JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-92 Plastic-Encapsulate Transistors

2N3904 TRANSISTOR（NPN）

TO—92

1.EMITTER

2.BASE

3. COLLECTOR

1 2 3

FEATURE

Power dissipation

P_{CM} : 0.625 W（Tamb=25℃）

Collector current

I_{CM} : 0.2 A

Collector-base voltage

$V_{(BR)CBO}$: 60 V

Operating and storage junction temperature range

T_J，T_{stg}: -55℃ to +150℃

ELECTRICAL CHARACTERISTICS（Tamb=25℃ unless otherwise specified）

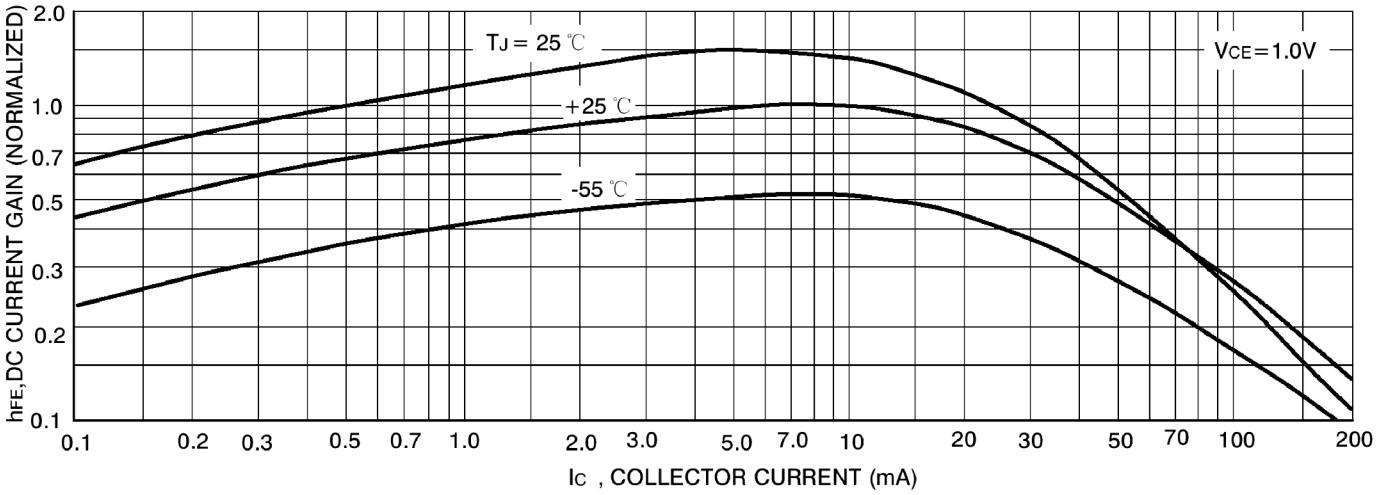
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V(BR)_{CBO}$	I_C= 100μA， I_E=0	60			V
Collector-emitter breakdown voltage	$V(BR)_{CEO}$	I_C= 1 mA， I_B=0	40			V
Emitter-base breakdown voltage	$V(BR)_{EBO}$	I_E= 100μA， I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}= 60 V， I_E=0			0.1	μA
Collector cut-off current	I_{CEO}	V_{CE}= 40 V， I_B=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}= 5 V， I_C=0			0.1	μA
DC current gain	$h_{FE\ (1)}$	V_{CE}=1 V， I_C= 10mA	100		400	
	$h_{FE\ (2)}$	V_{CE}=1 V， I_C= 50mA	60			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C= 50 mA, I_B= 5 mA			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C= 50 mA, I_B= 5 mA			0.95	V
Transition frequency	f_T	V_{CE}= 20 V, I_C= 10mA f = 100MHz	300			MHz

