Final datasheet

EasyPACK™ 模块 采用 CoolSiC™ Trench MOSFET 以及 PressFIT 压接管脚 / 预涂导热材料 / 温度检测 NTC

特性



- 电气特性
  - V_{DSS} = 1200 V
  - I_{DN} = 75 A / I_{DRM} = 150 A
  - 低电感设计
  - 低开关损耗
  - 高电流密度
  - 可以从下面链接寻找适合的英飞凌驱动 IC https://www.infineon.com/gdfinder
- 机械特性
  - PressFIT 压接技术
  - 集成 NTC 温度传感器
  - 集成的安装夹使安装坚固
  - 封装的 CTI > 600
  - 高电流压接管脚

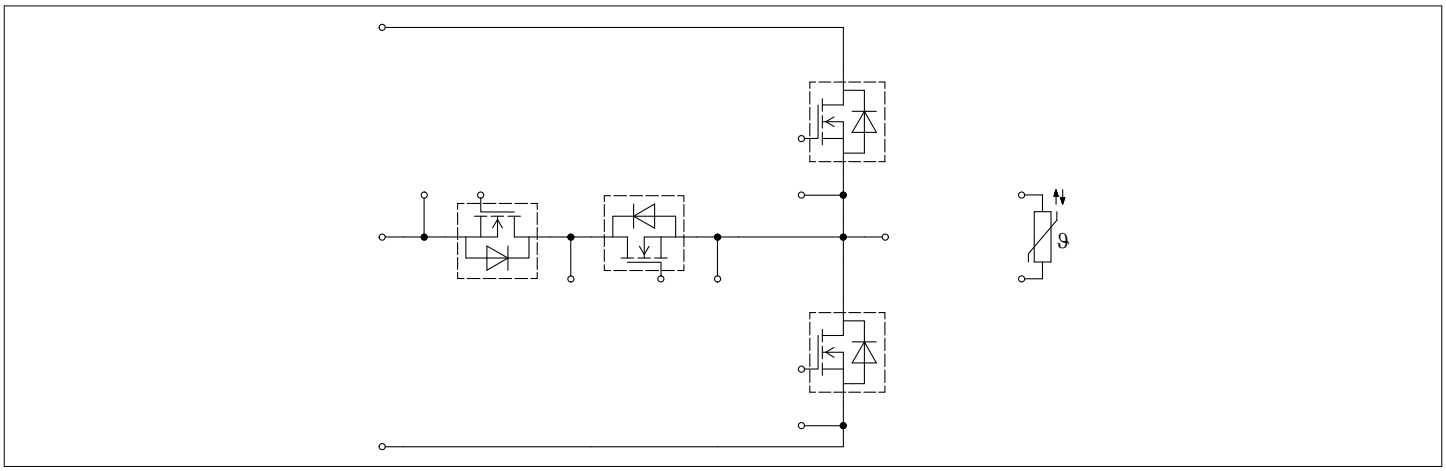
可选应用

- 高频开关应用
- DC/DC 变换器
- 电动车直流充电

产品认证

- 根据 IEC 60747、60749 和 60068 标准的相关测试，符合工业应用的要求。

描述



内容

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1 封装

表 1 绝缘参数

特征参数	代号	标注或测试条件	数值	单位
绝缘测试电压	V_{ISOL}	RMS, f = 50 Hz, t = 1 min	4.0	kV
NTC 绝缘测试电压	$V_{ISOL(NTC)}$	RMS, f = 50 Hz, t = 1 min	3.0	kV
内部绝缘		基本绝缘 (class 1, IEC 61140)	Al_2O_3	
相对电痕指数	*CTI*		> 600	
相对温度指数 (电)	*RTI*	基壳	180	°C
		上盖	150	

表 2 特征值

特征参数	代号	标注或测试条件	数值			单位
			最小值	典型值	最大值	
杂散电感,模块	L_{sCE}			19		nH
模块引线电阻,端子-芯片	$R_{CC'+EE'}$	T_H = 25 °C, 每个开关		2.6		mΩ
储存温度	T_{stg}		-40		150	°C
最高基板工作温度	T_{BPmax}				150	°C
Mounting force per clamp	*F*		40		80	N
重量	*G*			38		g

注: The current up to 50 A per pin is limited by the interaction of the pins with the PCB design and cooling conditions.

Storage and shipment of modules with TIM => see AN 2012-07

2 MOSFET, T1 / T2

表 3 最大标定值

特征参数	代号	标注或测试条件		数值	单位
漏源极电压	V_{DSS}		T_{vj} = 25 °C	1200	V
植入漏极电流	I_{DN}			75	A
连续漏极直流电流	I_{DDC}	T_{vj} = 175 °C, V_{GS} = 18 V	T_H = 25 °C	95	A
漏极重复峰值电流	I_{DRM}	verified by design, t_p limited by T_{vjmax}		150	A
栅-源瞬态最大电压	V_{GS}	D < 0.01		-10/25	V
栅-源稳态最大电压	V_{GS}			-7/20	V

表 4　　推荐值

特征参数	代号	标注或测试条件	[ZH]Values	单位
通态栅极电压	$V_{GS(on)}$		15...18	V
断态栅极电压	$V_{GS(off)}$		-5...0	V

表 5　　特征值

特征参数	代号	标注或测试条件		数值			单位
				最小值	典型值	最大值	
漏源通态电阻	$R_{DS(on)}$	I_D = 75 A	V_{GS} = 15 V, T_{vj} = 25 °C		10		mΩ
			V_{GS} = 18 V, T_{vj} = 25 °C		8.3	12.8	
			V_{GS} = 18 V, T_{vj} = 125 °C		13		
			V_{GS} = 18 V, T_{vj} = 175 °C		16.8		
栅极阈值电压	$V_{GS(th)}$	I_D = 33 mA, V_{DS} = V_{GS}, T_{vj} = 25 °C, (tested after 1ms pulse at V_{GS} = +20 V), T_{vj} = 25 °C		3.45	4.3	5.15	V
栅极电荷	Q_G	V_{DD} = 800 V, V_{GS} = -3/18 V, T_{vj} = 25 °C			0.237		µC
内部栅极电阻	R_{Gint}	T_{vj} = 25 °C			3.5		Ω
输入电容	C_{ISS}	f = 100 kHz, V_{DS} = 800 V, V_{GS} = 0 V	T_{vj} = 25 °C		7.21		nF
输出电容	C_{OSS}	f = 100 kHz, V_{DS} = 800 V, V_{GS} = 0 V	T_{vj} = 25 °C		0.293		nF
反向传输电容	C_{rss}	f = 100 kHz, V_{DS} = 800 V, V_{GS} = 0 V	T_{vj} = 25 °C		0.02		nF
C_{OSS} 存储能量	E_{OSS}	V_{DS} = 800 V, V_{GS} = -3/18 V, T_{vj} = 25 °C			121		µJ
漏源泄漏电流	I_{DSS}	V_{DS} = 1200 V, V_{GS} = -3 V	T_{vj} = 25 °C		0.3	296	µA
栅极漏电流	I_{GSS}	V_{DS} = 0 V, T_{vj} = 25 °C	V_{GS} = 20 V			400	nA
开通延迟时间(感性负载)	$t_{d\,on}$	I_D = 75 A, R_{Gon} = 10 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V, t_{dead} = 1000 ns, 0.1 V_{GS} to 0.1 I_D	T_{vj} = 25 °C		50.4		ns
			T_{vj} = 125 °C		45.7		
			T_{vj} = 175 °C		43.8		
上升时间(感性负载)	t_r	I_D = 75 A, R_{Gon} = 10 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V, t_{dead} = 1000 ns, 0.1 I_D to 0.9 I_D	T_{vj} = 25 °C		24.5		ns
			T_{vj} = 125 °C		22.1		
			T_{vj} = 175 °C		21.5		

(待续)

表 5 (续) 特征值

特征参数	代号	标注或测试条件		数值			单位
				最小值	典型值	最大值	
关断延迟时间(感性负载)	$t_{d\,off}$	I_D = 75 A, R_{Goff} = 2.7 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V, 0.9 V_{GS} to 0.9 I_D	T_{vj} = 25 °C		63		ns
			T_{vj} = 125 °C		71.4		
			T_{vj} = 175 °C		76.4		
下降时间(感性负载)	t_f	I_D = 75 A, R_{Goff} = 2.7 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V, 0.9 I_D to 0.1 I_D	T_{vj} = 25 °C		28.7		ns
			T_{vj} = 125 °C		31		
			T_{vj} = 175 °C		32.5		
开通损耗能量 (每脉冲)	E_{on}	I_D = 75 A, V_{DD} = 800 V, L_σ = 15 nH, V_{GS} = -3/18 V, R_{Gon} = 10 Ω, di/dt = 4.11 kA/µs (T_{vj} = 175 °C), t_{dead} = 1000 ns	T_{vj} = 25 °C		2.57		mJ
			T_{vj} = 125 °C		2.74		
			T_{vj} = 175 °C		2.94		
开通损耗能量 (每脉冲), 优化条件下	$E_{on,o}$	I_D = 75 A, V_{DD} = 800 V, L_σ = 15 nH, V_{GS} = -3/18 V, $R_{Gon,o}$ = 1 Ω, di/dt = 10.6 kA/µs (T_{vj} = 175 °C), t_{dead} = 100 ns	T_{vj} = 25 °C		1.01		mJ
			T_{vj} = 125 °C		1.11		
			T_{vj} = 175 °C		1.27		
关断损耗能量 (每脉冲)	E_{off}	I_D = 75 A, V_{DD} = 800 V, L_σ = 15 nH, V_{GS} = -3/18 V, R_{Goff} = 2.7 Ω, dv/dt = 28.2 kV/µs (T_{vj} = 175 °C)	T_{vj} = 25 °C		0.8		mJ
			T_{vj} = 125 °C		0.86		
			T_{vj} = 175 °C		0.91		
结－散热器热阻	R_{thJH}	每个 MOSFET , Valid with IFX pre-applied Thermal Interface Material			0.62		K/W
允许开关的温度范围	$T_{vj\,op}$			-40		175	°C
过载运行条件下的温度	$T_{vj\,over}$	过载工况，累计最大 100 小时				200	°C

注: The selection of positive and negative gate-source voltages impacts losses and the long-term behavior of the MOSFET and body diode. The design guidelines described in Application Notes AN 2018-09 and AN 2025-02 must be considered to ensure sound operation of the device over the planned lifetime.

3 Body diode (MOSFET, T1 / T2)

表 6 最大标定值

特征参数	代号	标注或测试条件		数值	单位
体二极管正向直流电流	I_{SD}	T_{vj} = 175 °C, V_{GS} = -3 V	T_H = 25 °C	55	A

表 7 特征值

特征参数	代号	标注或测试条件		数值			单位
				最小值	典型值	最大值	
正向电压	V_{SD}	I_{SD} = 75 A, V_{GS}=-3 V	T_{vj} = 25 °C		4.35	5.35	V
			T_{vj} = 125 °C		4.05		
			T_{vj} = 175 °C		3.9		
反向恢复峰值电流	I_{rrm}	I_{SD} = 75 A, di_s/dt = 4.11 kA/µs, V_{DD} = 800 V, V_{GS} = -3 V, t_{dead} = 1000 ns	T_{vj} = 25 °C		35.2		A
			T_{vj} = 125 °C		50		
			T_{vj} = 175 °C		61.5		
恢复电荷	Q_{rr}	I_{SD} = 75 A, di_s/dt = 4.11 kA/µs, V_{DD} = 800 V, V_{GS} = -3 V, t_{dead} = 1000 ns	T_{vj} = 25 °C		0.51		µC
			T_{vj} = 125 °C		1.12		
			T_{vj} = 175 °C		1.59		
反向恢复损耗（每脉冲）	E_{rec}	I_{SD} = 75 A, di_s/dt = 4.11 kA/µs (T_{vj} = 175 °C), V_{DD} = 800 V, V_{GS} = -3 V, t_{dead} = 1000 ns	T_{vj} = 25 °C		0.13		mJ
			T_{vj} = 125 °C		0.34		
			T_{vj} = 175 °C		0.5		
反向恢复损耗（每脉冲），优化条件下	$E_{rec,o}$	I_{SD} = 75 A, di_s/dt = 10.6 kA/µs (T_{vj} = 175 °C), V_{DD} = 800 V, V_{GS} = -3 V, t_{dead} = 100 ns	T_{vj} = 25 °C		0.89		mJ
			T_{vj} = 125 °C		1.73		
			T_{vj} = 175 °C		2.6		

4 MOSFET, T3 / T4

表 8 最大标定值

特征参数	代号	标注或测试条件		数值	单位
漏源极电压	V_{DSS}		T_{vj} = 25 °C	1200	V
植入漏极电流	I_{DN}			75	A
连续漏极直流电流	I_{DDC}	T_{vj} = 175 °C, V_{GS} = 18 V	T_H = 25 °C	85	A
漏极重复峰值电流	I_{DRM}	verified by design, t_p limited by T_{vjmax}		150	A
栅-源瞬态最大电压	V_{GS}	D < 0.01		-10/25	V
栅-源稳态最大电压	V_{GS}			-7/20	V

