

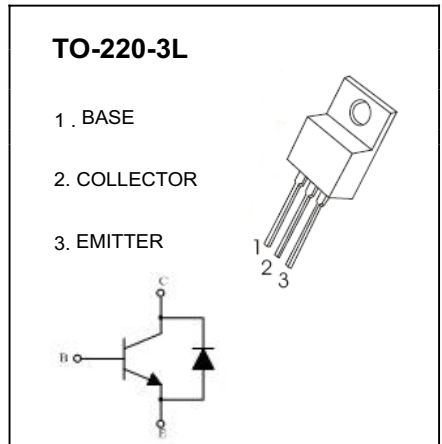
### 3DD13005N TRANSISTOR (NPN)

#### FEATURES

- Power switching applications
- Good high temperature
- Low saturation voltage
- High speed switching

#### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	700	V
V <sub>CEO</sub>	Collector-Emitter Voltage	420	V
V <sub>EBO</sub>	Emitter-Base Voltage	9	V
I <sub>C</sub>	Collector Current -Continuous	4	A
P <sub>C</sub>	Collector Power Dissipation	2	W
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	62.5	°C/ W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55-150	°C



#### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 1mA, I <sub>E</sub> =0	700			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> =0	420			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 1mA, I <sub>C</sub> =0	9			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =700V, I <sub>E</sub> =0			100	μA
Collector cut-off current	I <sub>CEO</sub>	V <sub>CE</sub> =400V, I <sub>B</sub> =0			100	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =7V, I <sub>C</sub> =0			100	μA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =1A	10		40	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =200mA	10		60	
	h <sub>FE(3)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =10mA	5			
	h <sub>FE(4)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =4A	8		40	
Collector-emitter saturation voltage	V <sub>CE(sat)(1)</sub>	I <sub>C</sub> =1A, I <sub>B</sub> =0.2A			0.3	V
	V <sub>CE(sat)(2)</sub>	I <sub>C</sub> =2A, I <sub>B</sub> =0.4A	A B	0.15 0.25	0.28 0.35	V V
	V <sub>CE(sat)(3)</sub>	I <sub>C</sub> =4A, I <sub>B</sub> =1A			0.8	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =2A, I <sub>B</sub> =0.5A			1.6	V
Diode forward voltage	V <sub>FEC</sub>	I <sub>C</sub> =2A			2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =0.5A, f=1MHz	5			MHz
Rise time	t <sub>r</sub>	I <sub>C</sub> =250mA			0.5	μs
Storage time	t <sub>s</sub>	I <sub>C</sub> =250mA	2.0		4.0	
Fall time	t <sub>f</sub>	I <sub>C</sub> =250mA			0.5	

