



主要用途

感应加热和微波炉；
大功率电子电路中作开关应用。

特性说明

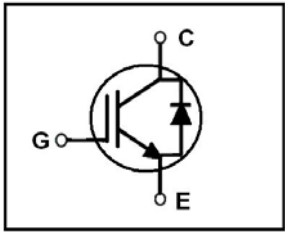
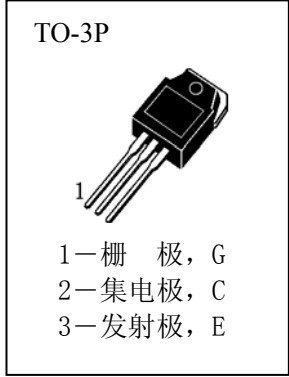
低饱和压降、高输入阻抗。
采用先进的沟槽隔离技术，使器件具有良好的传导和开关性能，并具有特殊雪崩击穿保护。

绝对最大额定值

Symbol	Description	Ratings	Units
VCES	集电极—发射极电压	1200	V
VGES	栅极—发射极电压	±30	V
IC	集电极电流 (TC = 25℃)	50	A
	集电极电流 (TC = 100℃)	25	A
ICM (1)	脉冲集电极电流	80	A
IF	二极管正向电流 (TC = 100℃)	15	A
PD	最大功耗 (TC = 25℃)	200	W
	最大功耗 (TC = 100℃)	80	W
TJ	工作结温	-55~+150	℃
Tstg	储存温度	-55~+150	℃
TL	最高管脚温度 (浸锡面离塑封体1 / 8 英寸，时间5秒)	300	℃

注1：脉冲宽度受最大结温限制。

外形图及引脚排列



热特性

符号	参数	典型值	最大值	单位
$R_{\theta JC}$ (IGBT)	热阻 (结到外壳)		0.44	℃/W
$R_{\theta JC}$ (Diode)	热阻 (结到外壳)		2.24	℃/W
$R_{\theta JA}$	热阻 (结到环境)		40	℃/W



IGBT的电特性 (Tc=25° C, 除非有特殊说明)

符号	参数	测试条件	最小	典型	最大	单位
关态特性						
BVCEs	集电极—发射极击穿电压	VGE = 0V, IC = 250 μ A	1200			V
ICES	集电极截止电流	VCE = 1200V, VGE = 0V			250	μ A
IGES	G—E 极之间的漏电流	VGE = ±30V, VCE = 0V			±250	nA
导通特性						
VGE(th)	G-E Threshold Voltage G—E 极之间阈值电压	IC = 250 μ A, VCE = VGE	3.0		6.5	V
VCE(sat)	集电极—发射极饱和压降	IC = 20A, VGE = 15V; TC = 25℃		2.1	2.7	V
动态特性						
Cies	输入电容	VCE = 25V, VGE = 0V, f= 100KHz		840		pF
Co es	输出电容			130		pF
Cres	反向传输电容			50		pF
开关特性						
td(on)	导通延迟时间	VCC = 600V, IC = 20A, RG = 28Ω, VGE = 15V, Inductive Load, TC = 25℃		40		ns
tr	上升时间			70		ns
td(off)	关断延迟时间			80		ns
tf	下降时间			350		ns
Eon	导通开关损耗			0.9		mJ
Eoff	关断开关损耗			2.2		mJ
Ets	总开关损耗			3.1		mJ
Qg	总栅极电荷	VCE = 600V, IC = 20A, VGE = 15V		186	230	nC
Qge	栅极—发射极电荷			15	20	nC
Qgc	栅极—集电极电荷			79	110	nC

二极管的电特性 (Tc=25° C, 除非有特殊说明)

符号	参数	测试条件	最小	典型	最大	单位
VFM	二极管正向电压	IF = 15A		1.7	2.7	V
trr	二极管反向恢复时间	IES =15A, dI/dt =200A/μ s		210	330	ns
Irr	二极管反向恢复电流峰值			27	40	A
Qrr	二极管反向恢复电荷			2.8	6.6	μC