表 9 推荐值

特征参数	代号	标注或测试条件	[ZH]Values	单位
通态栅极电压	$V_{GS(on)}$		15...18	V
断态栅极电压	$V_{GS(off)}$		-5...0	V

表 10　　特征值

特征参数	代号	标注或测试条件		数值			单位
				最小值	典型值	最大值	
漏源通态电阻	$R_{DS(on)}$	I_D = 75 A	V_{GS} = 15 V, T_{vj} = 25 °C		10		mΩ
			V_{GS} = 18 V, T_{vj} = 25 °C		8.3	12.8	
			V_{GS} = 18 V, T_{vj} = 125 °C		13		
			V_{GS} = 18 V, T_{vj} = 175 °C		16.8		
栅极阈值电压	$V_{GS(th)}$	I_D = 33 mA, V_{DS} = V_{GS}, T_{vj} = 25 °C, (tested after 1ms pulse at V_{GS} = +20 V), T_{vj} = 25 °C		3.45	4.3	5.15	V
栅极电荷	Q_G	V_{DD} = 800 V, V_{GS} = -3/18 V, T_{vj} = 25 °C			0.237		µC
内部栅极电阻	R_{Gint}	T_{vj} = 25 °C			3.5		Ω
输入电容	C_{ISS}	f = 100 kHz, V_{DS} = 800 V, V_{GS} = 0 V	T_{vj} = 25 °C		7.21		nF
输出电容	C_{OSS}	f = 100 kHz, V_{DS} = 800 V, V_{GS} = 0 V	T_{vj} = 25 °C		0.293		nF
反向传输电容	C_{rss}	f = 100 kHz, V_{DS} = 800 V, V_{GS} = 0 V	T_{vj} = 25 °C		0.02		nF
C_{OSS} 存储能量	E_{OSS}	V_{DS} = 800 V, V_{GS} = -3/18 V, T_{vj} = 25 °C			121		µJ
漏源泄漏电流	I_{DSS}	V_{DS} = 1200 V, V_{GS} = -3 V	T_{vj} = 25 °C		0.3	296	µA
栅极漏电流	I_{GSS}	V_{DS} = 0 V, T_{vj} = 25 °C	V_{GS} = 20 V			400	nA
开通延迟时间(感性负载)	$t_{d\,on}$	I_D = 75 A, R_{Gon} = 5.6 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V, t_{dead} = 1000 ns, 0.1 V_{GS} to 0.1 I_D	T_{vj} = 25 °C		46		ns
			T_{vj} = 125 °C		42.9		
			T_{vj} = 175 °C		41.1		
上升时间(感性负载)	t_r	I_D = 75 A, R_{Gon} = 5.6 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V, t_{dead} = 1000 ns, 0.1 I_D to 0.9 I_D	T_{vj} = 25 °C		19.9		ns
			T_{vj} = 125 °C		17.8		
			T_{vj} = 175 °C		17.1		
关断延迟时间(感性负载)	$t_{d\,off}$	I_D = 75 A, R_{Goff} = 2.7 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V, 0.9 V_{GS} to 0.9 I_D	T_{vj} = 25 °C		64.1		ns
			T_{vj} = 125 °C		73.5		
			T_{vj} = 175 °C		79.2		

(待续)

表 10 (续) 特征值

特征参数	代号	标注或测试条件		数值			单位
				最小值	典型值	最大值	
下降时间(感性负载)	t_f	I_D = 75 A, R_{Goff} = 2.7 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V, 0.9 I_D to 0.1 I_D	T_{vj} = 25 °C		30.7		ns
			T_{vj} = 125 °C		31.9		
			T_{vj} = 175 °C		32.3		
开通损耗能量 (每脉冲)	E_{on}	I_D = 75 A, V_{DD} = 800 V, L_σ = 15 nH, V_{GS} = -3/18 V, R_{Gon} = 5.6 Ω, di/dt = 4.95 kA/µs (T_{vj} = 175 °C), t_{dead} = 1000 ns	T_{vj} = 25 °C		2.02		mJ
			T_{vj} = 125 °C		2.19		
			T_{vj} = 175 °C		2.43		
开通损耗能量 (每脉冲), 优化条件下	$E_{on,o}$	I_D = 75 A, V_{DD} = 800 V, L_σ = 15 nH, V_{GS} = -3/18 V, $R_{Gon,o}$ = 0 Ω, di/dt = 11.1 kA/µs (T_{vj} = 175 °C), t_{dead} = 100 ns	T_{vj} = 25 °C		0.81		mJ
			T_{vj} = 125 °C		0.85		
			T_{vj} = 175 °C		0.99		
关断损耗能量 (每脉冲）	E_{off}	I_D = 75 A, V_{DD} = 800 V, L_σ = 15 nH, V_{GS} = -3/18 V, R_{Goff} = 2.7 Ω, dv/dt = 25.8 kV/µs (T_{vj} = 175 °C)	T_{vj} = 25 °C		0.83		mJ
			T_{vj} = 125 °C		0.92		
			T_{vj} = 175 °C		0.98		
结－散热器热阻	R_{thJH}	每个 MOSFET , Valid with IFX pre-applied Thermal Interface Material			0.78		K/W
允许开关的温度范围	$T_{vj\,op}$			-40		175	°C
过载运行条件下的温度	$T_{vj\,over}$	过载工况，累计最大 100 小时				200	°C

注: The selection of positive and negative gate-source voltages impacts losses and the long-term behavior of the MOSFET and body diode. The design guidelines described in Application Notes AN 2018-09 and AN 2025-02 must be considered to ensure sound operation of the device over the planned lifetime.

5 Body diode (MOSFET, T3 / T4)

表 11 最大标定值

特征参数	代号	标注或测试条件		数值	单位
体二极管正向直流电流	I_{SD}	T_{vj} = 175 °C, V_{GS} = -3 V	T_H = 25 °C	45	A

表 12 特征值

特征参数	代号	标注或测试条件		数值			单位
				最小值	典型值	最大值	
正向电压	V_{SD}	I_{SD} = 75 A, V_{GS}=-3 V	T_{vj} = 25 °C		4.35	5.35	V
			T_{vj} = 125 °C		4.05		
			T_{vj} = 175 °C		3.9		
反向恢复峰值电流	I_{rrm}	I_{SD} = 75 A, di_s/dt = 4.95 kA/µs, V_{DD} = 800 V, V_{GS} = -3 V, t_{dead} = 1000 ns	T_{vj} = 25 °C		40.7		A
			T_{vj} = 125 °C		58.1		
			T_{vj} = 175 °C		70.5		
恢复电荷	Q_{rr}	I_{SD} = 75 A, di_s/dt = 4.95 kA/µs, V_{DD} = 800 V, V_{GS} = -3 V, t_{dead} = 1000 ns	T_{vj} = 25 °C		0.55		µC
			T_{vj} = 125 °C		1.18		
			T_{vj} = 175 °C		1.61		
反向恢复损耗（每脉冲）	E_{rec}	I_{SD} = 75 A, di_s/dt = 4.95 kA/µs (T_{vj} = 175 °C), V_{DD} = 800 V, V_{GS} = -3 V, t_{dead} = 1000 ns	T_{vj} = 25 °C		0.14		mJ
			T_{vj} = 125 °C		0.37		
			T_{vj} = 175 °C		0.49		
反向恢复损耗（每脉冲），优化条件下	$E_{rec,o}$	I_{SD} = 75 A, di_s/dt = 11.1 kA/µs (T_{vj} = 175 °C), V_{DD} = 800 V, V_{GS} = -3 V, t_{dead} = 100 ns	T_{vj} = 25 °C		0.88		mJ
			T_{vj} = 125 °C		1.47		
			T_{vj} = 175 °C		1.92		

6 负温度系数热敏电阻

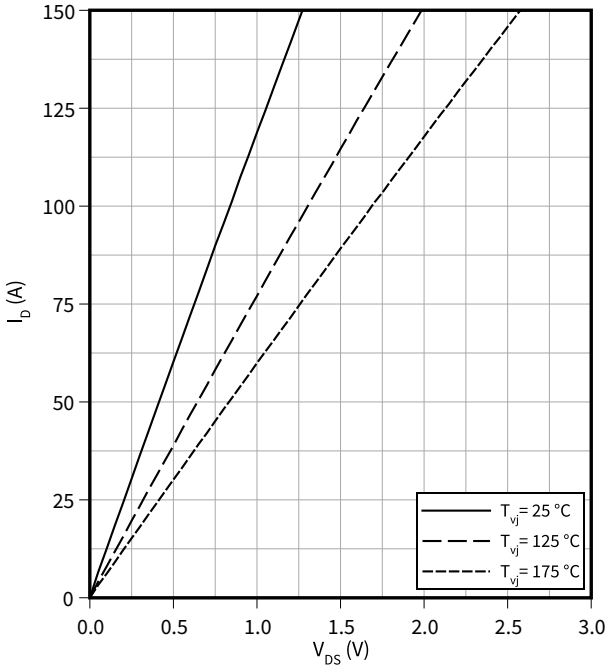
表 13 特征值

特征参数	代号	标注或测试条件	数值			单位
			最小值	典型值	最大值	
额定电阻值	R_{25}	T_{NTC} = 25 °C		5		kΩ
R_{100} 偏差	$\Delta R/R$	T_{NTC} = 100 °C, R_{100} = 493 Ω	-5		5	%
耗散功率	P_{25}	T_{NTC} = 25 °C			20	mW
B-值	$B_{25/50}$	$R_2 = R_{25} \exp[B_{25/50}(1/T_2-1/(298{,}15\ K))]$		3375		K
B-值	$B_{25/80}$	$R_2 = R_{25} \exp[B_{25/80}(1/T_2-1/(298{,}15\ K))]$		3411		K
B-值	$B_{25/100}$	$R_2 = R_{25} \exp[B_{25/100}(1/T_2-1/(298{,}15\ K))]$		3433		K

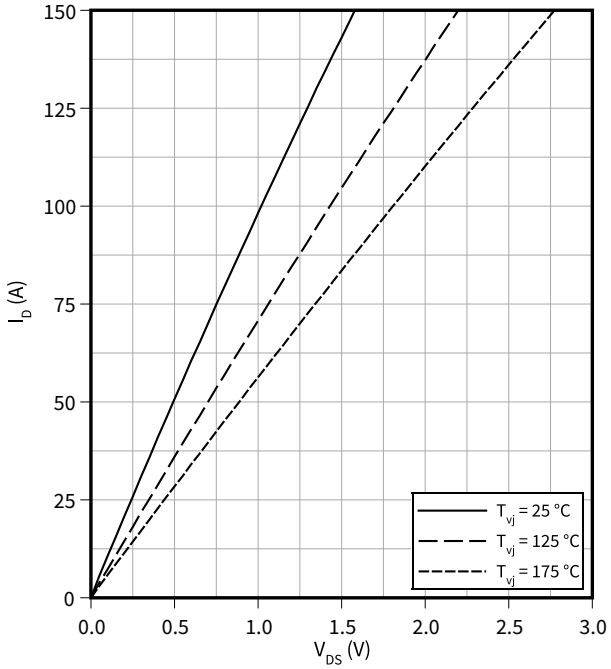
注: NTC 的具体参数分析请见 AN2009-10, 第 4 章

7 特征参数图表

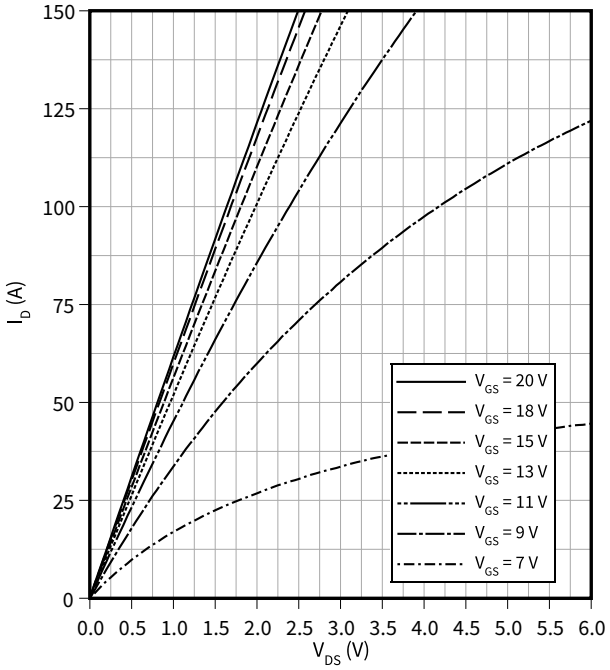
输出特性 （典型), MOSFET, T1 / T2
$I_D = f(V_{DS})$
V_{GS} = 18 V



