thermal impedance Diode, D2 / D3

$Z_{thJH} = f(t)$



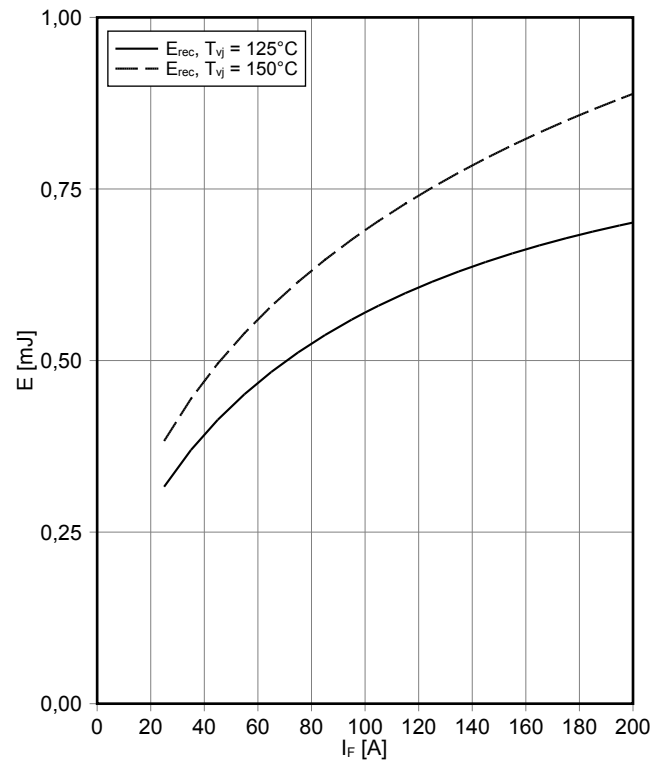
正向偏压特性 二极管, D5-D6 (典型)
forward characteristic of Diode, D5-D6 (typical)

$I_F = f(V_F)$



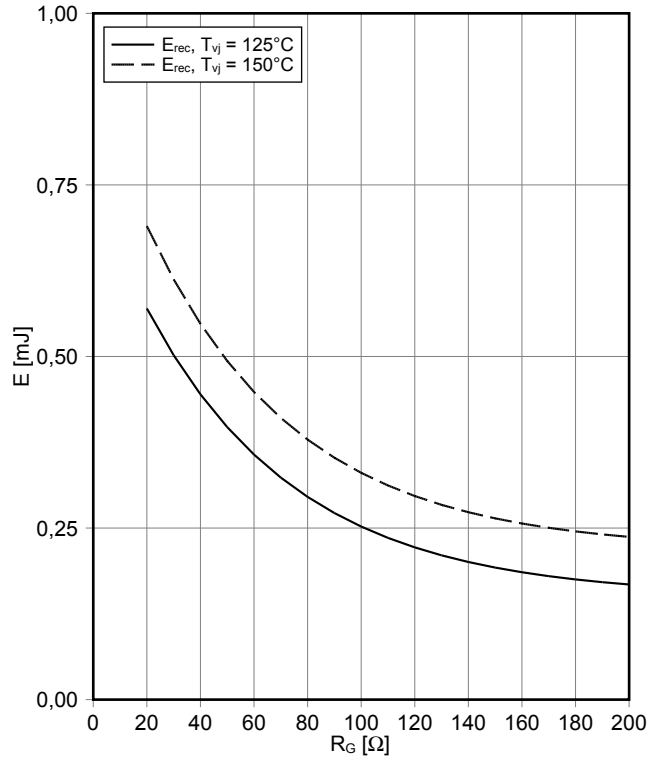
开关损耗 二极管, D5-D6 (典型)
switching losses Diode, D5-D6 (typical)