■ 典型特性曲线

Figure 1. Typical Output Characteristics

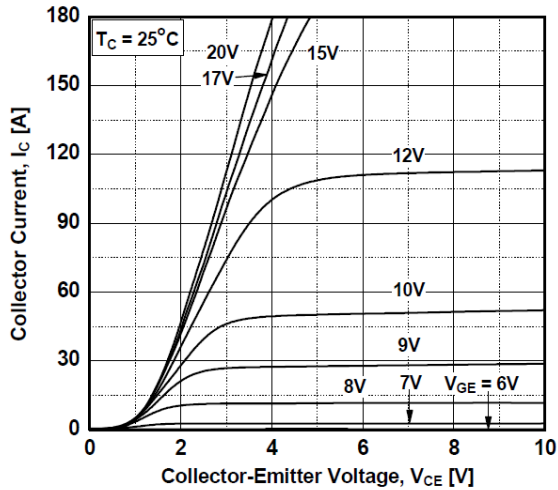


Figure 2. Typical Output Characteristics

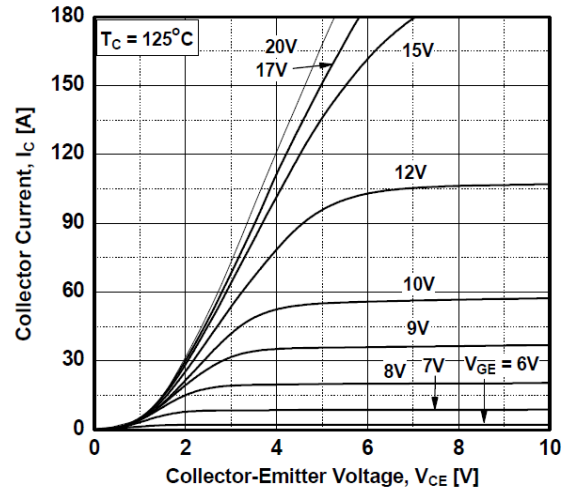


Figure 3. Typical Saturation Voltage Characteristics

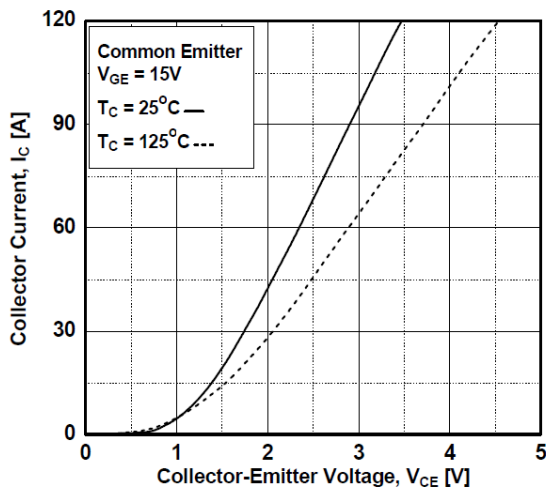


Figure 4. Transfer Characteristics

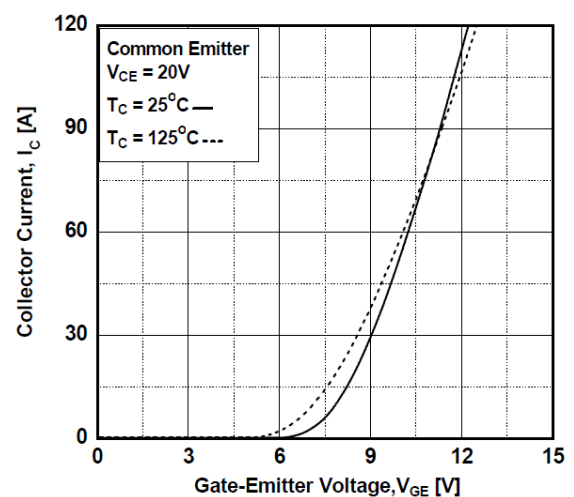


Figure 5. Saturation Voltage vs. Case Temperature at Variant Current Level

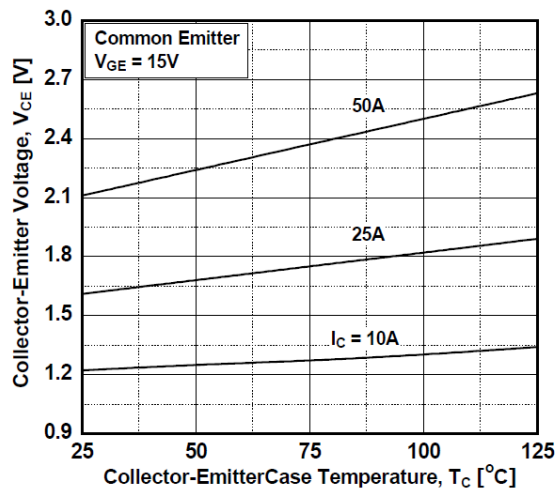
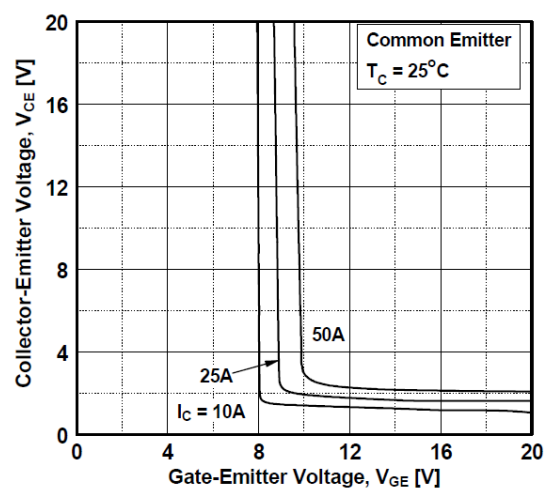