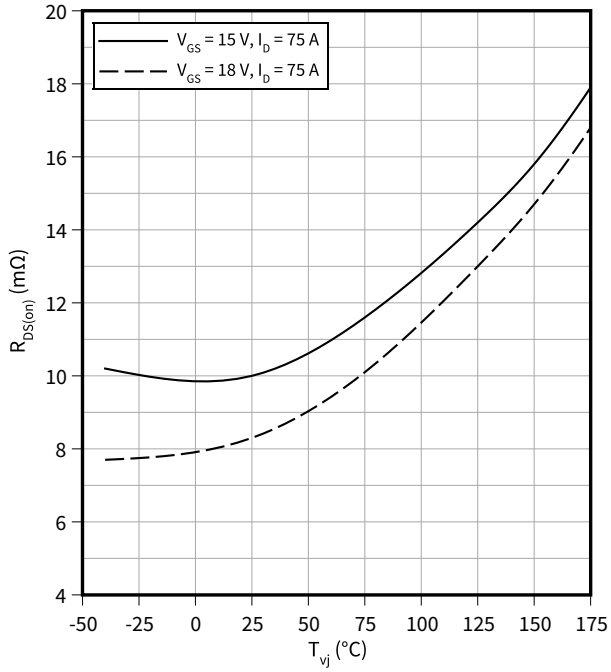
输出特性 （典型), MOSFET, T1 / T2
$I_D = f(V_{DS})$
V_{GS} = 15 V



输出特性 （典型), MOSFET, T1 / T2
$I_D = f(V_{DS})$
T_{vj} = 175 °C

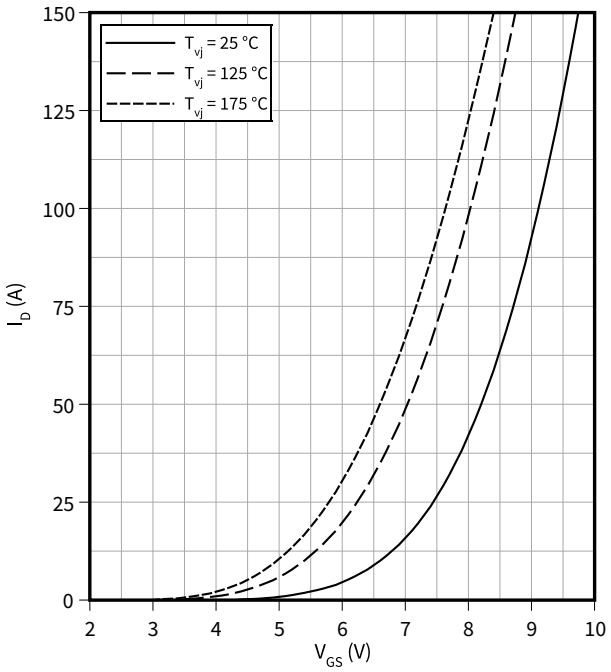


漏源通态电阻 （典型), MOSFET, T1 / T2
$R_{DS(on)} = f(T_{vj})$



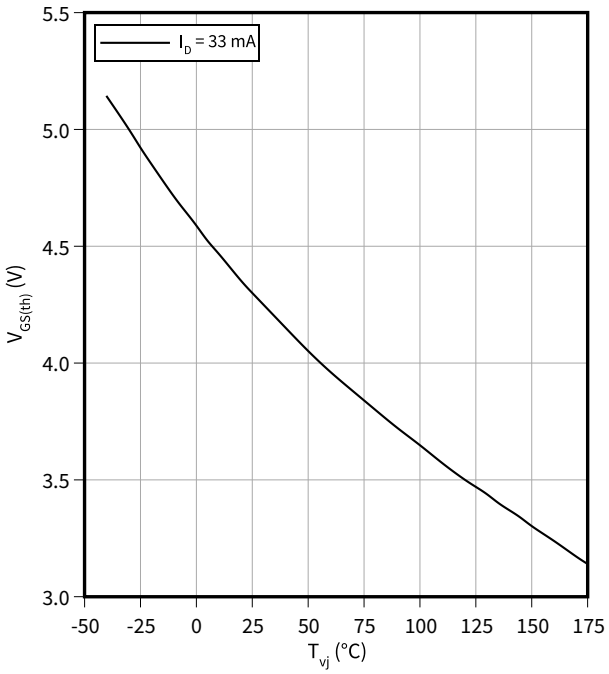
传输特性 （典型), MOSFET, T1 / T2

$I_D = f(V_{GS})$
$V_{DS} = 20$ V



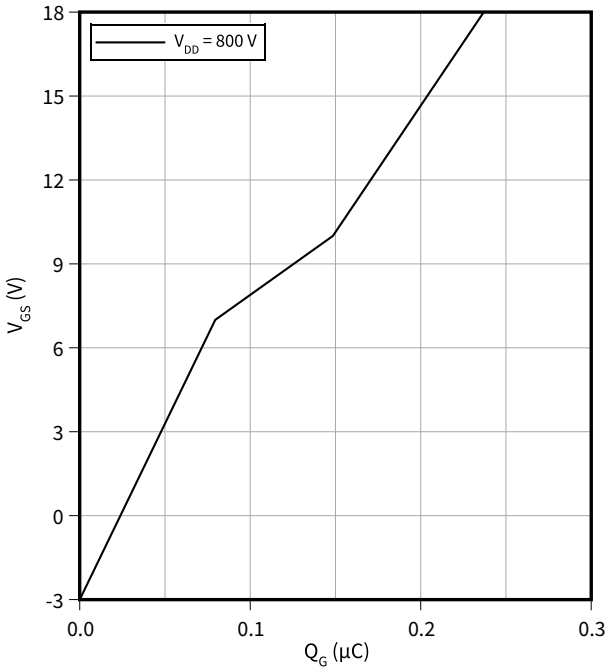
栅-源阀值电压（典型）, MOSFET, T1 / T2

$V_{GS(th)} = f(T_{vj})$
$V_{GS} = V_{DS}$



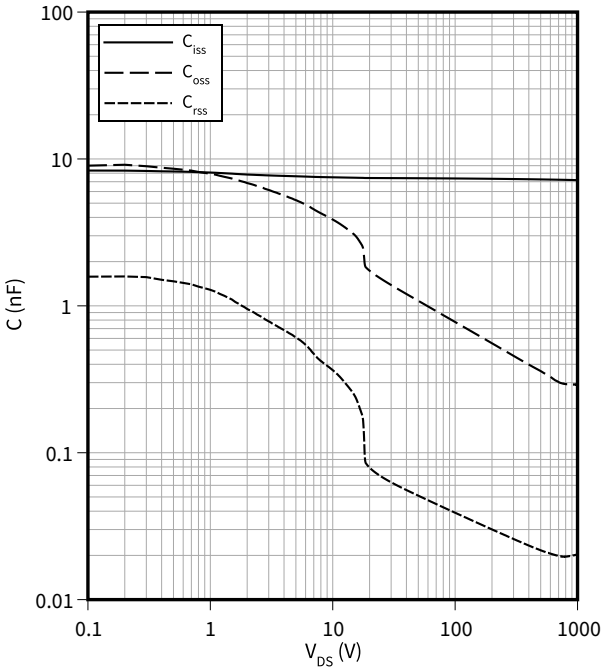
栅极电荷特性 （典型), MOSFET, T1 / T2

$V_{GS} = f(Q_G)$
$I_D = 75$ A, $T_{vj} = 25$ °C



电容特性 （典型), MOSFET, T1 / T2

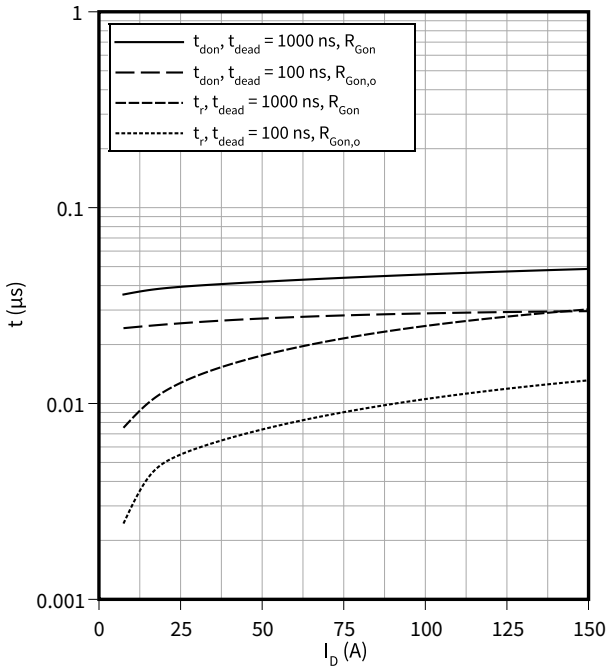
$C = f(V_{DS})$
$f = 100$ kHz, $T_{vj} = 25$ °C, $V_{GS} = 0$ V



开关时间 （典型), MOSFET, T1 / T2

$t = f(I_D)$

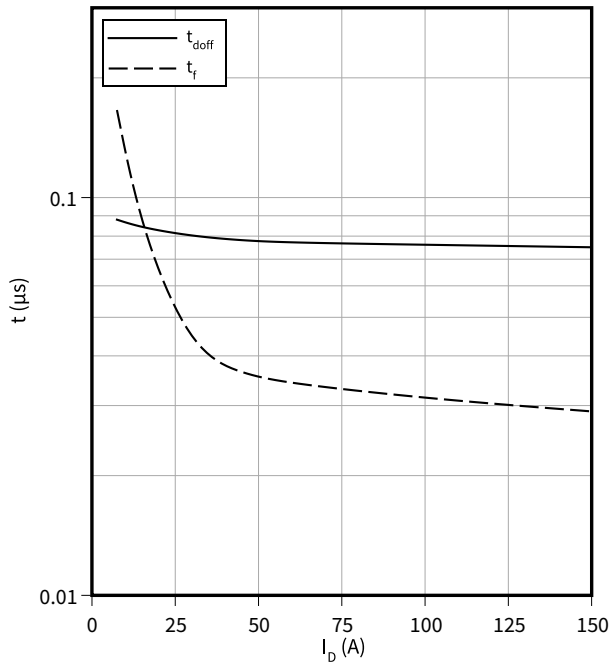
V_{DD} = 800 V, R_{Gon} = 10 Ω, $R_{Gon,o}$ = 1 Ω, T_{vj} = 175 °C, V_{GS} = -3/18 V



开关时间 （典型), MOSFET, T1 / T2

$t = f(I_D)$

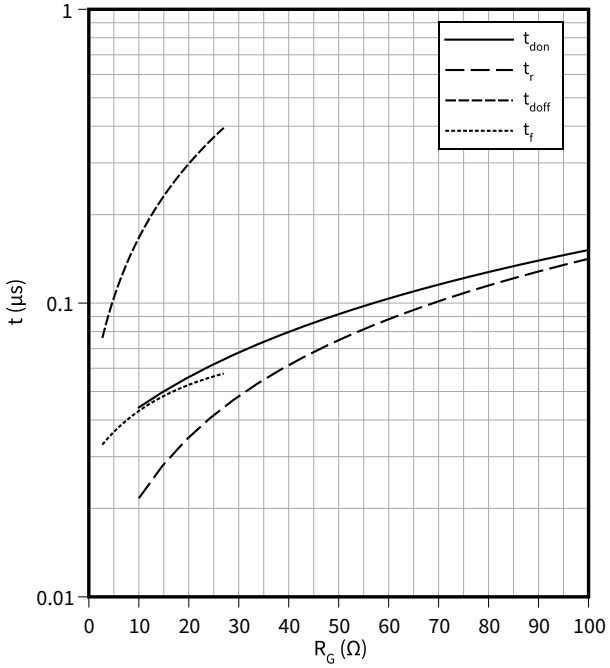
R_{Goff} = 2.7 Ω, V_{DD} = 800 V, T_{vj} = 175 °C, V_{GS} = -3/18 V



开关时间 （典型), MOSFET, T1 / T2

$t = f(R_G)$

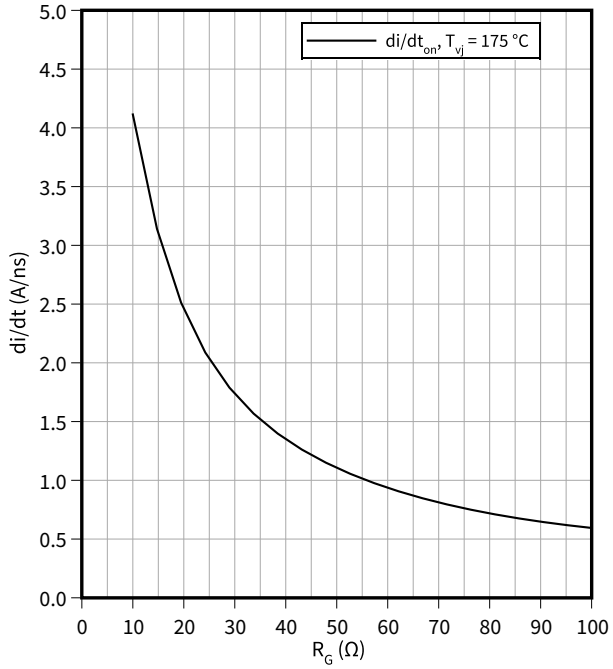
V_{DD} = 800 V, t_{dead} = 1000 ns, I_D = 75 A, T_{vj} = 175 °C, V_{GS} = -3/18 V



