



# 3DD13005MD

## 主要参数 MAIN CHARACTERISTICS

$I_C$	4A
$V_{CEO}$	400V
$P_C(TO-220HF)$	35W
$P_C(TO-220)$	75W

### 用途

- 节能灯
- 电子镇流器
- 高频开关电源
- 高频功率变换
- 一般功率放大电路

### APPLICATIONS

- Energy-saving light
- Electronic ballasts
- High frequency switching power supply
- High frequency power transform
- Commonly power amplifier

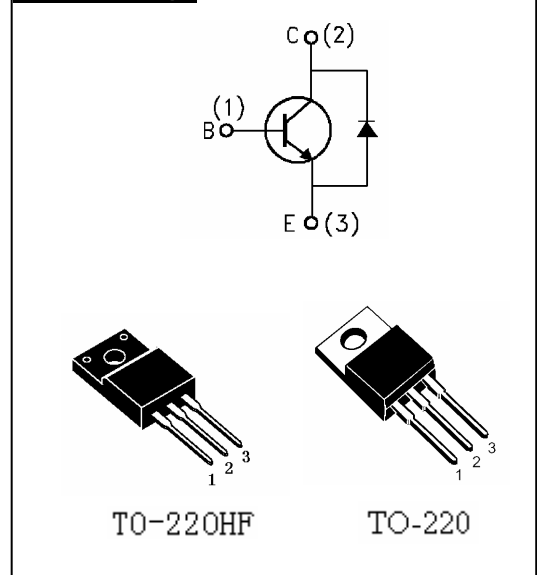
### 产品特性

- 高耐压
- 高电流容量
- 高开关速度
- 高可靠性
- 环保 (RoHS) 产品

### FEATURES

- High breakdown voltage
- High current capability
- High switching speed
- High reliability
- RoHS product

## 封装 Package



## 订货信息 ORDER MESSAGE

订货型号 Order codes	印记 Marking	无卤素 Halogen Free	封装 Package	包装 Packaging
3DD13005MD-O-HF-N-B	D13005MD	否 NO	TO-220F	条管 Tube
3DD13005MD-O-Z-N-C	D13005MD	否 NO	TO-220	袋装 Bag





## 绝对最大额定值 ABSOLUTE RATINGS (Tc=25°C)

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
集电极—发射极直流电压 Collector- Emitter Voltage (V <sub>BE</sub> =0)	V <sub>CES</sub>	700	V
集电极—发射极直流电压 Collector- Emitter Voltage (I <sub>B</sub> =0)	V <sub>CEO</sub>	400	V
发射极—基极直流电压 Emitter-Base Voltage	V <sub>EBO</sub>	9	V
最大集电极直流电流 Collector Current (DC)	I <sub>C</sub>	4	A
最大集电极脉冲电流 Collector Current (pulse)	I <sub>CP</sub>	8	A
最大基极直流电流 Base Current (DC)	I <sub>B</sub>	2	A
最大基极脉冲电流 Base Current (pulse)	I <sub>BP</sub>	4	A
最大集电极耗散功率 Total Dissipation (TO-220HF)	P <sub>C</sub>	35	W
最大集电极耗散功率 Total Dissipation (TO-220)	P <sub>C</sub>	75	W
最高结温 Junction Temperature	T <sub>J</sub>	150	°C
贮存温度 Storage Temperature	T <sub>stg</sub>	-55~+150	°C

注：pulse电流宽度为小于5ms的非重复单脉冲。 Pulse Test: Pulse Width = 5.0 ms, Duty Cycle < 10%.