Figure 6. Saturation Voltage vs. Vge





■ 典型特性曲线

Figure 7. Saturation Voltage vs. V_{GE}

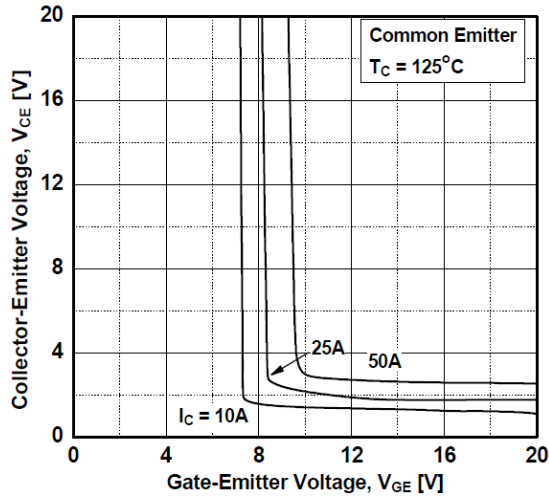


Figure 8. Capacitance Characteristics

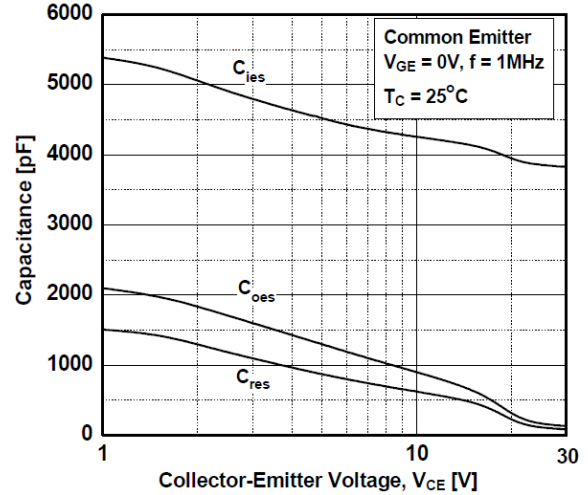


Figure 9. Gate charge Characteristics

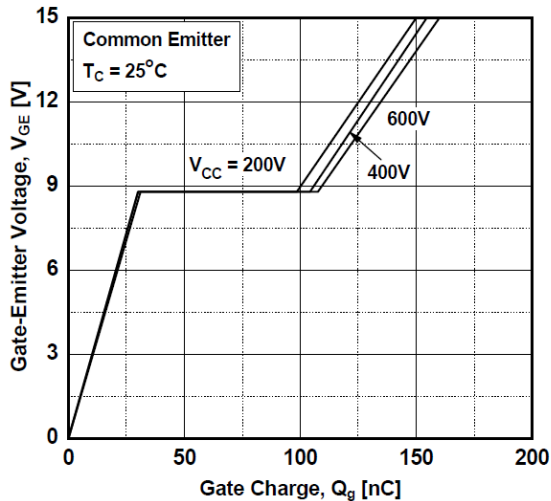


Figure 10. SOA Characteristics

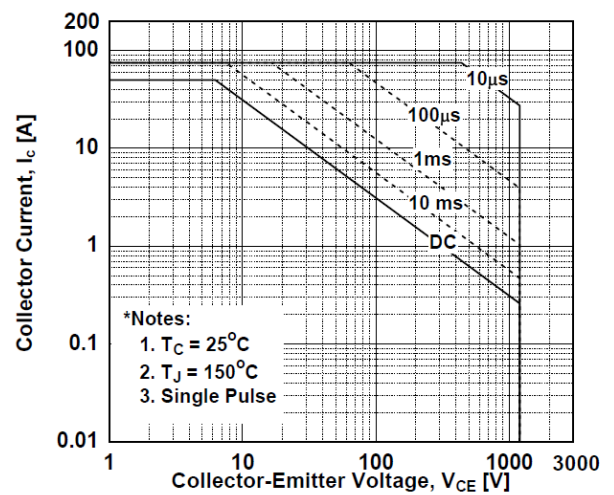


Figure 11. Turn-on Characteristics vs. Gate Resistance

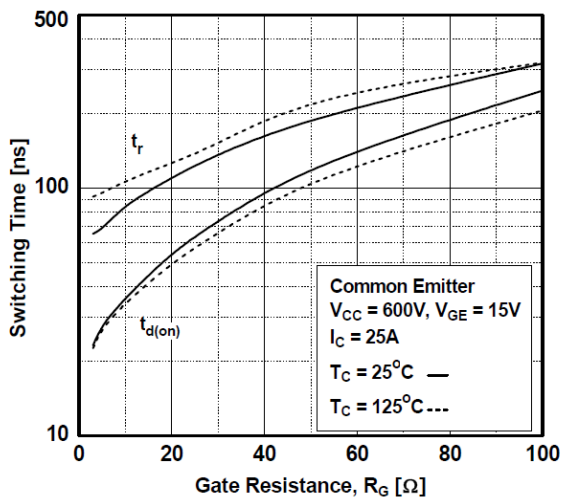
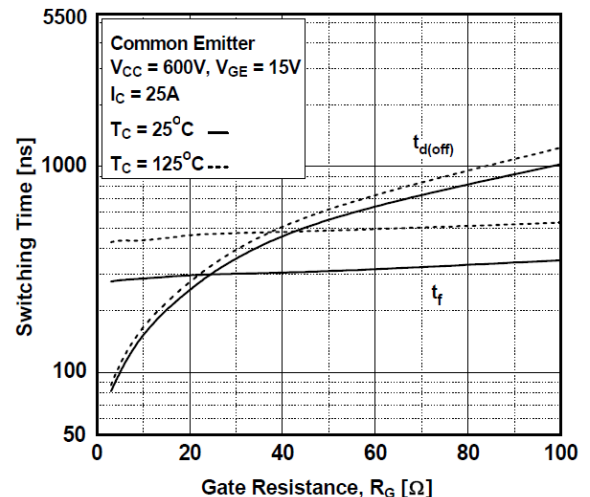