电流变化斜率 （典型), MOSFET, T1 / T2

$di/dt = f(R_G)$

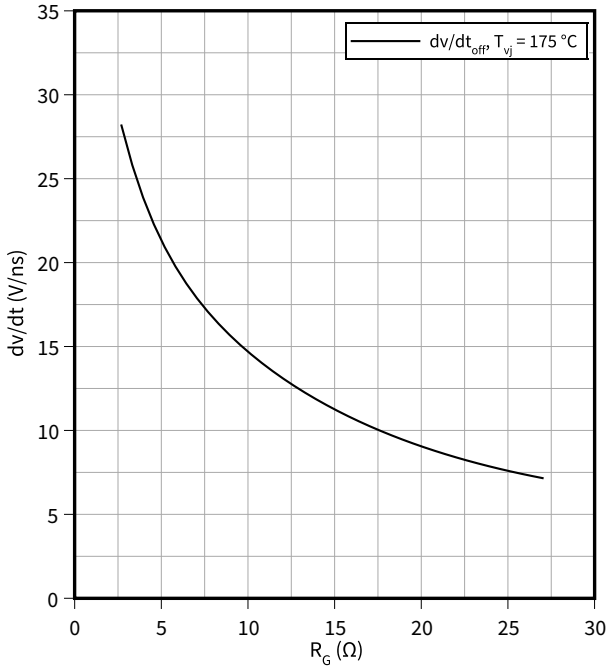
V_{DD} = 800 V, t_{dead} = 1000 ns, I_D = 75 A, V_{GS} = -3/18 V



电压变化斜率 （典型), MOSFET, T1 / T2

$dv/dt = f(R_G)$

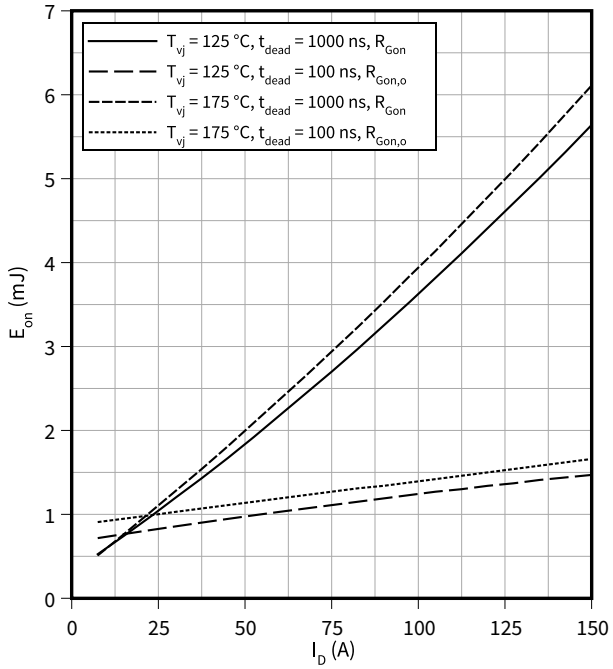
V_{DD} = 800 V, I_D = 75 A, V_{GS} = -3/18 V



开关损耗 （典型), MOSFET, T1 / T2

$E_{on} = f(I_D)$

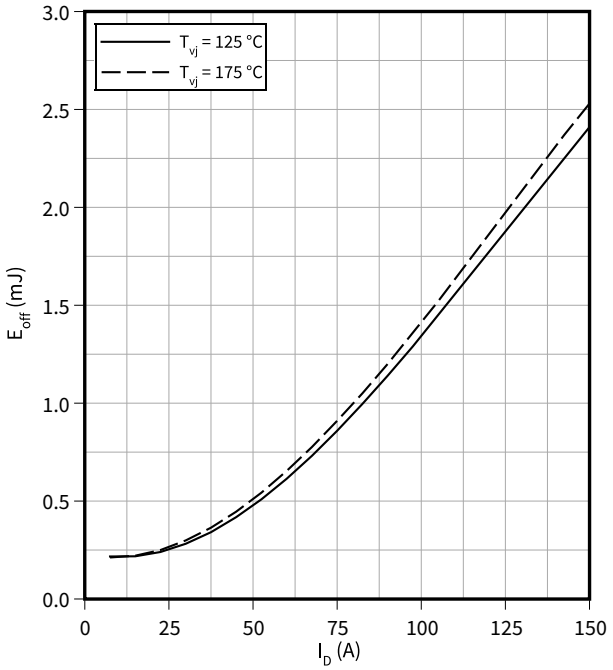
V_{DD} = 800 V, R_{Gon} = 10 Ω, $R_{Gon,o}$ = 1 Ω, V_{GS} = -3/18 V



开关损耗 （典型), MOSFET, T1 / T2

$E_{off} = f(I_D)$

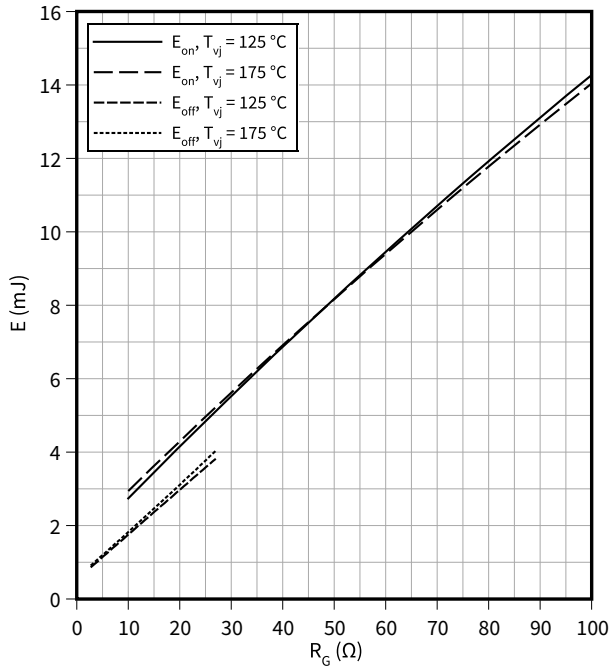
R_{Goff} = 2.7 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V



开关损耗 （典型), MOSFET, T1 / T2

$E = f(R_G)$

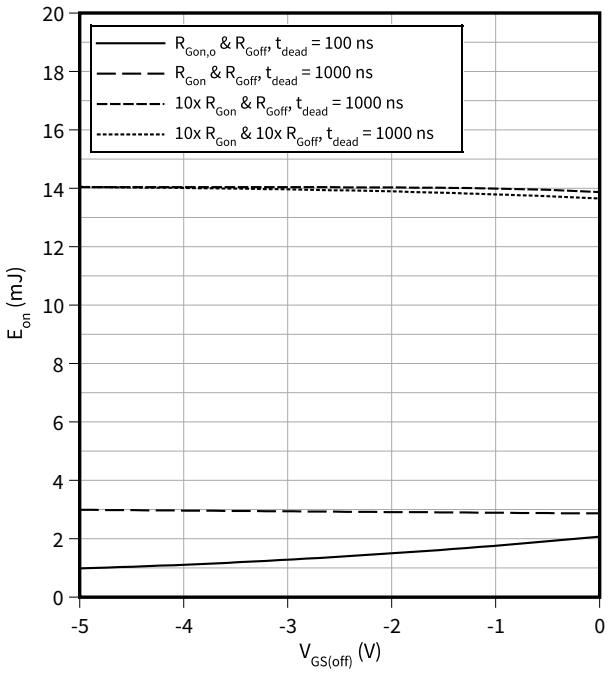
V_{DD} = 800 V, t_{dead} = 1000 ns, I_D = 75 A, V_{GS} = -3/18 V



开关损耗 （典型), MOSFET, T1 / T2

$E_{on} = f(V_{GS(off)})$

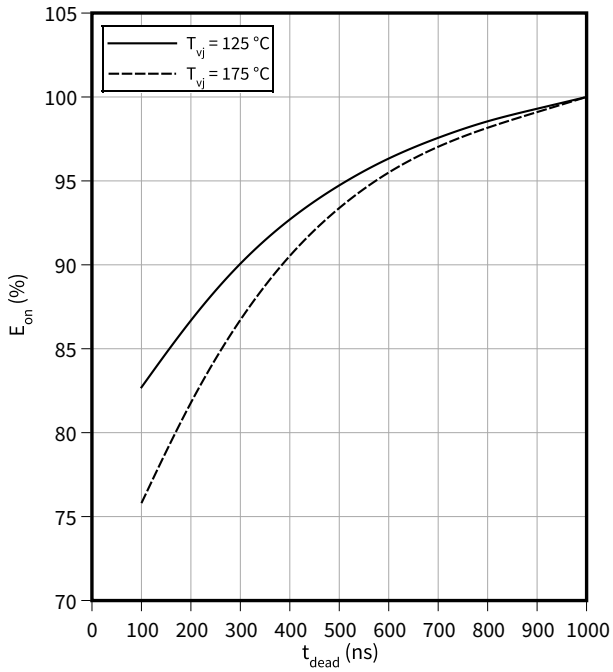
R_{Goff} = 2.7 Ω, V_{DD} = 800 V, R_{Gon} = 10 Ω, $V_{GS(on)}$ = 18 V, I_D = 75 A, $R_{Gon,o}$ = 1 Ω, T_{vj} = 175 °C



开关损耗 （典型), MOSFET, T1 / T2

$E_{on} = f(t_{dead})$

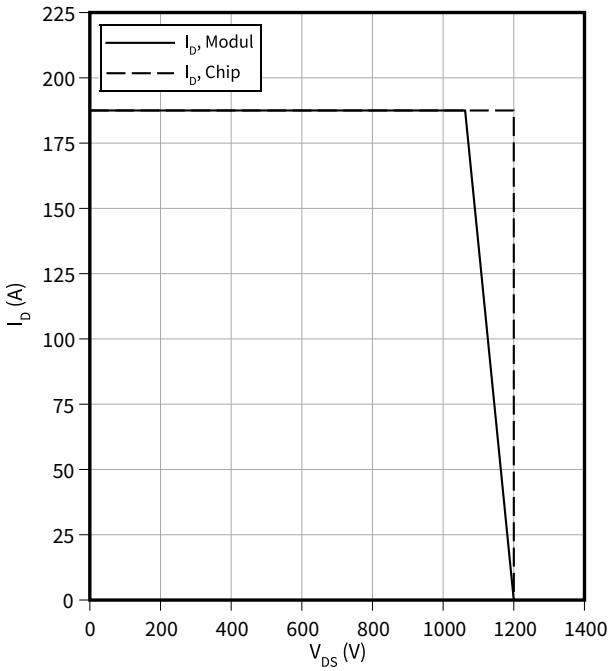
R_{Gon} = 10 Ω, I_D = 75 A, V_{DD} = 800 V, V_{GS} = -3/18 V



反偏安全工作区 （RBSOA）, MOSFET, T1 / T2

$I_D = f(V_{DS})$

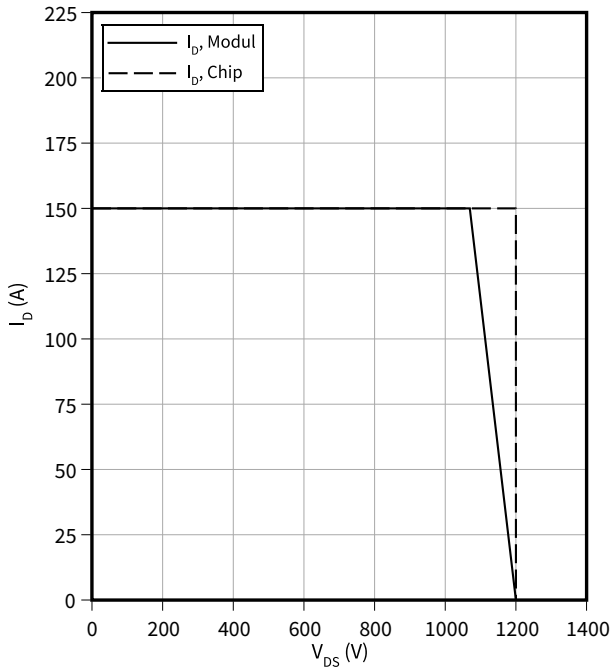
R_{Goff} = 3.3 Ω, T_{vj} = 175 °C, V_{GS} = -3/18 V