$E_{rec} = f(I_F)$
 $R_{Gon} = 20\ \Omega, V_{CE} = 300\text{ V}$



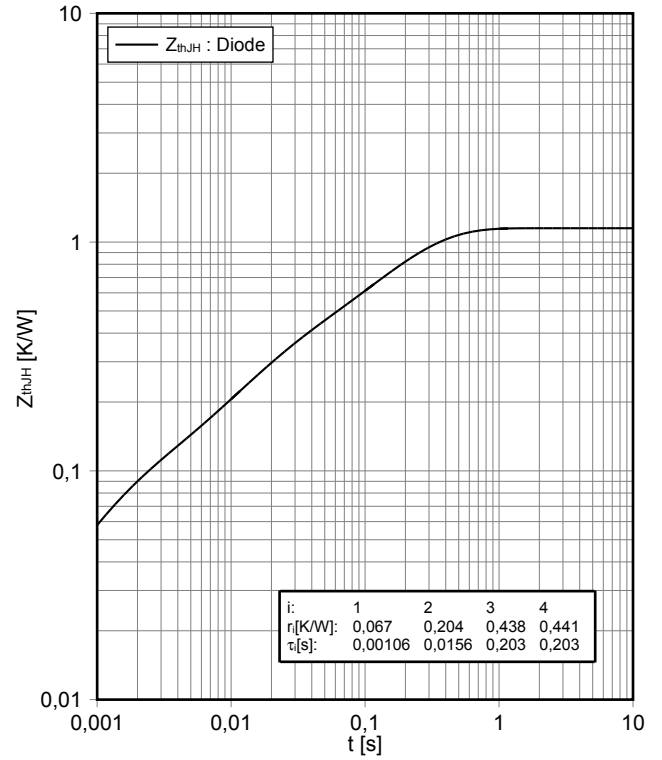
开关损耗 二极管, D5-D6 (典型)
switching losses Diode, D5-D6 (typical)

$E_{rec} = f(R_G)$
 $I_F = 100\text{ A}, V_{CE} = 300\text{ V}$



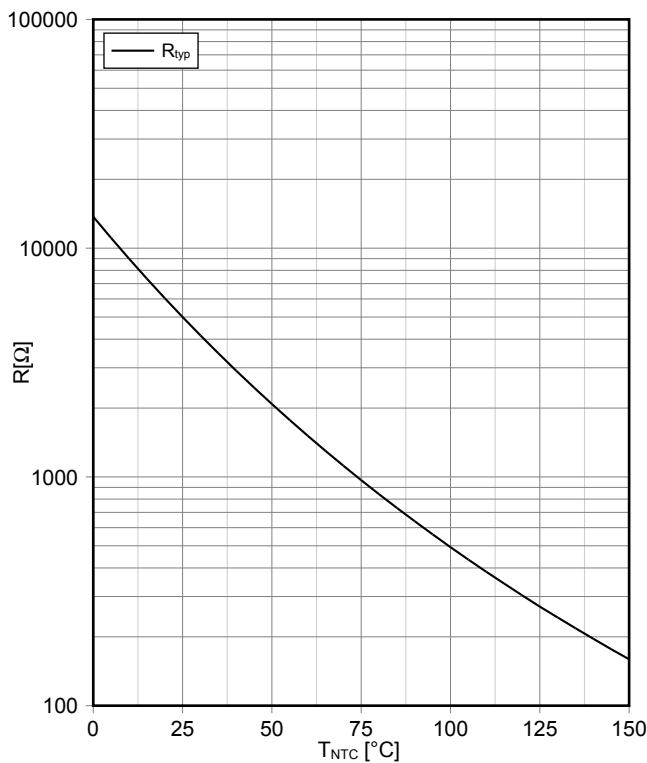
瞬态热阻抗 二极管, D5-D6
transient thermal impedance Diode, D5-D6

$Z_{thJH} = f(t)$

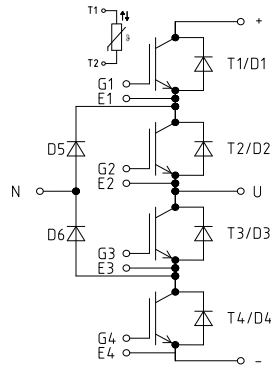


负温度系数热敏电阻 温度特性
NTC-Thermistor-temperature characteristic (typical)

