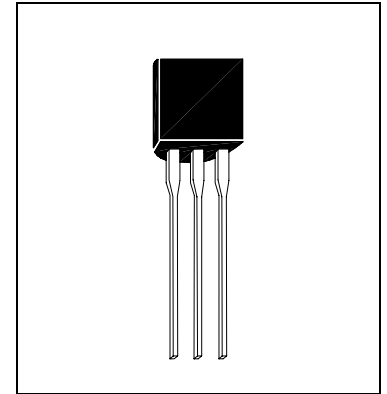




## 2N3904

NPN EPITAXIAL PLANAR TRANSISTOR



### Description

The 2N3904 is designed for general purpose switching and amplifier applications.

### Absolute Maximum Ratings

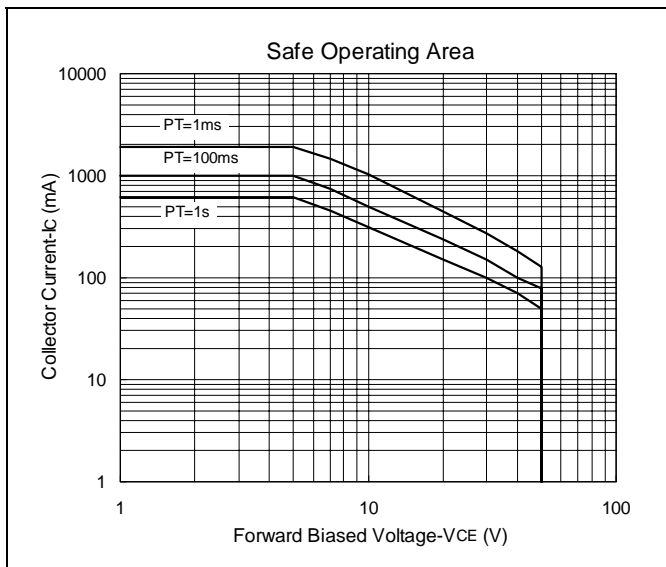
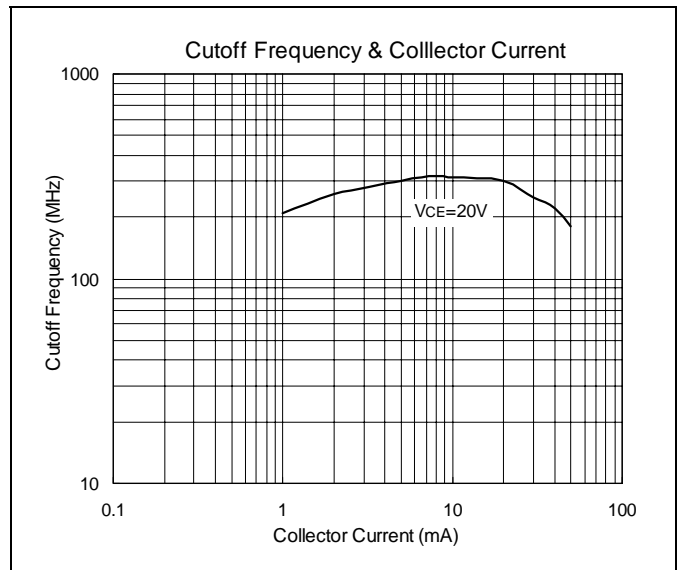
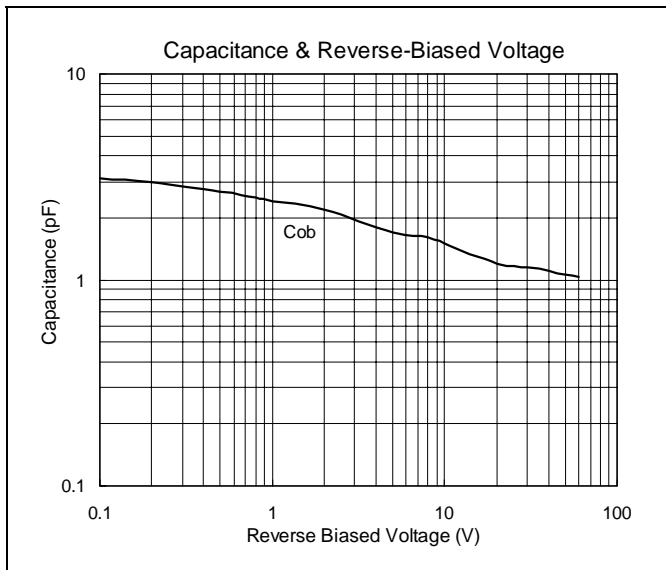
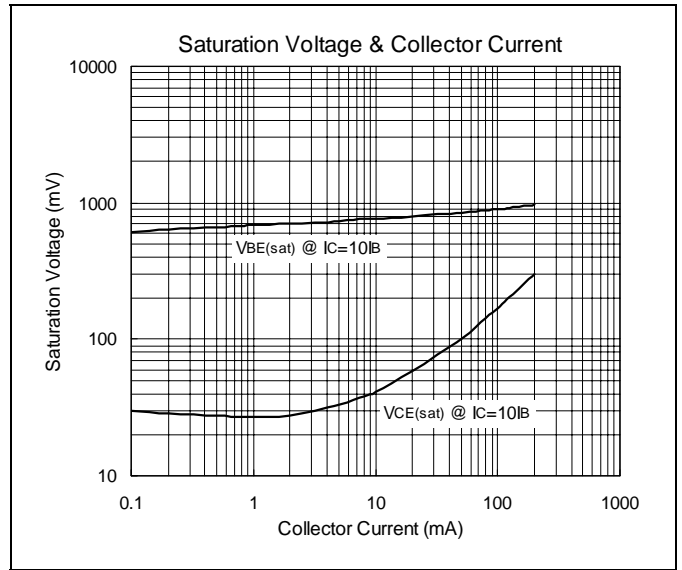
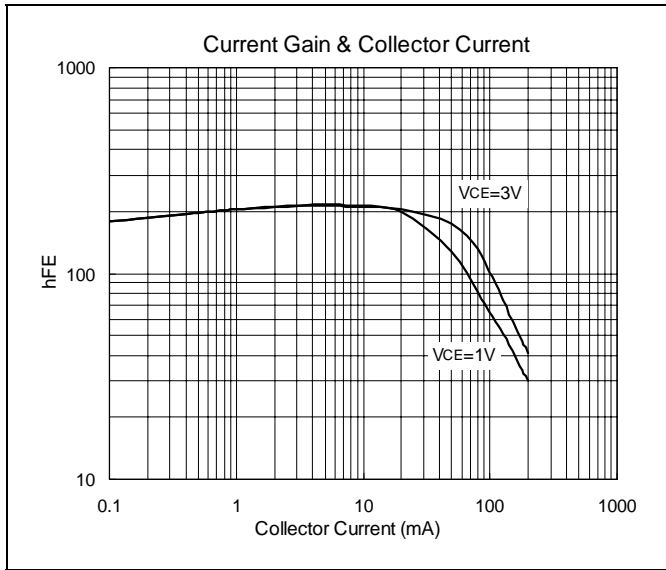
- Maximum Temperatures  
Storage Temperature..... -55~+150°C  
Junction Temperature..... +150°C Maximum
- Maximum Power Dissipation  
Total Power Dissipation (Ta=25°C) ..... 625 mW
- Maximum Voltages and Currents (Ta=25°C)  
VCBO Collector to Base Voltage ..... 60 V  
VCEO Collector to Emitter Voltage ..... 40 V  
VEBO Emitter to Base Voltage ..... 6.0 V  
IC Collector Current ..... 200 mA

### Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BVCEO	60	-	-	V	IC=10uA, IE=0
BVCE0	40	-	-	V	IC=1mA, IB=0
BVEBO	6.0	-	-	V	IE=10uA, IC=0
ICEX	-	-	50	nA	VCE=30V, VBE=3V
VCE(sat)1	-	-	200	mV	IB=1mA, IC=10mA
VCE(sat)2	-	-	300	mV	IB=5mA, IC=50mA
VBE(sat)1	650	-	850	mV	IB=1mA, IC=10mA
VBE(sat)2	-	-	950	mV	IB=5mA, IC=50mA
hFE1	40	-	-		VCE=1V, IC=100uA
hFE2	70	-	-		VCE=1V, IC=1mA
hFE3	100	-	300		VCE=1V, IC=10mA
hFE4	60	-	-		VCE=1V, IC=50mA
hFE5	30	-	-		VCE=1V, IC=100mA
fT	300	-	-	MHz	IC=10mA, VCE=20V, f=100MHz
Cob	-	-	4.0	pF	VCB=5V, f=1MHz, IE=0

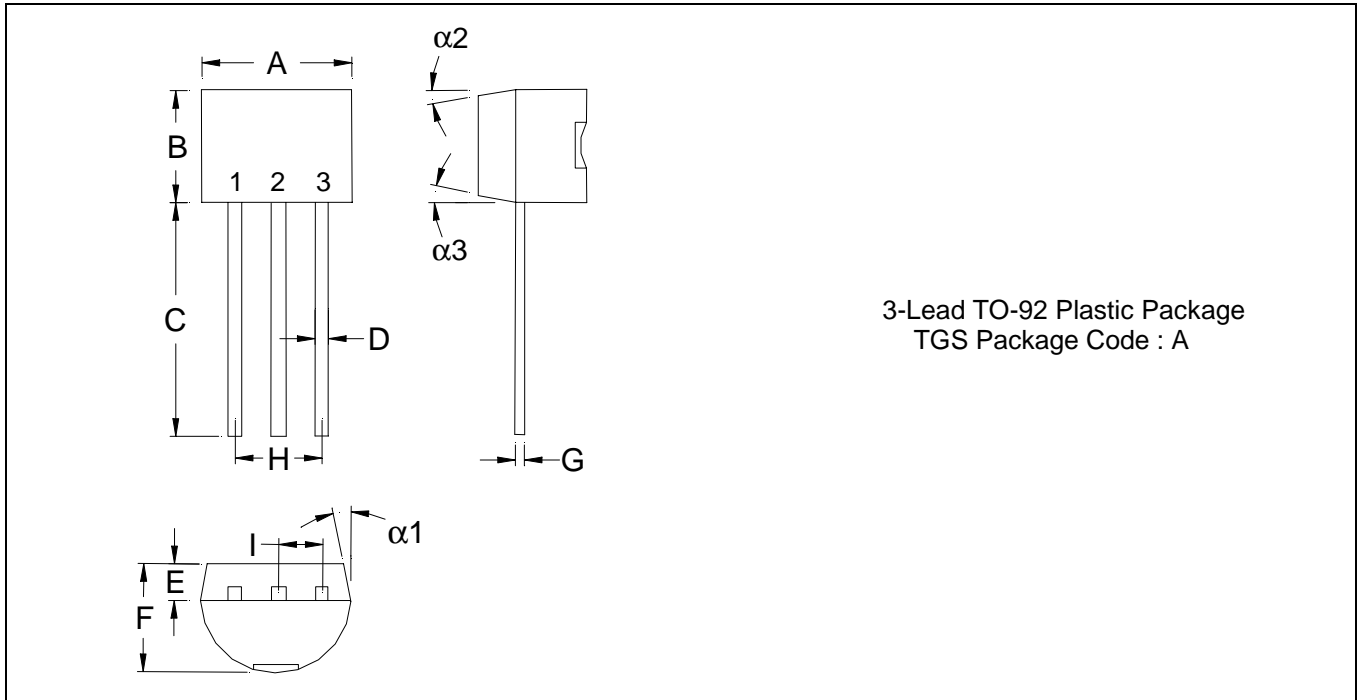


## Characteristics Curve





## TO-92 Dimension



\*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1704	0.1902	4.33	4.83	G	0.0142	0.0220	0.36	0.56
B	0.1704	0.1902	4.33	4.83	H	-	*0.1000	-	*2.54
C	0.5000	-	12.70	-	I	-	*0.0500	-	*1.27
D	0.0142	0.0220	0.36	0.56	$\alpha 1$	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	$\alpha 2$	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	$\alpha 3$	-	*2°	-	*2°