Reverse bias safe operating area (RBSOA), MOSFET, T1 / T2

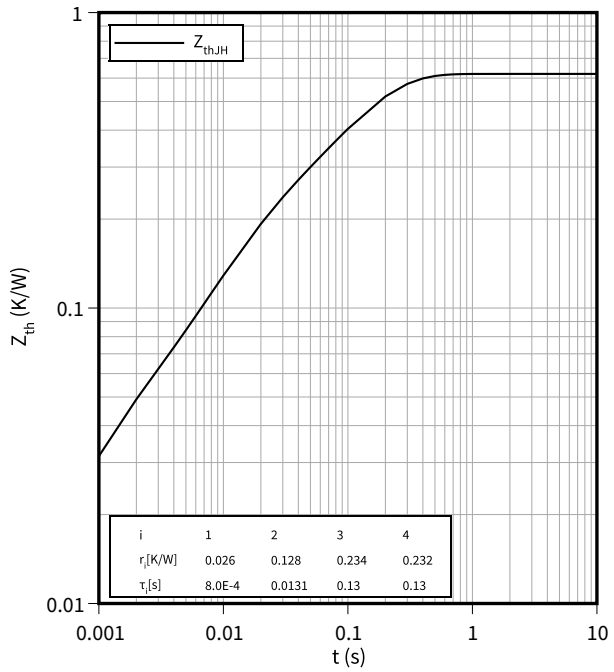
$I_D = f(V_{DS})$

R_{Goff} = 2.7 Ω, T_{vj} = 175 °C, V_{GS} = -3/18 V



瞬态热阻抗, MOSFET, T1 / T2

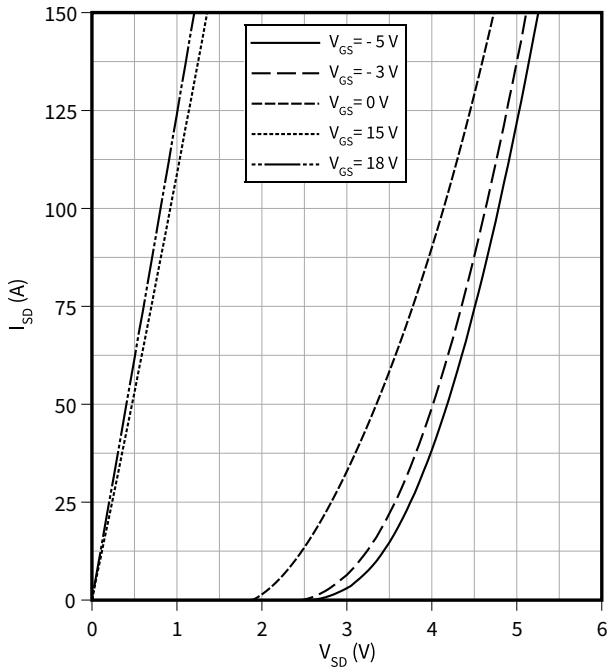
$Z_{th} = f(t)$



正向特性 体二极管（典型), MOSFET, T1 / T2

$I_{SD} = f(V_{SD})$

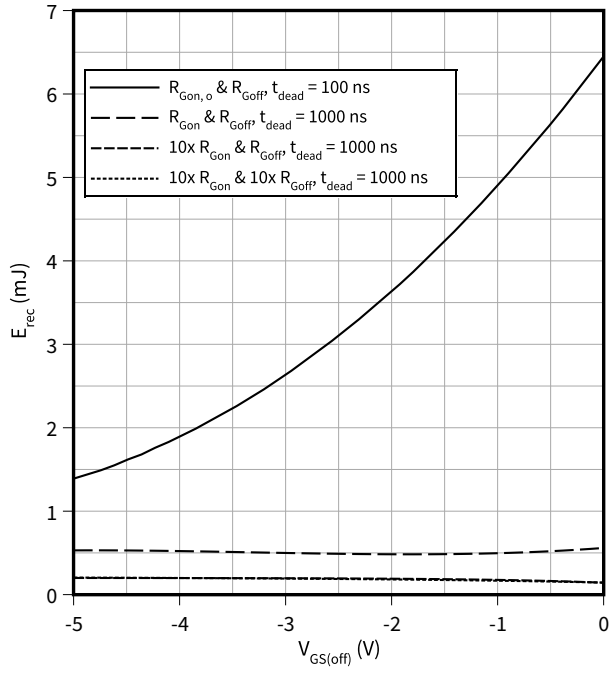
$T_{vj} = 25\ °C$



开关损耗 体二极管（典型), MOSFET, T1 / T2

$E_{rec} = f(V_{GS(off)})$

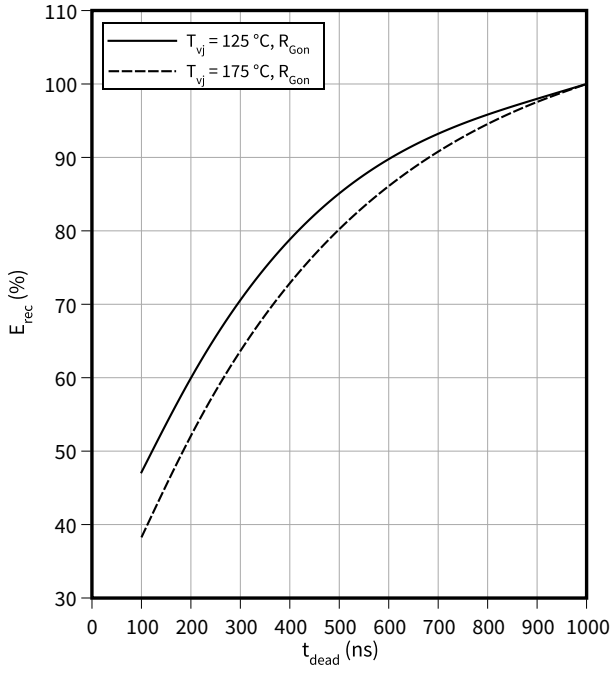
$R_{Goff} = 2.7\ \Omega$, $R_{Gon} = 10\ \Omega$, $V_{GS(on)} = 18\ V$, $I_{SD} = 75\ A$, $R_{Gon,o} = 1\ \Omega$, $V_{DD} = 800\ V$, $T_{vj} = 175\ °C$



开关损耗 体二极管（典型), MOSFET, T1 / T2

$E_{rec} = f(t_{dead})$

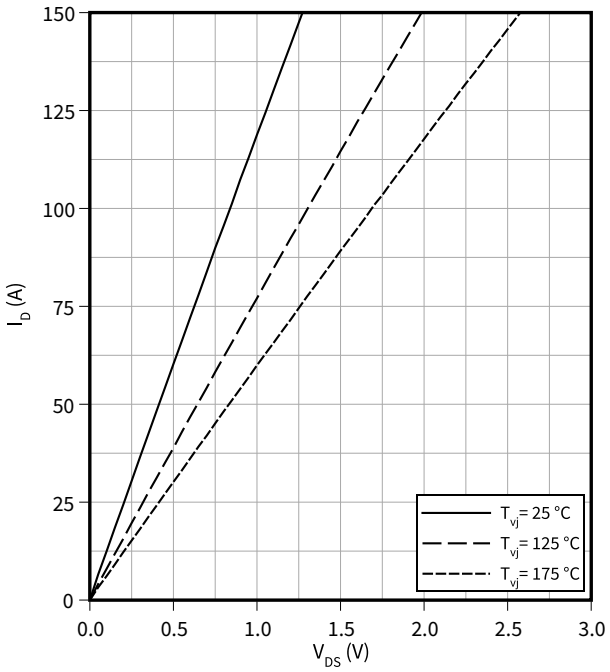
$R_{Gon} = 10\ \Omega$, $I_D = 75\ A$, $V_{DD} = 800\ V$, $V_{GS} = -3/18\ V$



