



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

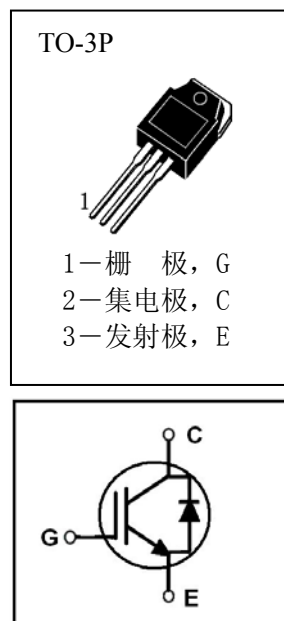
低饱和压降、高输入阻抗。
采用先进的沟槽隔离技术，使器件具有良好的传导和开关性能，并具有特殊雪崩击穿保护。

绝对最大额定值

符号	符号说明	极限值	单位
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℃)	40	A
	集电极电流 (TC = 100℃)	20	A
ICM (注1)	脉冲集电极电流	80	A
IF	二极管正向电流 (TC = 25℃)	15	A
IFM (注1)	二极管脉冲最大正向电流	80	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	符号说明	典型值	最大值	单位
$R_{\theta JC}(\text{IGBT})$	热阻 (结到外壳)		0.44	℃/W
$R_{\theta JC}(\text{Diode})$	热阻 (结到外壳)		2.24	℃/W
$R_{\theta JA}$	热阻 (结到环境)		40	℃/W



汕头华汕电子器件有限公司

N-Channel Enhancement Insulated Gate Bipolar Transistor

HGH20N120A对应国外型号
FGA20N120FTD**IGBT的电特性** ($T_c=25^\circ\text{C}$, 除非有特殊说明)

符号	参数说明	测试条件	最小值	典型值	最大值	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 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℃		2.3	2.7	V
动态特性						
Cies	输入电容	VCE = 25V, VGE = 0V, f= 100KHz		840		pF
Coes	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 ($T_c=25^\circ\text{C}$, 除非有特殊说明)

符号	参数说明	测试条件	最小值	典型值	最大值	单位
V _{FM}	二极管正向电压	$I_F = 15A$		1.7	2.7	V
t _{rr}	二极管反向恢复时间	$I_{ES} = 15A, dI/dt = 200A/\mu s$		210	330	ns
I _{rr}	二极管反向恢复电流峰值			27	40	A
Q _{rr}	二极管反向恢复电荷			2.8	6.6	μC



