

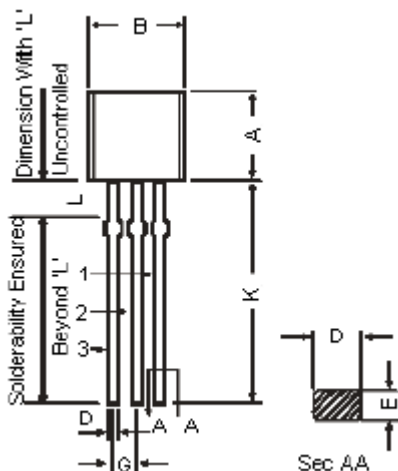
# 2N3704

## Bipolar Transistors



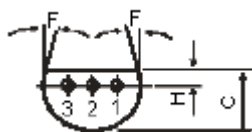
**Description:**  
NPN Silicon Planar Epitaxial Transistors.

### TO-92 Plastic Package



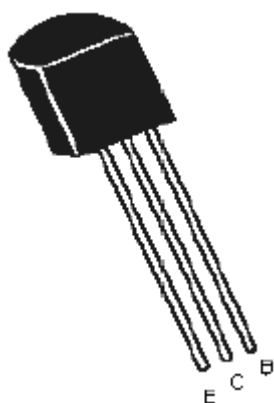
Dimensions	Minimum	Maximum
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5°	
G	1.14	1.40
H		1.53
K	12.70	-
L	1.982	2.082

Dimensions : Millimetres



### Pin Configuration:

- 1. Emitter
- 2. Collector
- 3. Base



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### Absolute Maximum Ratings

Rating	Symbol	Value	Unit
Collector Emitter Voltage	$V_{CEO}$	30	V
Collector Base Voltage	$V_{CBO}$	50	
Emitter Base Voltage	$V_{EBO}$	5	
Collector Current Continuous	$I_C$	600	mA
Power Dissipation at $T_a = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_j, T_{stg}$	-55 to +150	$^\circ\text{C}$
<b>Thermal Resistance</b>			
Junction to Ambient	$R_{th(j-a)}$	200	$^\circ\text{C/W}$

### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Test Condition	Minimum	Maximum	Unit
Collector Emitter Voltage	$BV_{CEO}^*$	$I_C = 10\text{mA}, I_B = 0$	30	-	V
Collector Base Voltage	$BV_{CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	50	-	
Emitter to Base Voltage	$V_{EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	5	-	
DC Current Gain 2N3704	$h_{FE}^*$	$I_C = 50\text{mA}, V_{CE} = 2\text{V}$	100	300	-
Collector Leakage Current	$I_{CBO}$	$V_{CB} = 20\text{V}, I_E = 0$	-	0.1	$\mu\text{A}$
Emitter Leakage Current	$I_{EBO}$	$V_{EB} = 3\text{V}, I_C = 0$	-		
Collector Emitter Saturation Voltage 2N3704	$V_{CE(sat)}^*$	$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	0.6	V
Base Emitter On Voltage	$V_{BE(on)}^*$	$I_C = 100\text{mA}, V_{CE} = 2\text{V}$	0.5	1.0	

\*Pulse Test : Pulse Width =  $\leq 300\mu\text{s}$ , Duty Cycle =  $\leq 2.0\%$ .

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### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Test Condition	Minimum	Maximum	Unit
<b>Small Signal Characteristics</b>					
Output Capacitance	$C_{ob}$	$I_E = 0, V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	12	pF
Transition Frequency	$f_T$	$I_C = 50\text{mA}, V_{CE} = 2\text{V}, f = 20\text{MHz}$	100	-	MHz

### Specifications

$V_{CEO}$ (V)	$V_{CBO}$ Maximum (V)	$I_C$ (mA)	$h_{FE}$ Minimum at $I_C = 50\text{mA}$	$f_T$ Minimum (MHz)	$P_{tot}$ (mW)	Package	Part Number
30	50	0.8	100	100	360	TO-92	2N3704



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### Notes:

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