CLASSIFICATION OF $h_{FE(1)}$

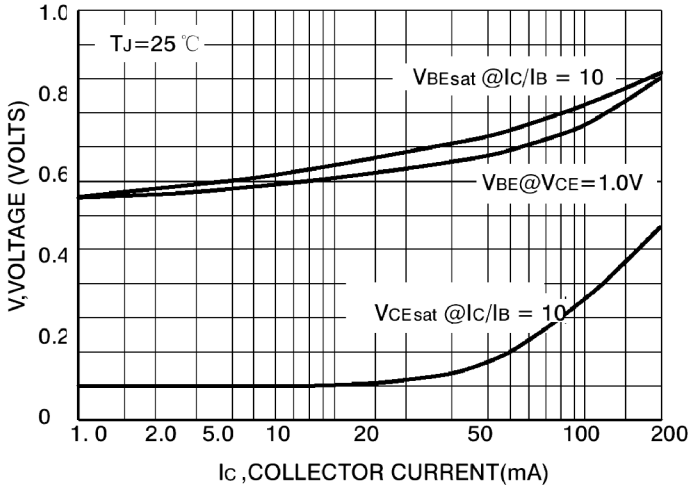
Rank	O	Y	G
Range	100-200	200-300	300-400

Typical Characteristics

2N3904

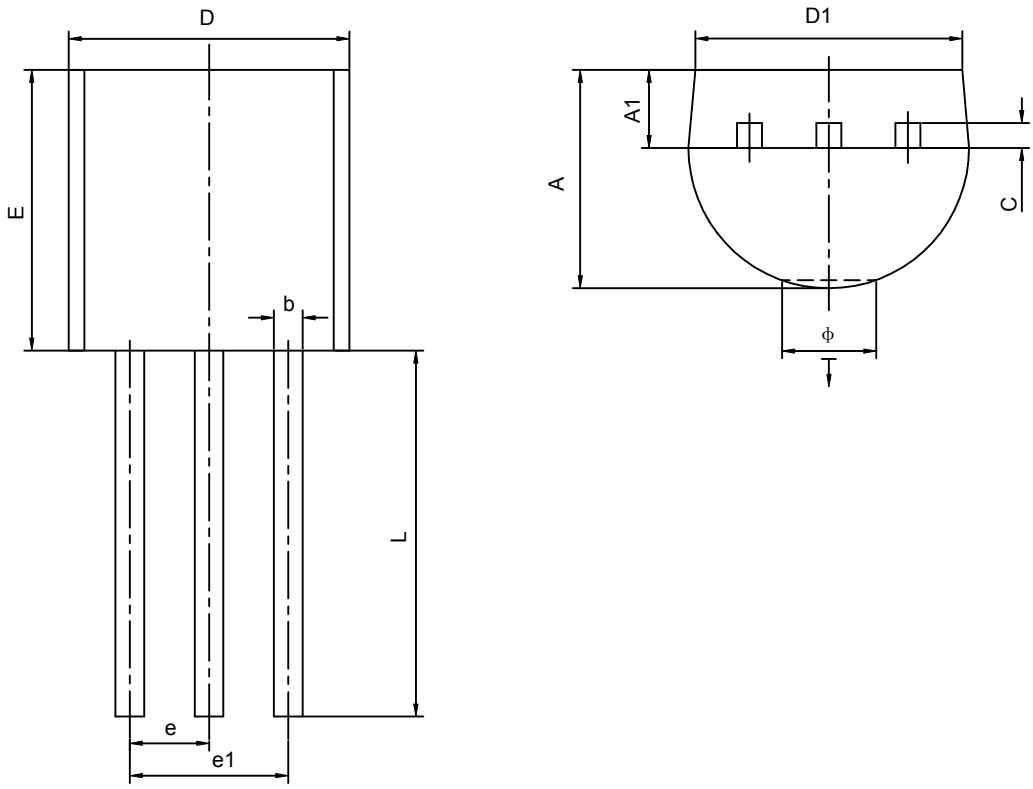


DC CURRENT GAIN



"ON"VOLTAGES

TO-92 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270TYP		0.050TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Ö		1.600		0.063
⊤	0.000	0.380	0.000	0.015