Figure 12. Turn-off Characteristics vs. Gate Resistance





■ 典型特性曲线

Figure 13. Turn-on Characteristics vs. Collector Current

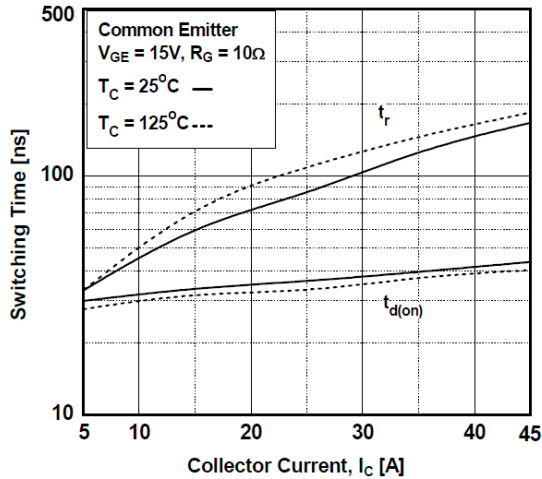


Figure 14. Turn-off Characteristics vs. Collector Current

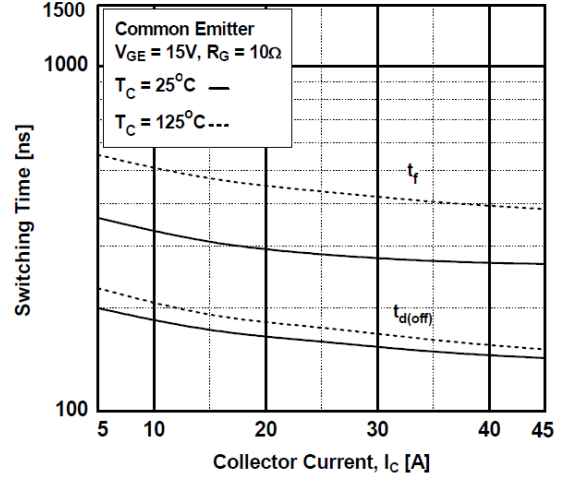


Figure 15. Switching Loss vs. Gate Resistance