■ 典型特性曲线

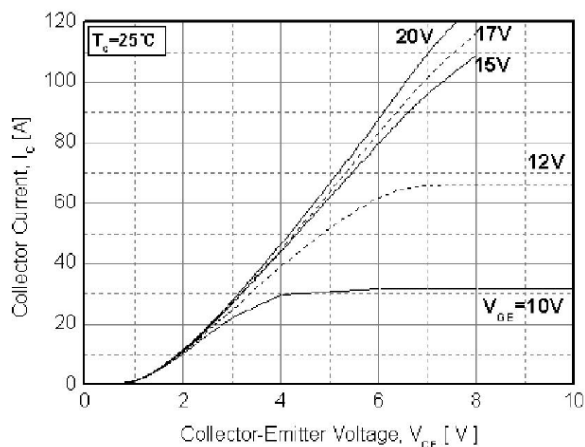


Fig.1 Typical Output Characteristics

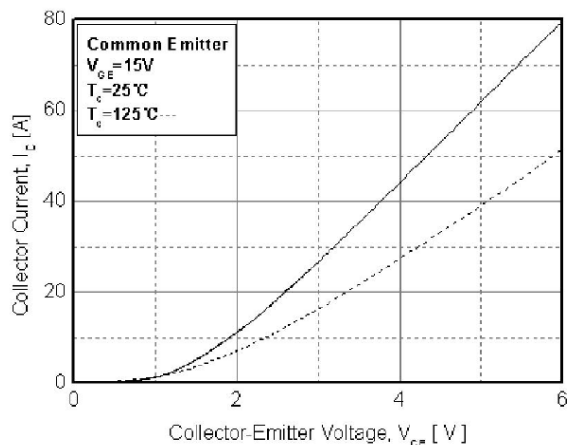


Fig.2 Typical Saturation Voltage Characteristics

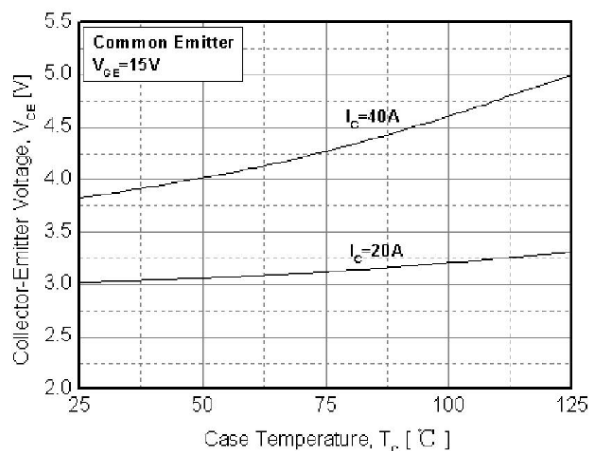


Fig.3 Saturation Voltage vs. Case Temp at variant Current Level

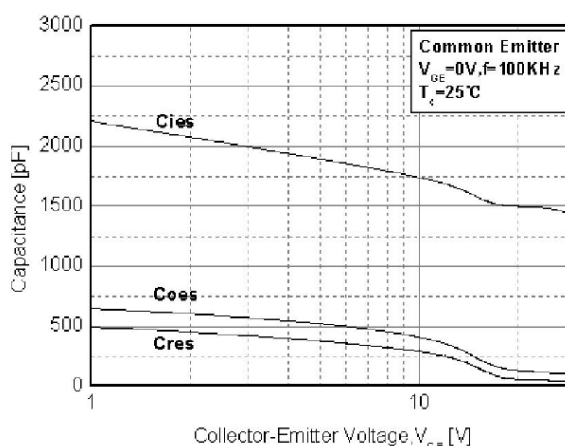


Fig.4 Capacitance Characteristics

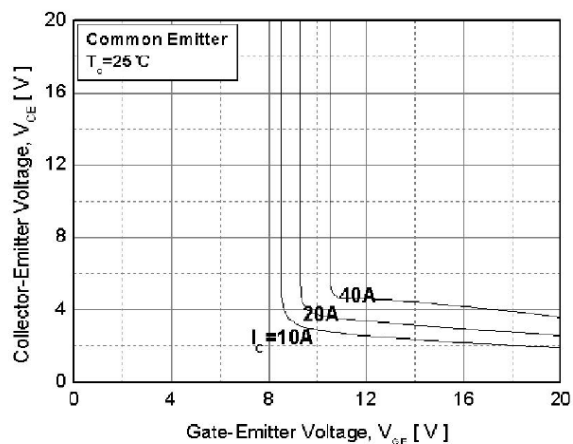


Fig.5 Saturation Voltage vs. V_GE

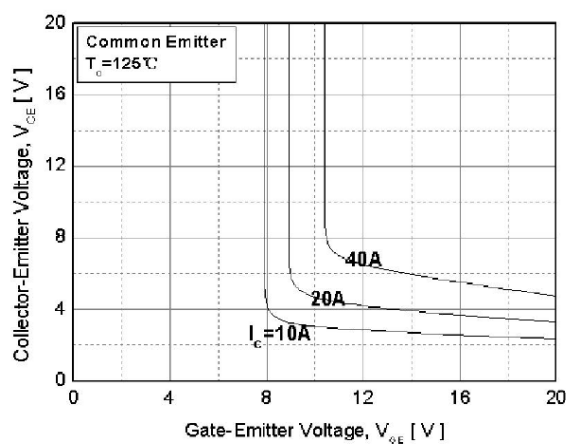


Fig.6 Saturation Voltage vs. V_GE



■ 典型特性曲线

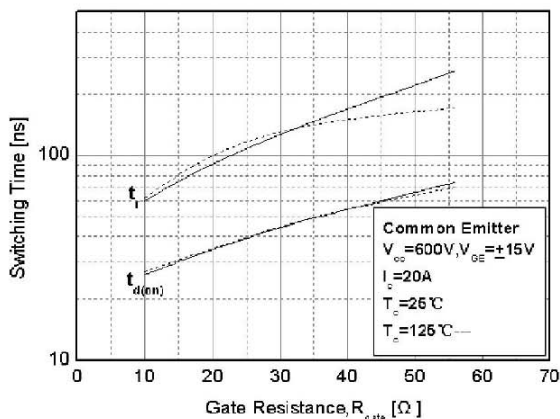


Fig.7 Turn on Characteristics vs. Gate Resistance