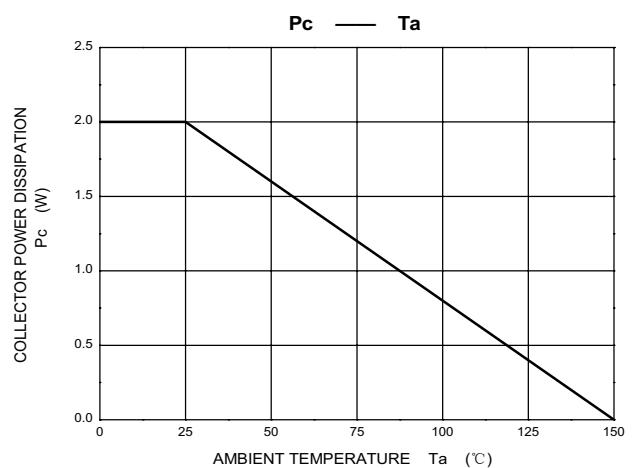
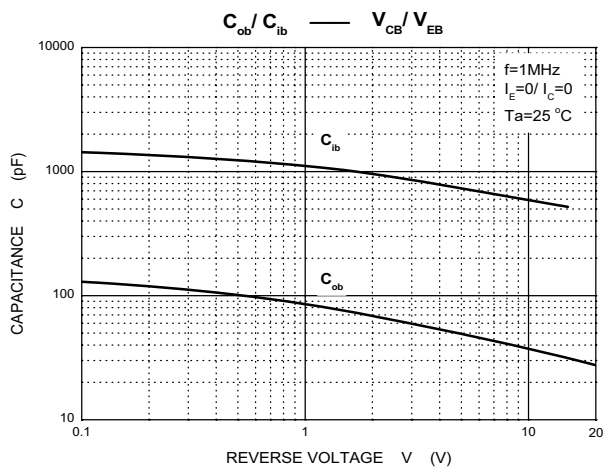
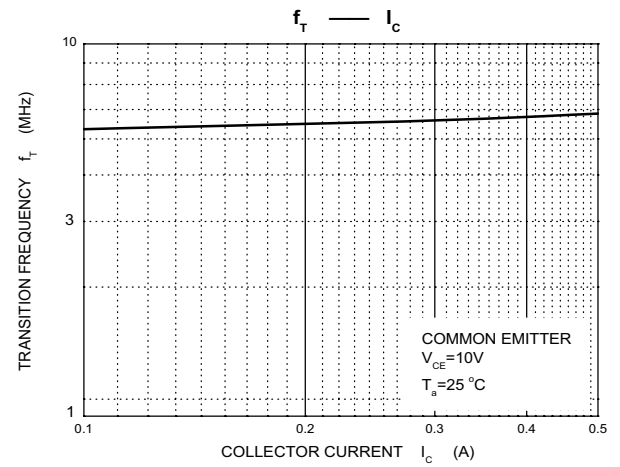
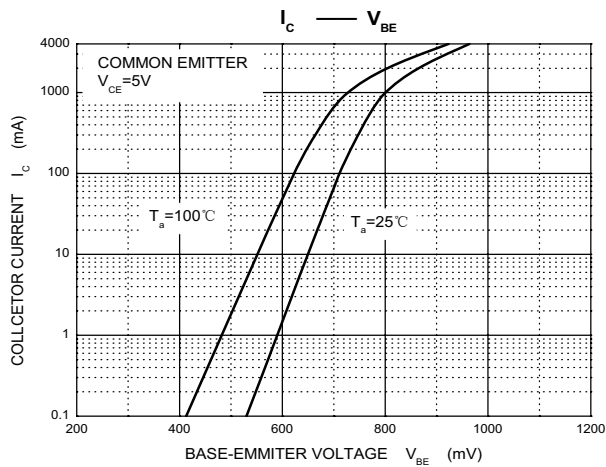
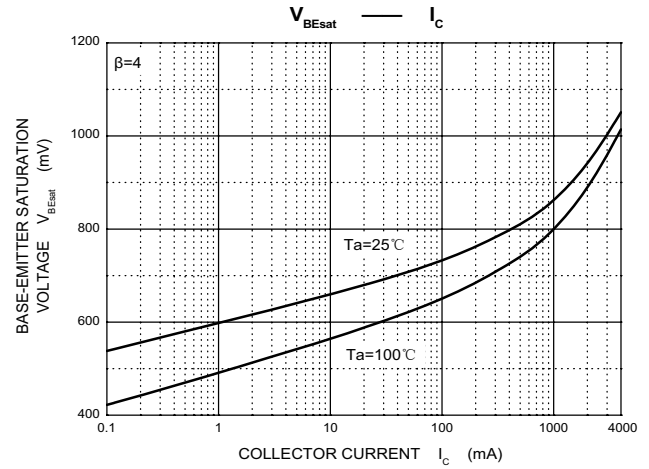