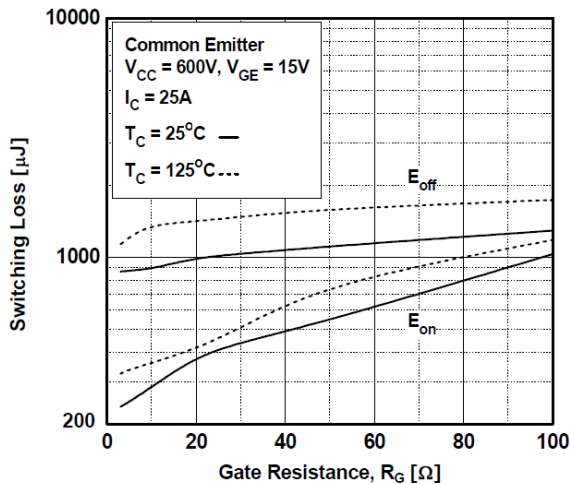


Figure 16. Switching Loss vs. Collector Current

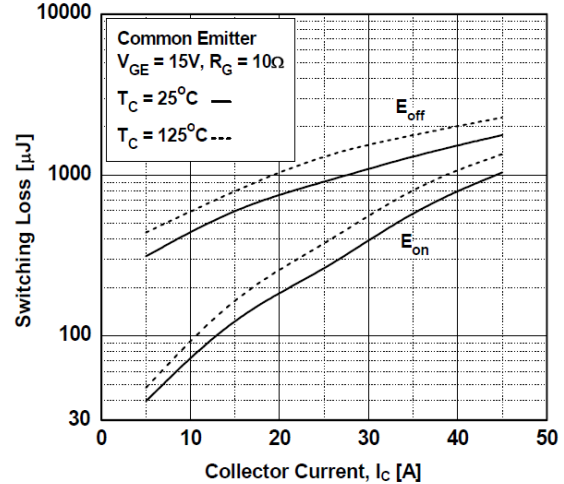


Figure 17. Turn off Switching SOA Characteristics

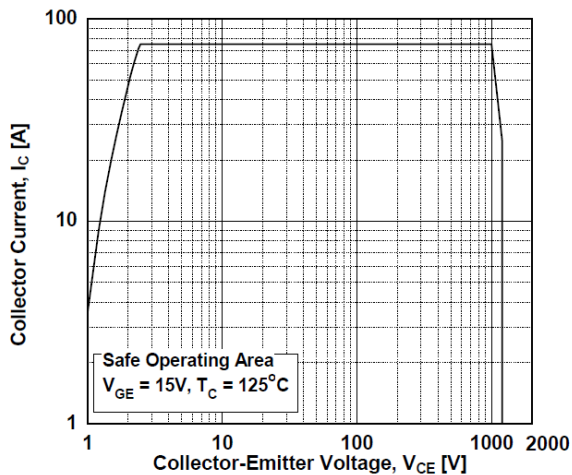
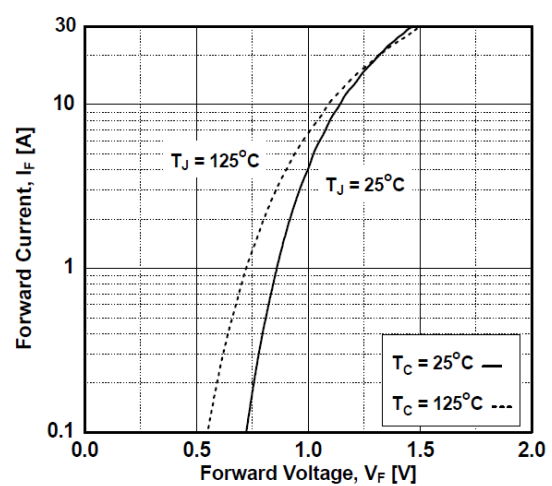
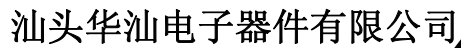


Figure 18. Forward Characteristics





HGH25N120A