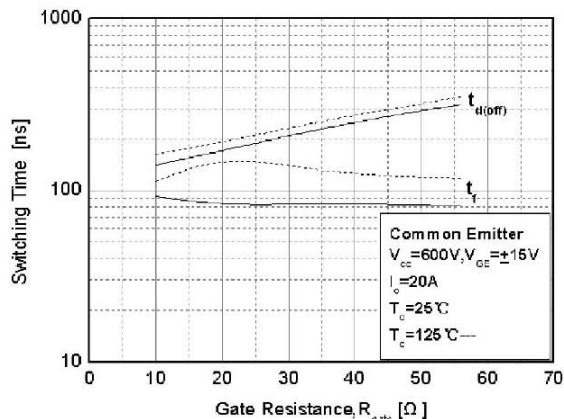


Fig.8 Turn off Characteristics vs. Gate Resistance

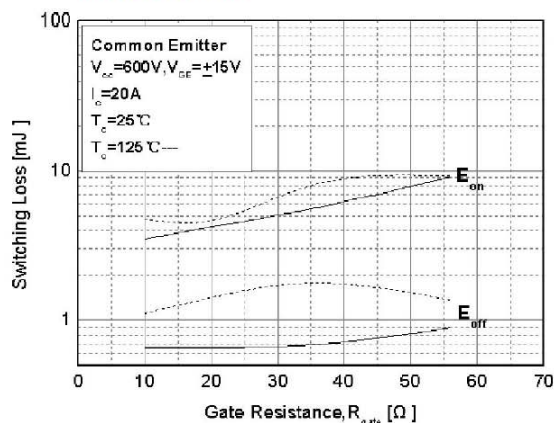


Fig.9 Switching Loss vs. Gate Resistance

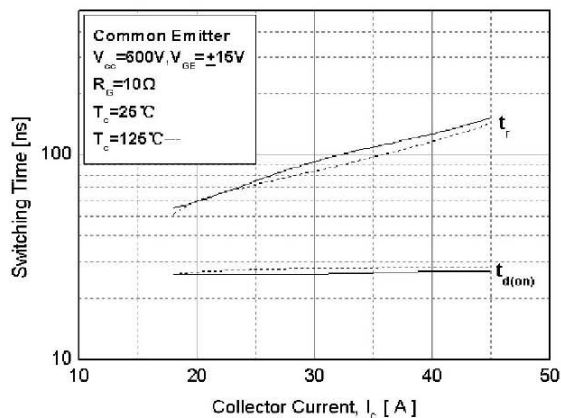


Fig.10 Turn on Characteristics vs. Collector Current

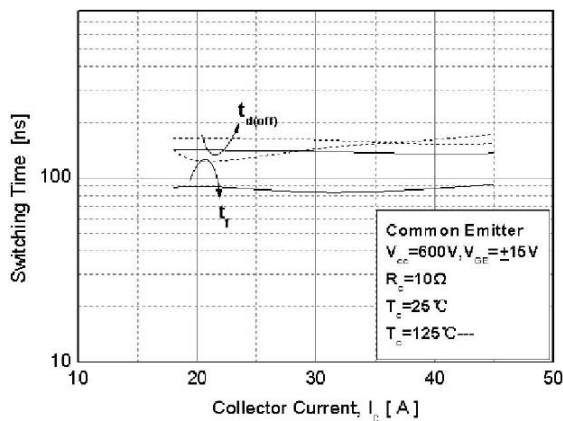


Fig.11 Turn off Characteristics vs. Collector Current

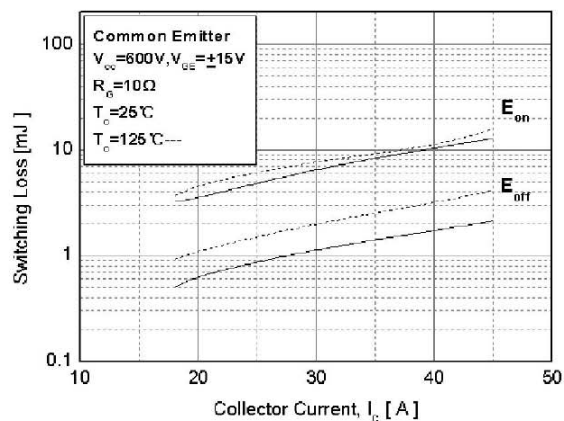


Fig.12 Switching Loss vs. Collector Current



■ 典型特性曲线

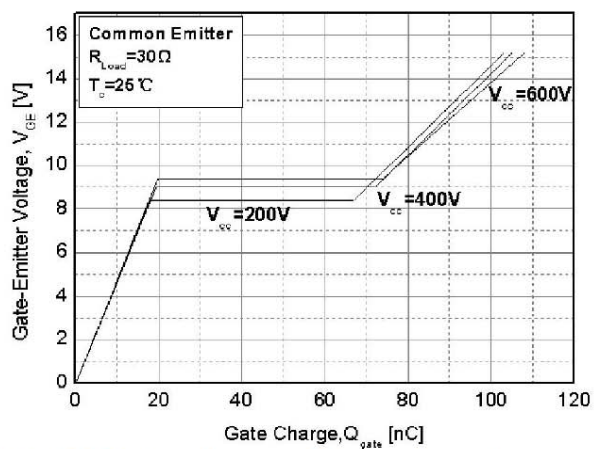


Fig.13 Gate Charge Characteristics

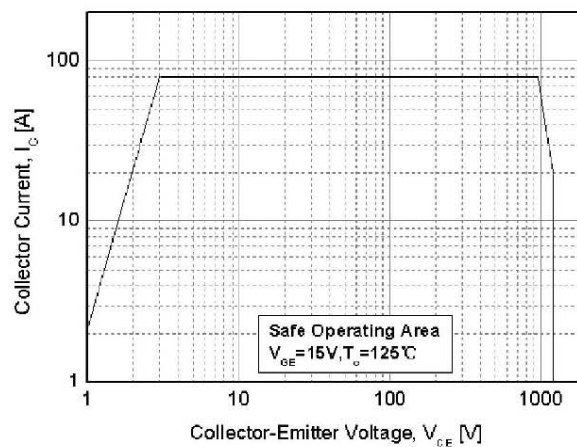


Fig.14 Turn off SOA