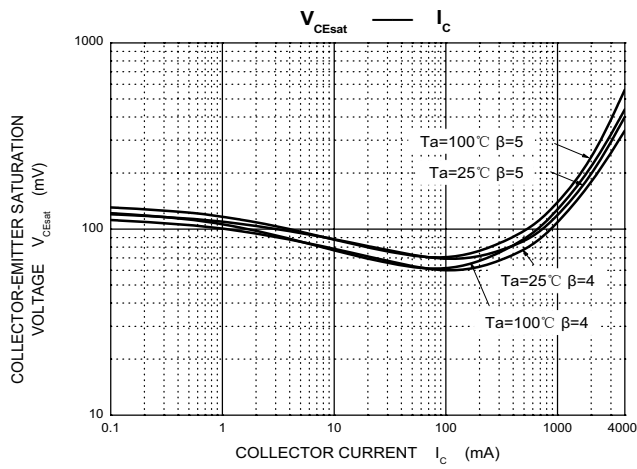
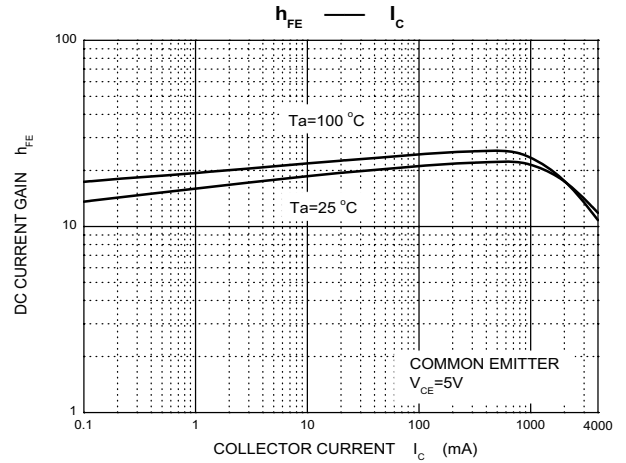
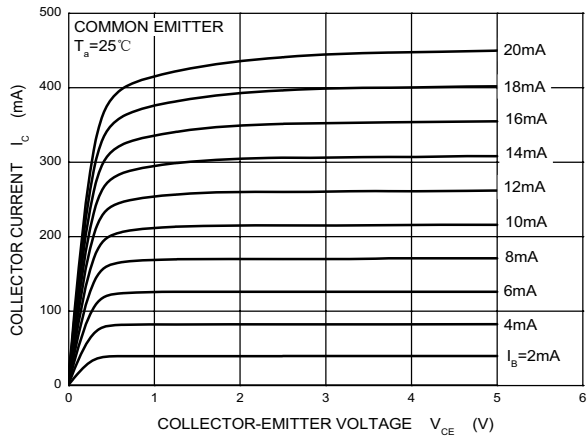
#### CLASSIFICATION of h<sub>FE(2)</sub>