输出特性 （典型), MOSFET, T3 / T4

$I_D = f(V_{DS})$

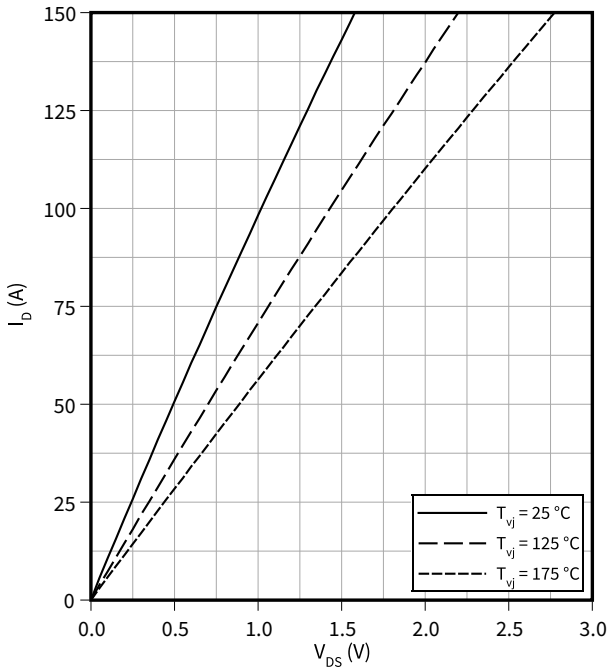
$V_{GS} = 18\ V$



输出特性 （典型), MOSFET, T3 / T4

$I_D = f(V_{DS})$

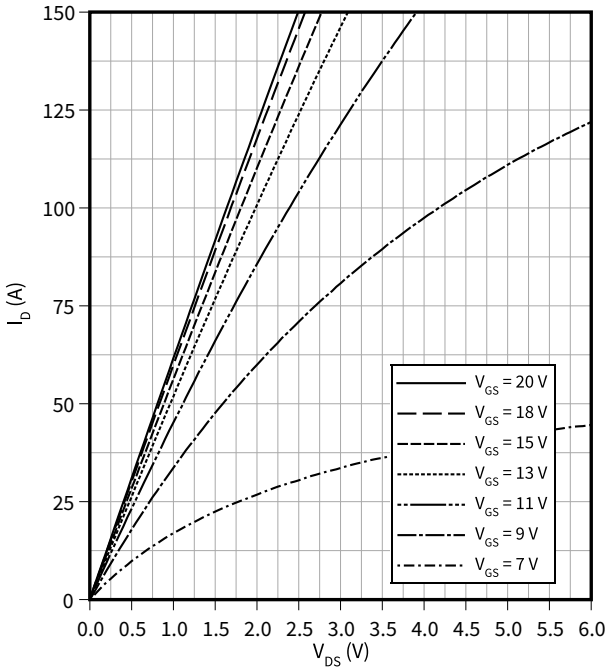
$V_{GS} = 15\ V$



输出特性 （典型), MOSFET, T3 / T4

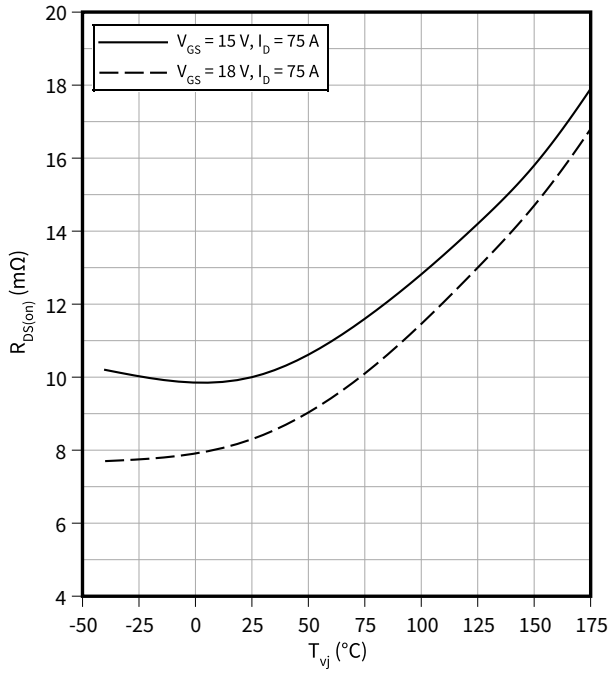
$I_D = f(V_{DS})$

$T_{vj} = 175\ °C$



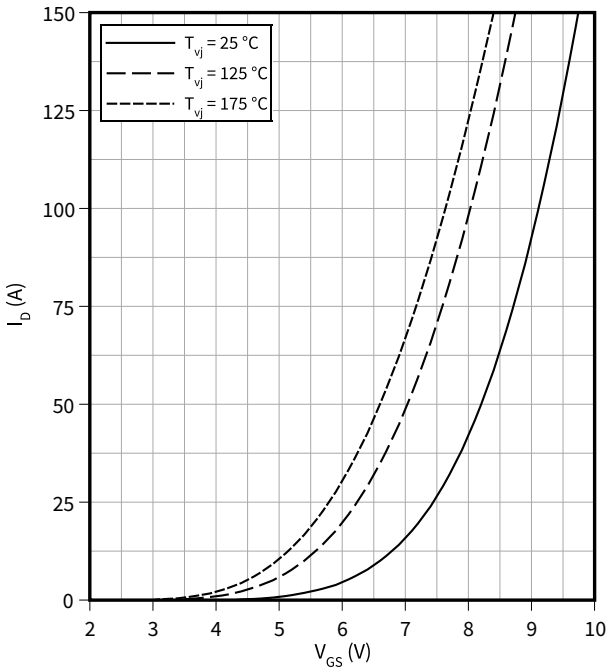
漏源通态电阻 （典型), MOSFET, T3 / T4

$R_{DS(on)} = f(T_{vj})$



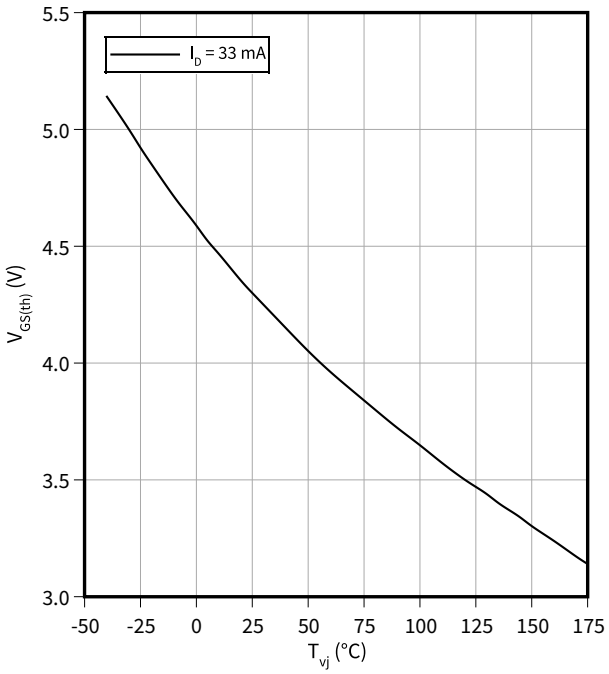
传输特性 （典型), MOSFET, T3 / T4

$I_D = f(V_{GS})$
$V_{DS} = 20\ V$



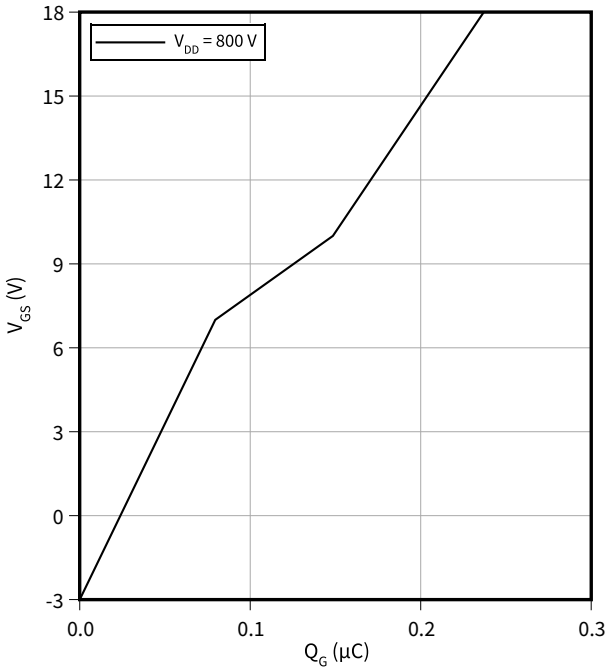
栅-源阀值电压（典型）, MOSFET, T3 / T4

$V_{GS(th)} = f(T_{vj})$
$V_{GS} = V_{DS}$



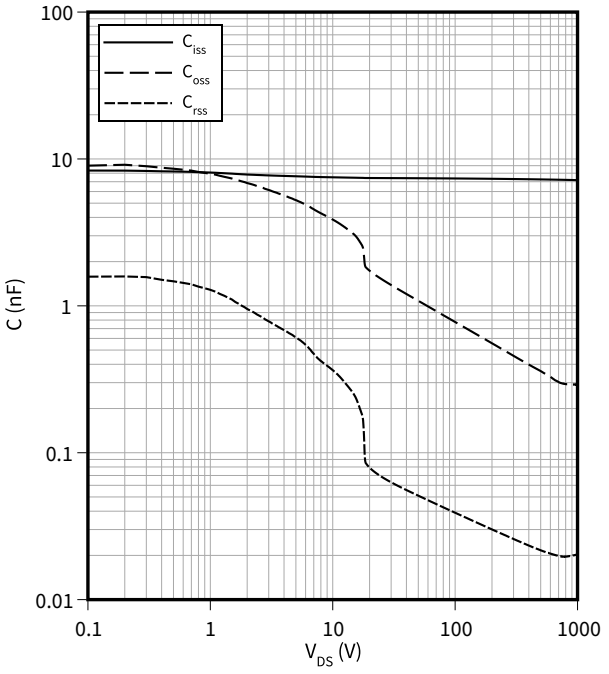
栅极电荷特性 （典型), MOSFET, T3 / T4

$V_{GS} = f(Q_G)$
$I_D = 75\ A$, $T_{vj} = 25\ °C$



电容特性 （典型), MOSFET, T3 / T4

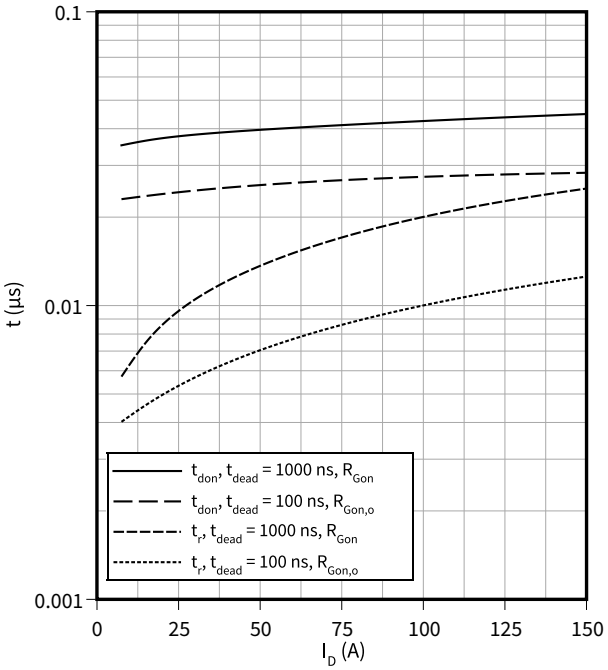
$C = f(V_{DS})$
$f = 100\ kHz$, $T_{vj} = 25\ °C$, $V_{GS} = 0\ V$



开关时间 （典型), MOSFET, T3 / T4

$t = f(I_D)$

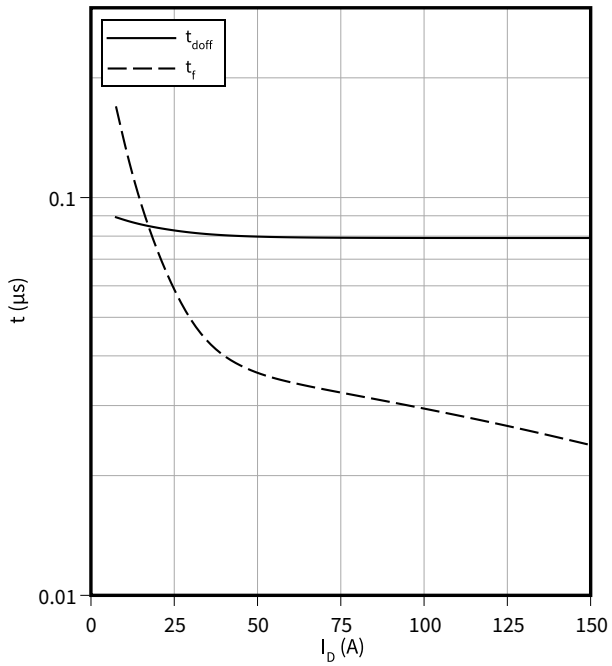
V_{DD} = 800 V, R_{Gon} = 5.6 Ω, $R_{Gon,o}$ = 0 Ω, T_{vj} = 175 °C, V_{GS} = -3/18 V



开关时间 （典型), MOSFET, T3 / T4

$t = f(I_D)$

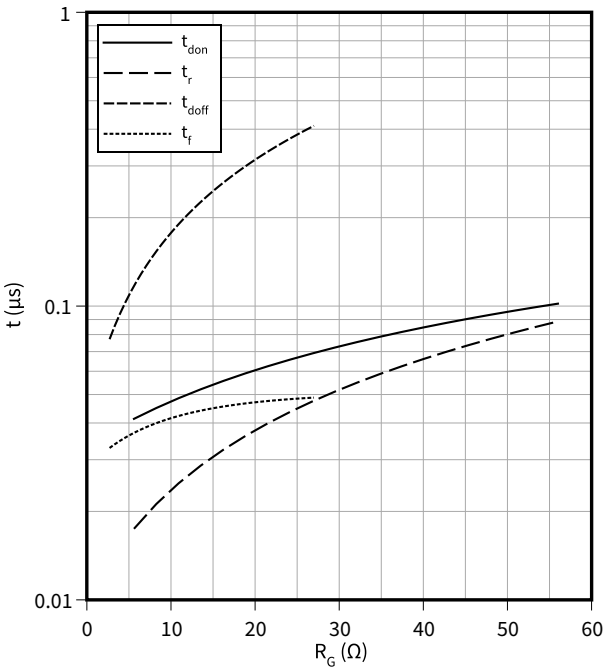
R_{Goff} = 2.7 Ω, V_{DD} = 800 V, T_{vj} = 175 °C, V_{GS} = -3/18 V



开关时间 （典型), MOSFET, T3 / T4

$t = f(R_G)$

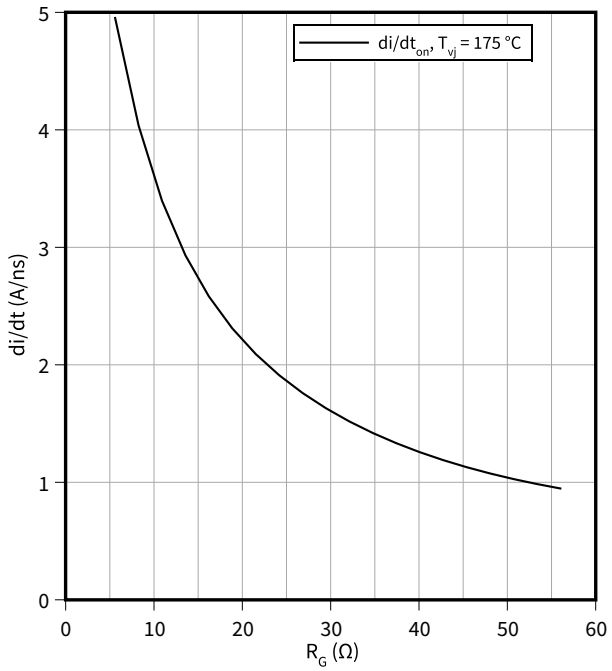
V_{DD} = 800 V, t_{dead} = 1000 ns, I_D = 75 A, T_{vj} = 175 °C, V_{GS} = -3/18 V



电流变化斜率 （典型), MOSFET, T3 / T4

$di/dt = f(R_G)$

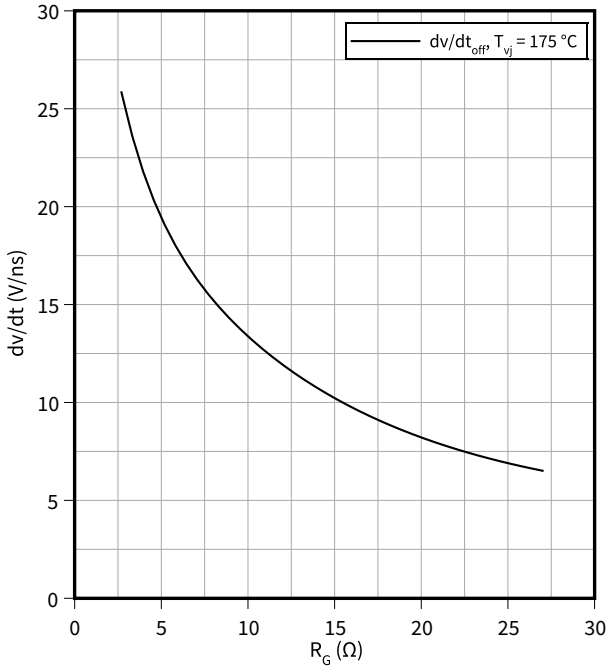
V_{DD} = 800 V, t_{dead} = 1000 ns, I_D = 75 A, V_{GS} = -3/18 V



电压变化斜率 （典型), MOSFET, T3 / T4

$dv/dt = f(R_G)$

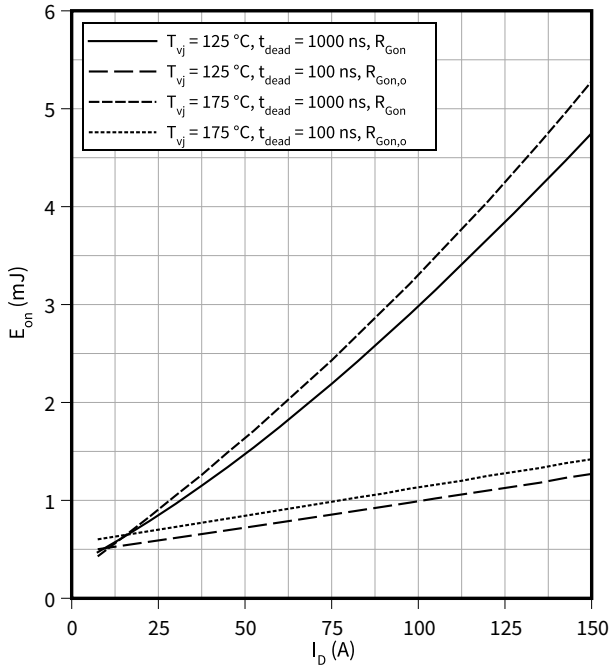
V_{DD} = 800 V, I_D = 75 A, V_{GS} = -3/18 V