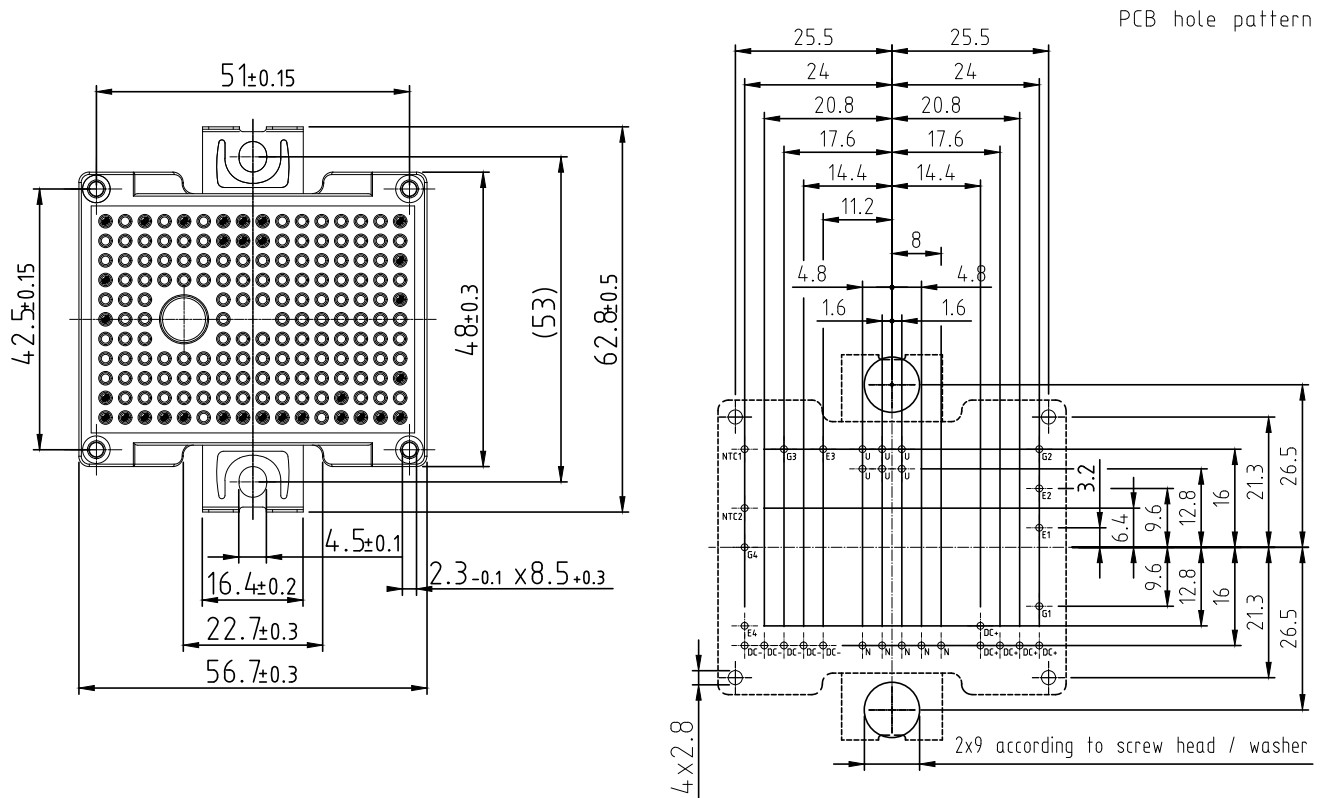
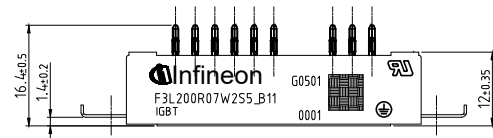
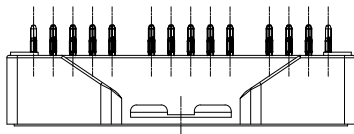
$R = f(T_{NTC})$



接线图 / Circuit diagram



封装尺寸 / Package outlines



- Pin-Grid 3.2mm
- Tolerance of PCB hole pattern $\oplus \phi 0.1$
- Hole specification for contacts see AN 2009-01:
Diameters of drill $\phi 1.15\text{mm}$
and copper thickness in hole 25-50 μm

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Edition 2020-06-29

Published by
Infineon Technologies AG
81726 München, Germany

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