## 电特性 ELECTRICAL CHARACTERISTIC

项 目 Parameter	测试条件 Tests conditions	最小值 Value(min)	典型值 Value(typ)	最大值 Value(max)	单 位 Unit
V(BR) <sub>CEO</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0	400	-	-	V
V(BR) <sub>CBO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	700	-	-	V
V(BR) <sub>EBO</sub>	I <sub>E</sub> =1mA, I <sub>C</sub> =0	9	-	-	V
I <sub>CBO</sub>	V <sub>CB</sub> =700V, I <sub>E</sub> =0	-	-	100	μA
I <sub>CEO</sub>	V <sub>CE</sub> =400V, I <sub>B</sub> =0	-	-	50	μA
I <sub>EBO</sub>	V <sub>EB</sub> =9V, I <sub>C</sub> =0	-	-	10	μA
Hfe(1)	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA	8	-	50	
Hfe(2)	V <sub>CE</sub> =5V, I <sub>C</sub> =2A	5	-	-	
V <sub>CE(sat)</sub> (1)	I <sub>C</sub> =1A, I <sub>B</sub> =0.2A	-	-	1.5	V
V <sub>CE(sat)</sub> (2)	I <sub>C</sub> =4A, I <sub>B</sub> =1A	-	-	2.0	V