开关损耗 （典型), MOSFET, T3 / T4

$E_{on} = f(I_D)$

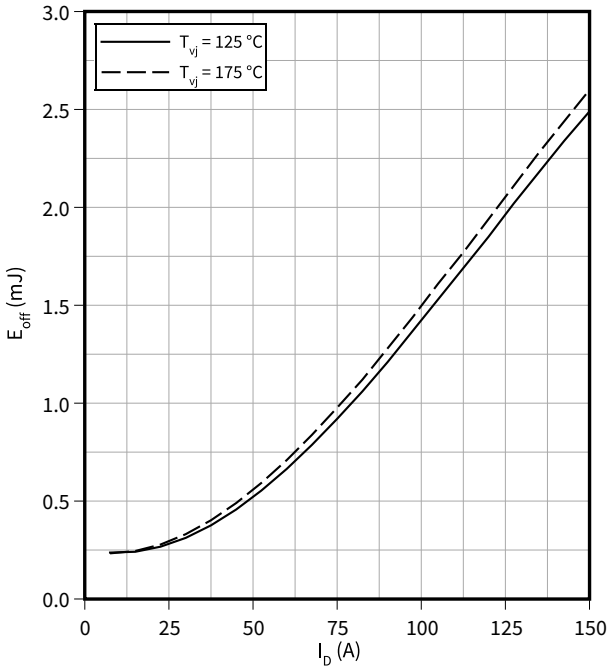
V_{DD} = 800 V, R_{Gon} = 5.6 Ω, $R_{Gon,o}$ = 0 Ω, V_{GS} = -3/18 V



开关损耗 （典型), MOSFET, T3 / T4

$E_{off} = f(I_D)$

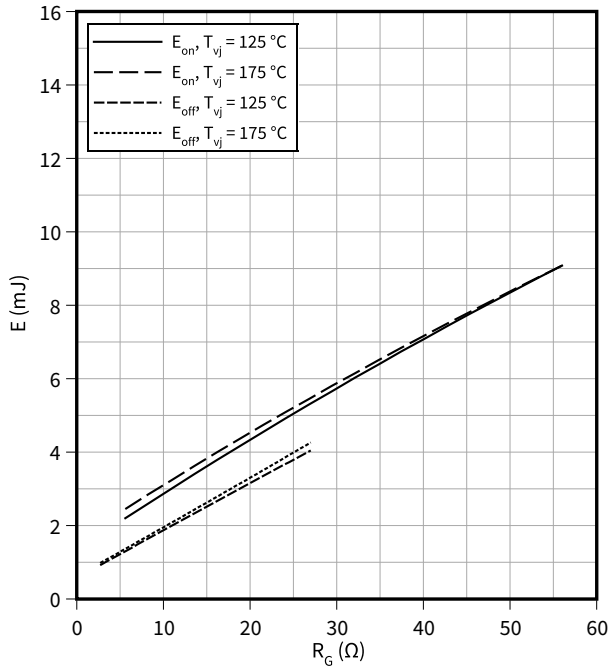
R_{Goff} = 2.7 Ω, V_{DD} = 800 V, V_{GS} = -3/18 V



开关损耗 （典型), MOSFET, T3 / T4

$E = f(R_G)$

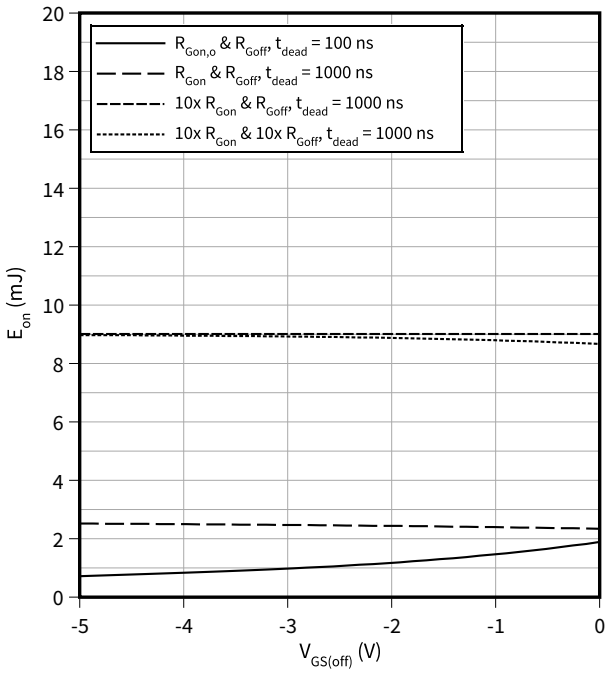
V_{DD} = 800 V, t_{dead} = 1000 ns, I_D = 75 A, V_{GS} = -3/18 V



开关损耗 （典型), MOSFET, T3 / T4

$E_{on} = f(V_{GS(off)})$

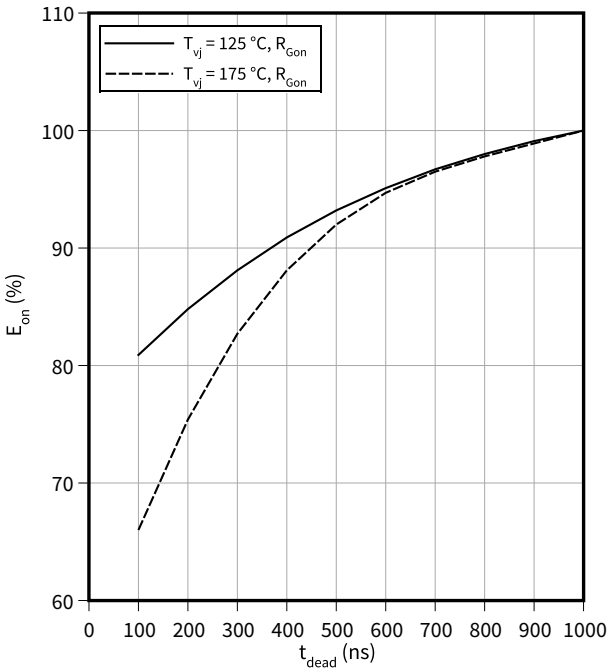
R_{Goff} = 2.7 Ω, V_{DD} = 800 V, R_{Gon} = 5.6 Ω, $V_{GS(on)}$ = 18 V, I_D = 75 A, $R_{Gon,o}$ = 0 Ω, T_{vj} = 175 °C



开关损耗 （典型), MOSFET, T3 / T4

$E_{on} = f(t_{dead})$

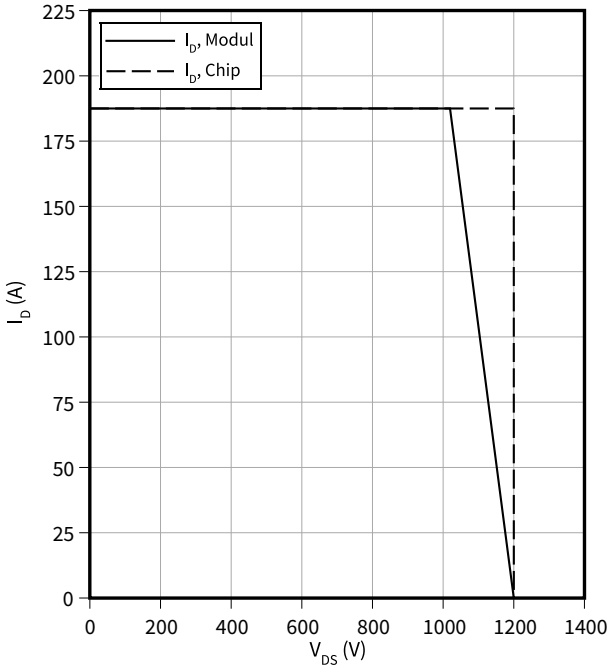
R_{Gon} = 5.6 Ω, I_D = 75 A, V_{DD} = 800 V, V_{GS} = -3/18 V



反偏安全工作区 （RBSOA）, MOSFET, T3 / T4

$I_D = f(V_{DS})$

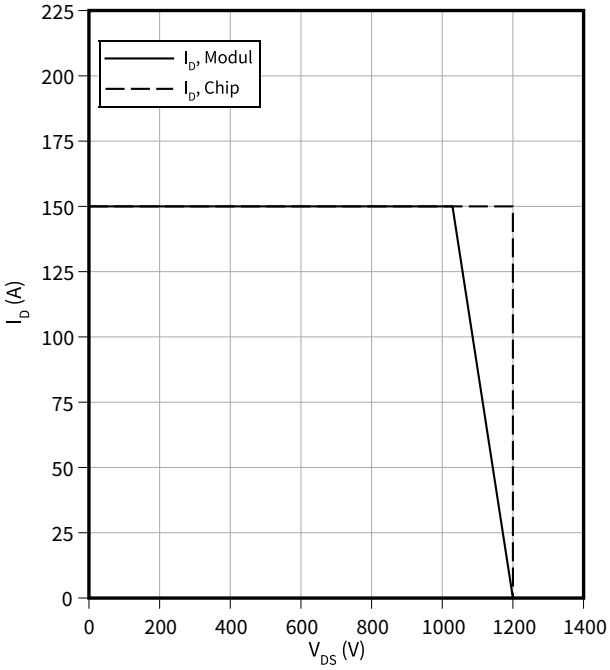
R_{Goff} = 3.6 Ω, T_{vj} = 175 °C, V_{GS} = -3/18 V