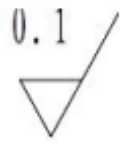
Range	10~15	15~20	20~25	25~30	30~35	35~40	40~45	45~50	50~55	55~60
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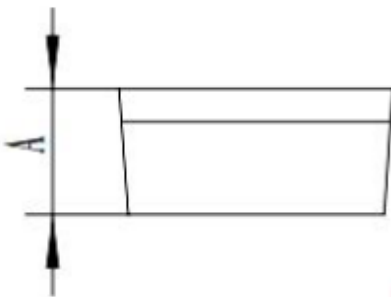
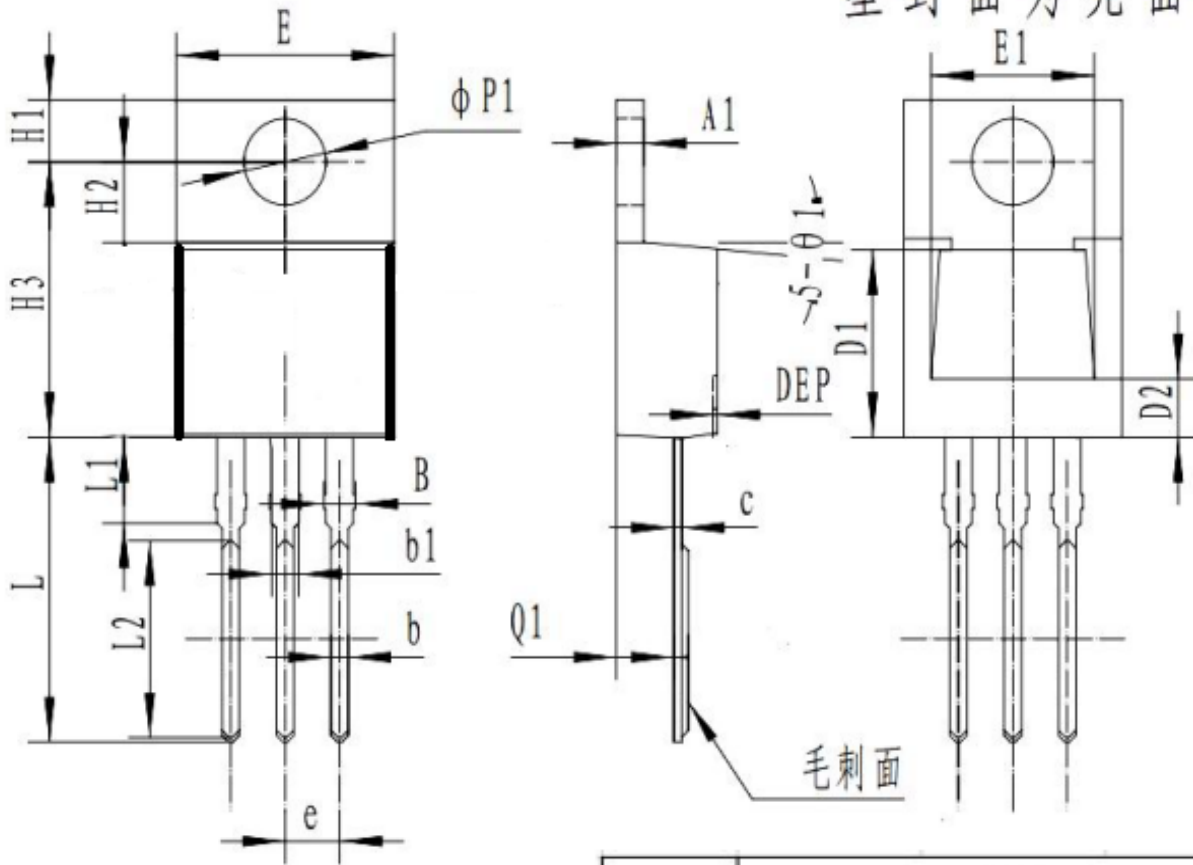
#### CLASSIFICATION of t<sub>s</sub>(μs)

Rank	A		B	
	A1	A2	B1	B2
Range	2.0-2.5	2.5-3.0	3.0-3.5	3.5-4.0

## Static Characteristic



塑封面为亮面  $0.1$  



SYMBOL	MM		
	MIN	NOM	MAX
*A	4.60	4.70	4.80
A1	1.22	1.27	1.32
*b	0.76	0.81	0.86
b1	1.22	1.27	1.32
*B	1.27	1.37	1.45
*c	0.33	0.38	0.43
D1	7.60	7.75	7.90
D2	2.50	2.60	2.70
*E	10.00	10.10	10.20
E1	7.70	7.80	7.90
H1	2.64	2.74	2.84
H2	3.46	3.56	3.66
*H3	12.10	12.20	12.30
H4	1.90	2.00	2.10
*e	2.49	2.54	2.59
*L	13.45	3.85	13.85
L1	3.58	3.78	3.98
L2	8.66	8.76	8.86
*Q1	2.59	2.69	2.79
$\theta 1$	$3^\circ$	$5^\circ$	$7^\circ$
$\phi P1$	3.85	3.90	3.95
DEP	0.05	0.10	0.20

带\*为检验尺寸