V <sub>BE(sat)</sub>	I <sub>C</sub> =2A, I <sub>B</sub> =0.5A	-	-	1.8	V
t <sub>f</sub>	V <sub>CC</sub> =24V I <sub>C</sub> =2A, I <sub>B1</sub> =-I <sub>B2</sub> =0.4A	-	-	0.7	μS
t <sub>s</sub>		-	-	4	μS
f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =0.5A	4	-	-	MHZ

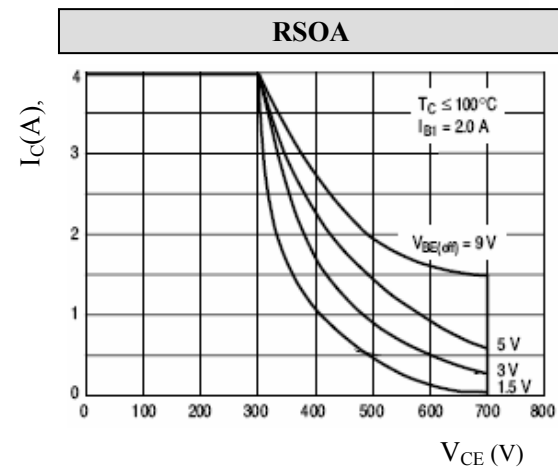
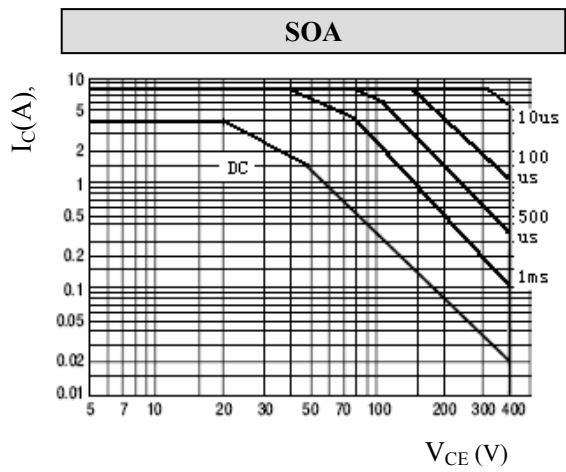
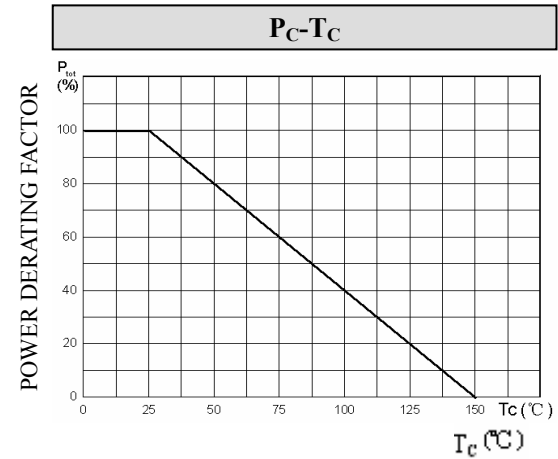
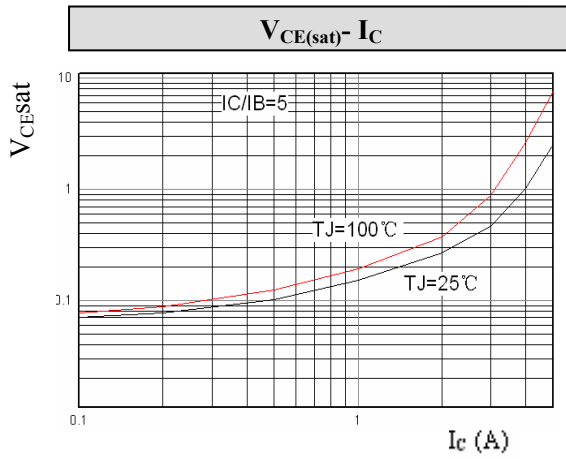
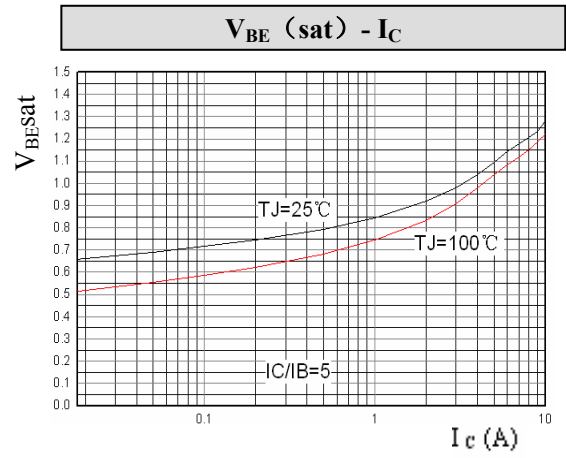
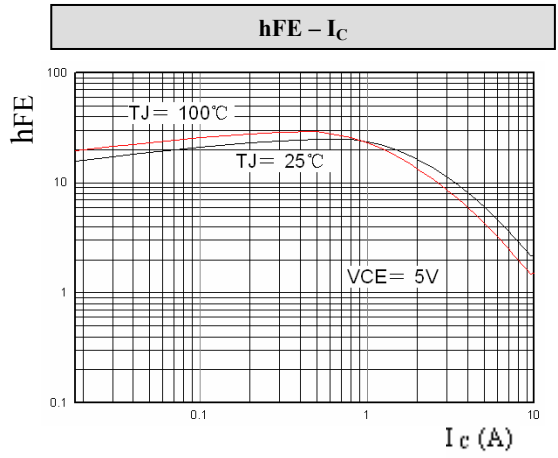
## 热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	最小值 Value(min)	最大值 Value(max)	单 位 Unit
结到管壳的热阻 TO-220HF Thermal Resistance Junction Case TO-220HF	R <sub>th(j-c)</sub>	-	3.57	°C/W
结到管壳的热阻 TO-220 Thermal Resistance Junction Case TO-220	R <sub>th(j-c)</sub>	-	1.67	°C/W