Reverse bias safe operating area (RBSOA), MOSFET, T3 / T4

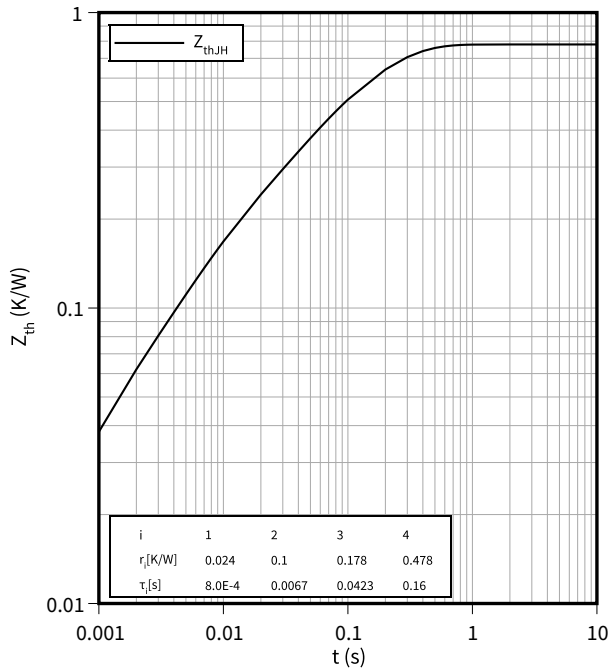
$I_D = f(V_{DS})$

R_{Goff} = 2.7 Ω, T_{vj} = 175 °C, V_{GS} = -3/18 V



瞬态热阻抗, MOSFET, T3 / T4

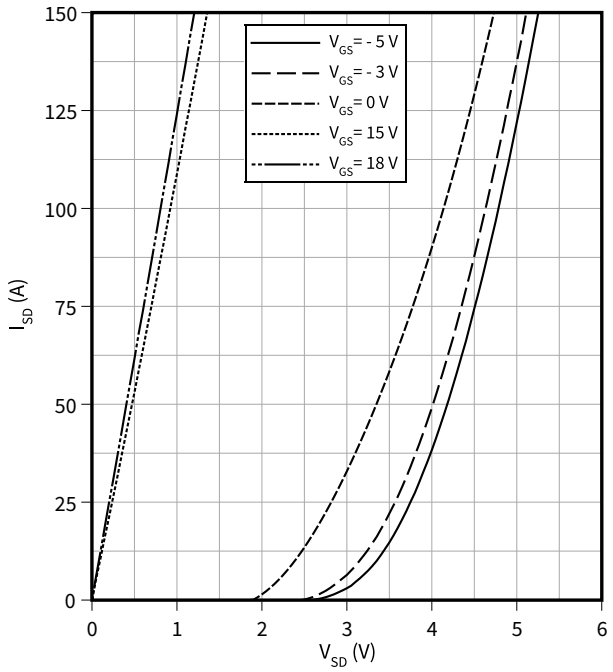
$Z_{th} = f(t)$



正向特性 体二极管（典型), MOSFET, T3 / T4

$I_{SD} = f(V_{SD})$

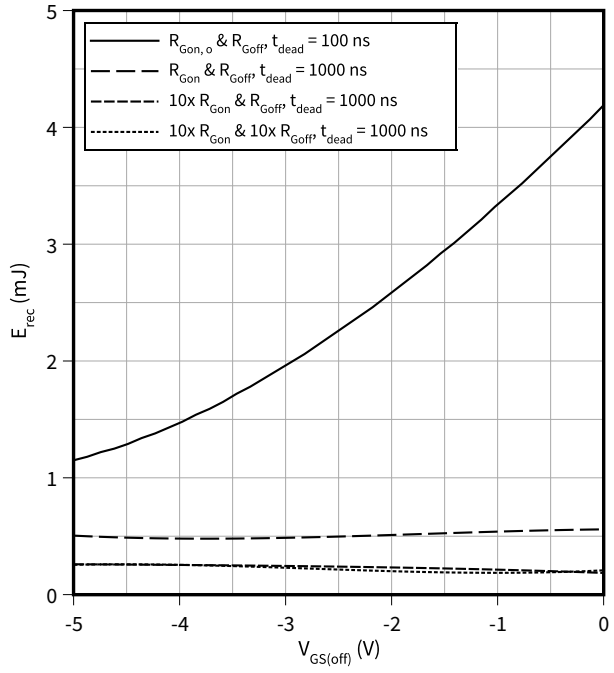
$T_{vj} = 25\ °C$



开关损耗 体二极管（典型), MOSFET, T3 / T4

$E_{rec} = f(V_{GS(off)})$

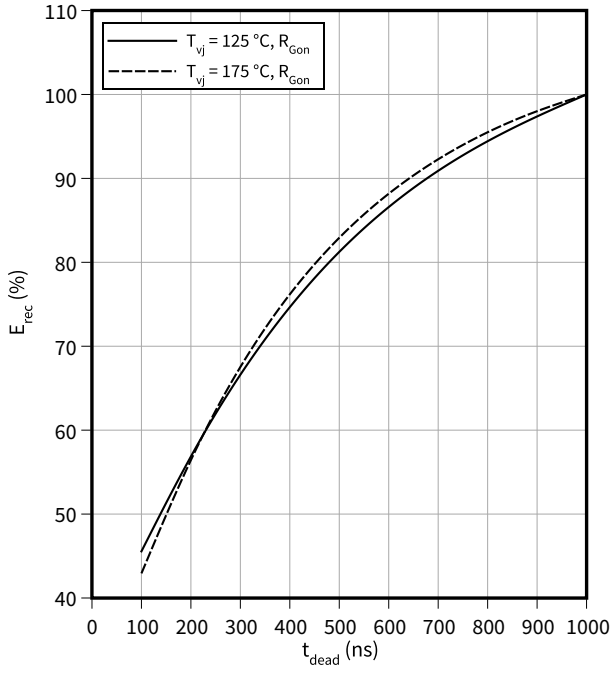
$R_{Goff} = 2.7\ \Omega$, $R_{Gon} = 5.6\ \Omega$, $V_{GS(on)} = 18\ V$, $I_{SD} = 75\ A$, $R_{Gon,o} = 0\ \Omega$, $V_{DD} = 800\ V$, $T_{vj} = 175\ °C$



开关损耗 体二极管（典型), MOSFET, T3 / T4

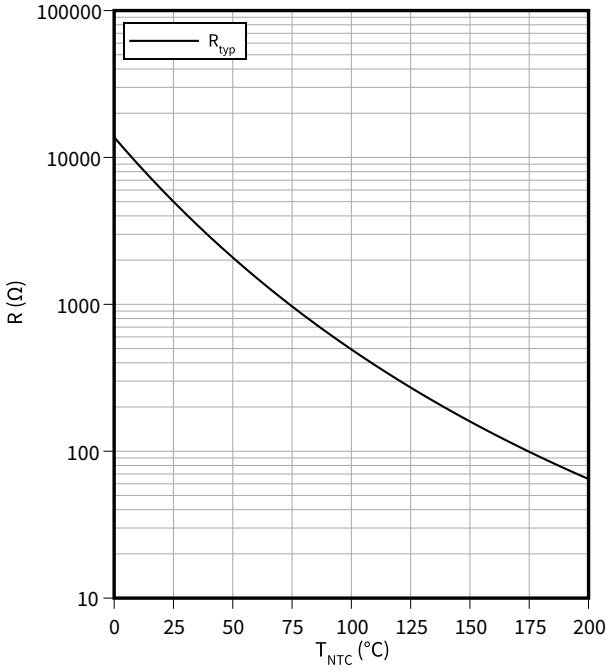
$E_{rec} = f(t_{dead})$

$R_{Gon} = 5.6\ \Omega$, $I_D = 75\ A$, $V_{DD} = 800\ V$, $V_{GS} = -3/18\ V$



温度特性, 负温度系数热敏电阻

$R = f(T_{NTC})$



8 电路拓扑图

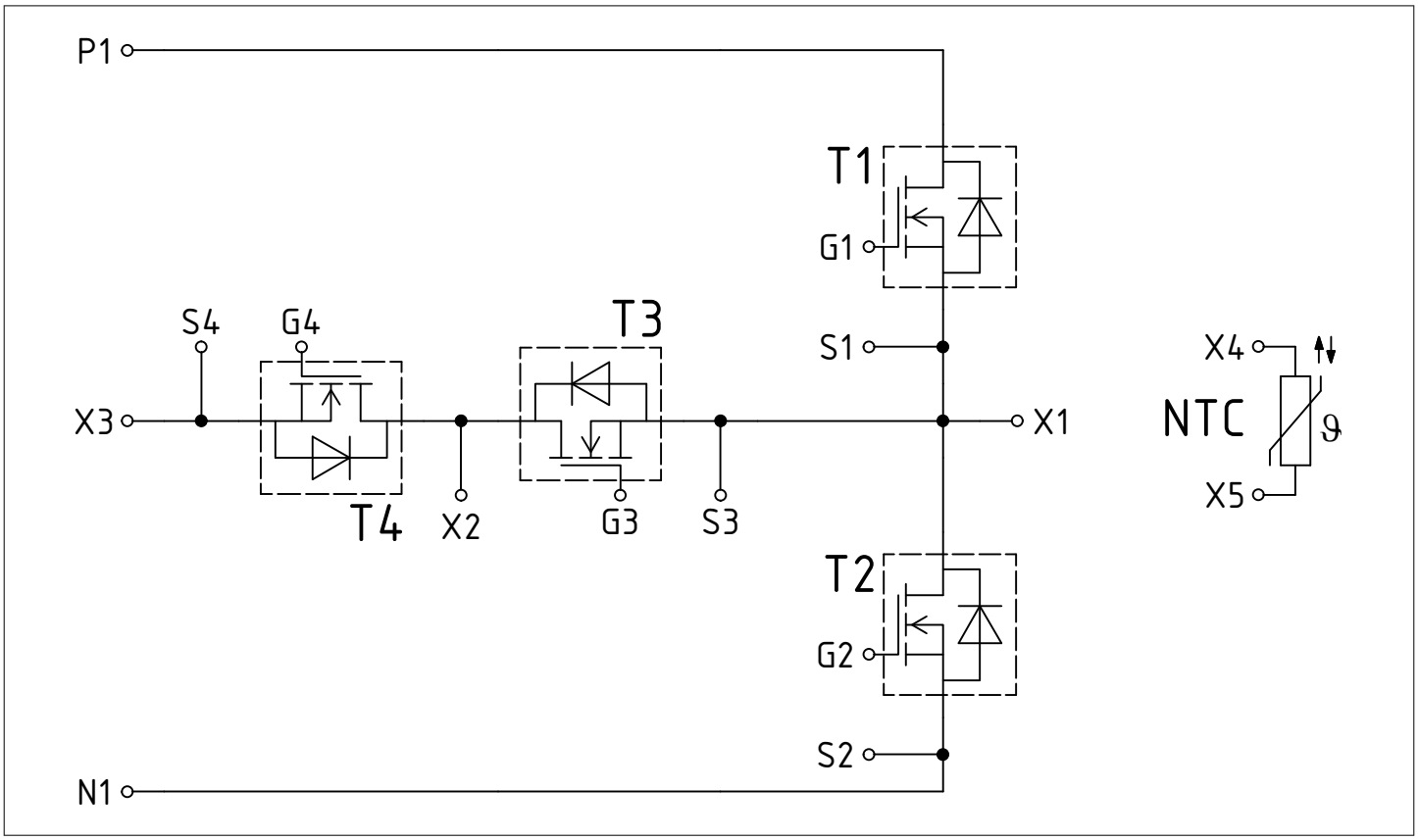


图 1

9 封装尺寸

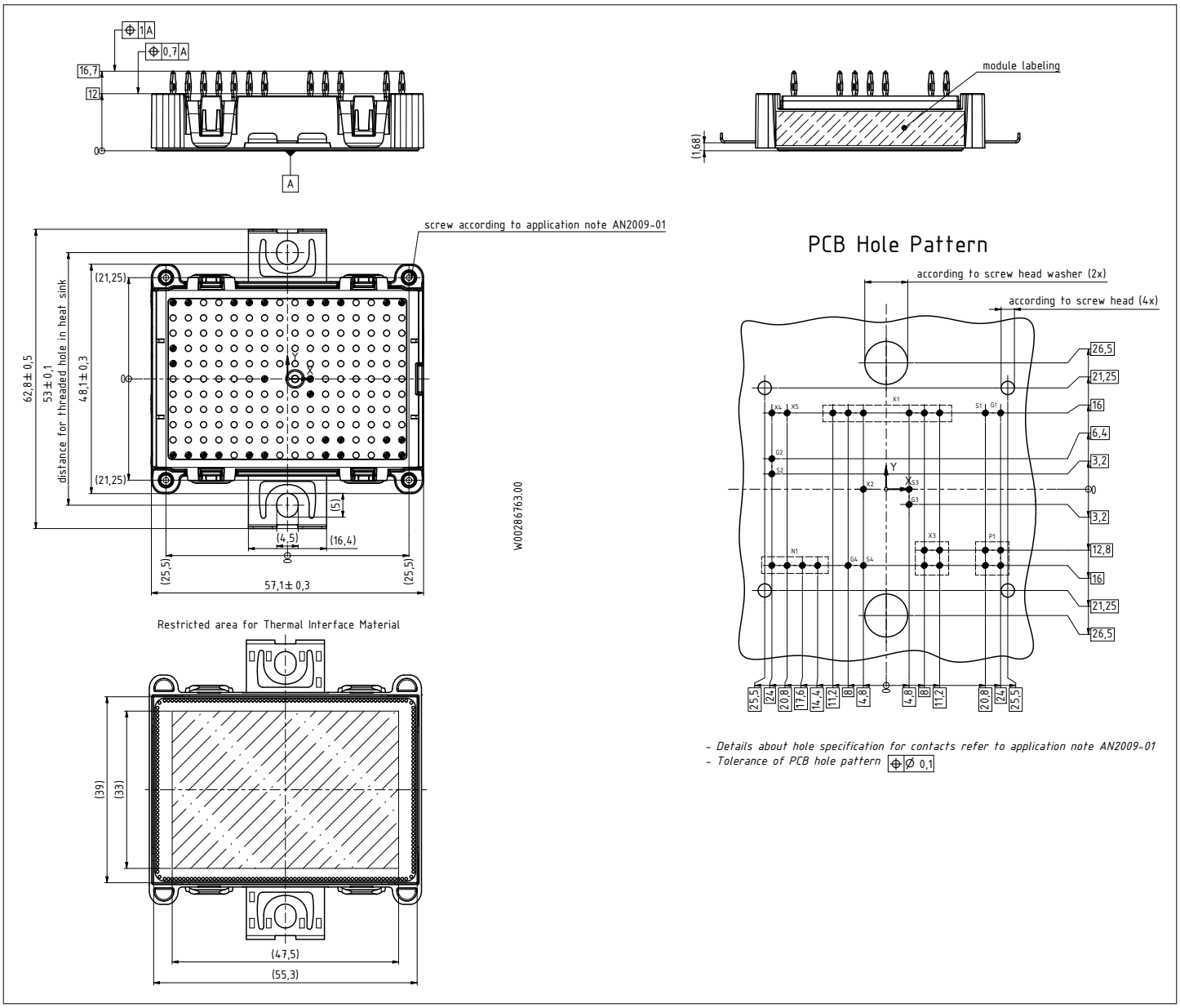

module labeling
screw according to application note AN2009-01
distance for threaded hole in heat sink
Restricted area for Thermal Interface Material
W00286763.00
PCB Hole Pattern
according to screw head washer (2x)
according to screw head (4x)
- Details about hole specification for contacts refer to application note AN2009-01
- Tolerance of PCB hole pattern

图 2

10 模块标签代码

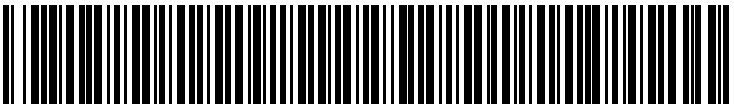
Module label code			
Code format	Data Matrix		Barcode Code128
Encoding	ASCII text		Code Set A
Symbol size	16x16		23 digits
Standard	IEC24720 and IEC16022		IEC8859-1
Code content	*Content* Module serial number Module material number Production order number Date code (production year) Date code (production week)	*Digit* 1 –5 6 - 11 12 - 19 20 –21 22 –23	*Example* 71549 142846 55054991 15 30
Example	 715491428465505499115 30		 715491428465505499115 30

图 3

修订历史

修订版本	发布日期	变更说明
0.10	2025-07-01	Preliminary datasheet
1.00	2026-03-04	Final Datasheet

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