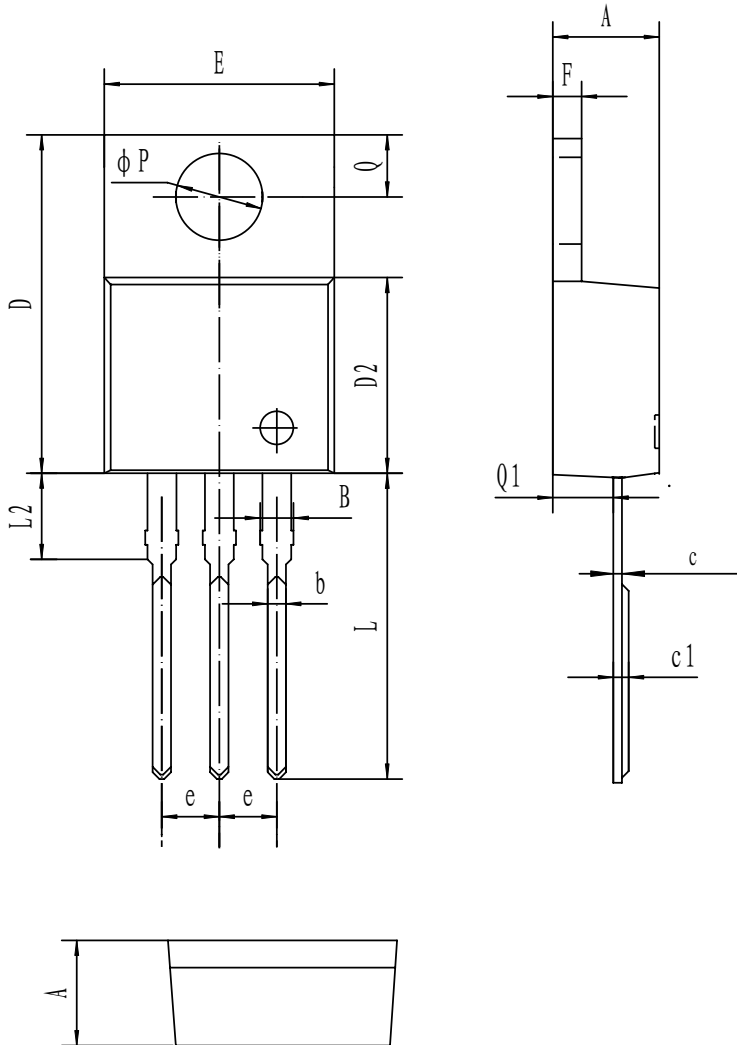


特征曲线 ELECTRICAL CHARACTERISTICS (curves)





## TO-220

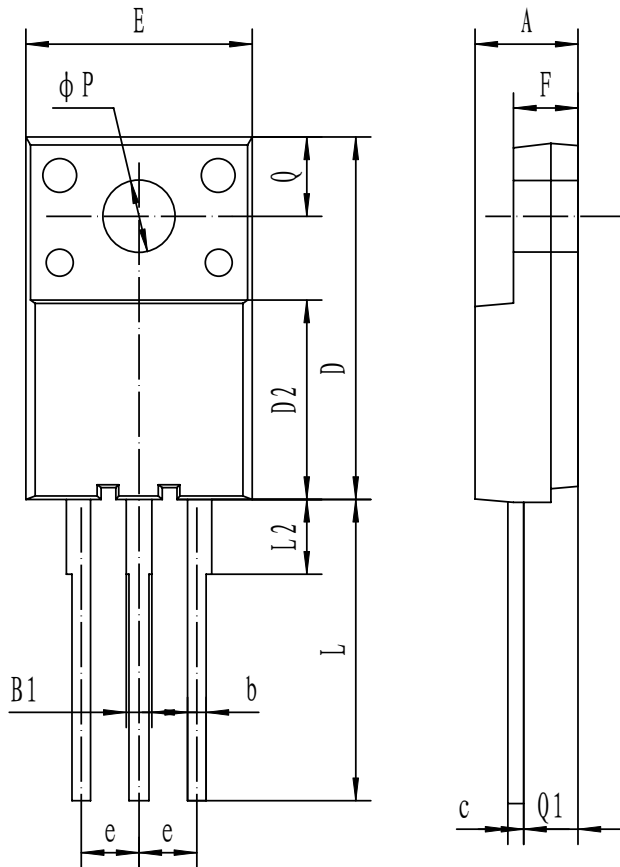


符号 symbol	MIN	MAX
A	4.40	4.80
B	1.10	1.40
b	0.70	0.95
c	0.28	0.48
c1	0.32	0.52
D	14.45	16.00
D2	8.20	9.20
E	9.60	10.40
e	2.39	2.69
F	1.20	1.35
L	13.05	14.05
L2	3.70	3.90
Q	2.40	3.00
Q1	2.20	2.90
P	3.50	4.00

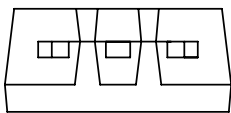




## TO-220HF



符号 Symbol	Min	Max
A	4.0	5.0
B1	0.87	1.27
b	0.72	0.92
c	0.5	0.70
D	15.0	16.5
D2	7.8	9.4
E	9.62	10.62
e	2.54(typ)	
F	2.3	3.3
L	12.0	14.0
L2	3.1	3.5
$\phi P$	3.0	3.4
Q	3.15	3.55
Q1	2.2	2.5



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3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
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3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
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**附录 (Appendix) : 修订记录 (Revision History)**

日期 Date	旧版本 Last Rev.	新版本 New Rev.	修订内容 Description of Changes
2009-10-23	200905B	200910C	电话、传真号码升位

