

# GTM CORPORATION

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## GMBT3904 NPN EPITAXIAL PLANAR TRANSISTOR

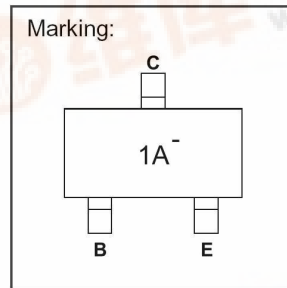
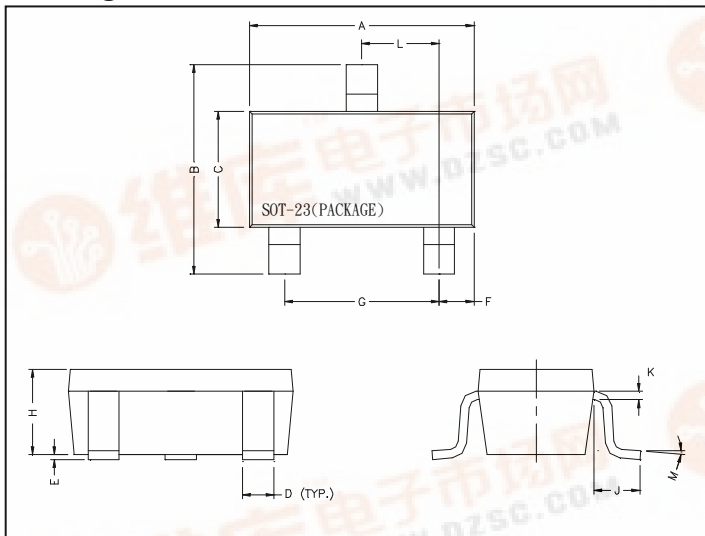
### Description

The GMBT3904 is designed for general purpose switching and amplifier applications.

### Features

- \*Pb-free package are available
- \*Collector-emitter voltage 40V
- \*Complementary to GMBT3906

### Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

### Absolute Maximum Ratings at Ta = 25°C

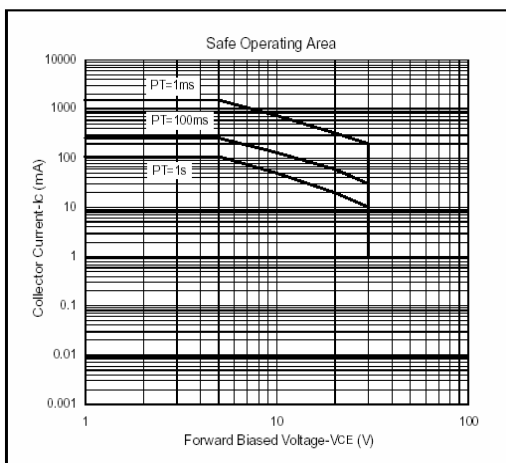
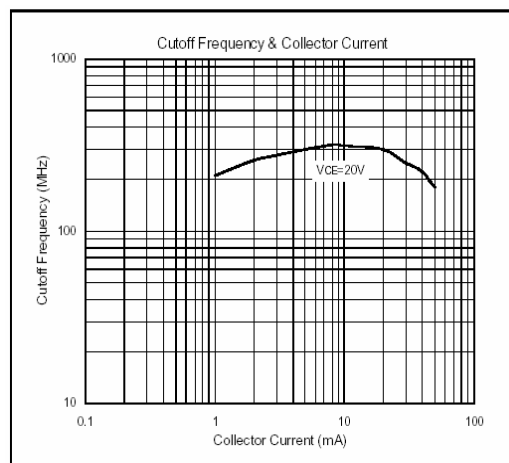
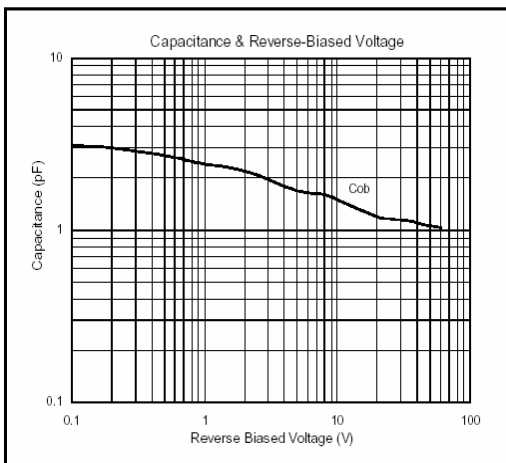
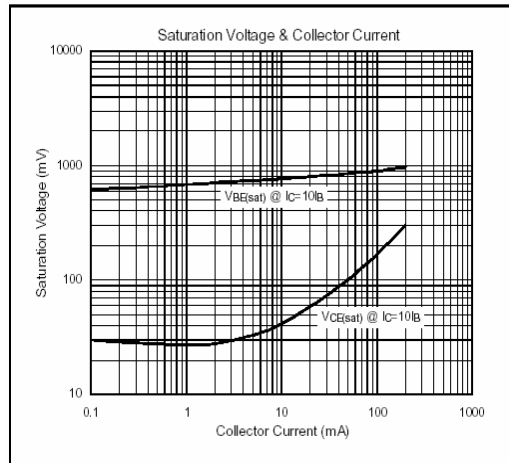
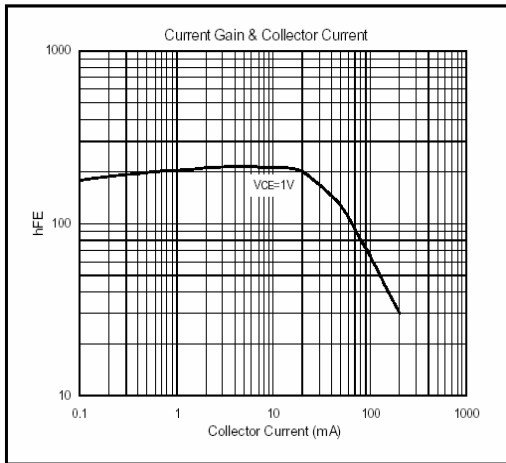
Parameter	Symbol	Ratings	Unit
Junction Temperature	T <sub>j</sub>	+150	°C
Storage Temperature	T <sub>stg</sub>	-65 ~ +150	°C
Collector to Base Voltage	V <sub>CB0</sub>	60	V
Collector to Emitter Voltage	V <sub>CEO</sub>	40	V
Emitter to Base Voltage	V <sub>EB0</sub>	6	V
Collector Current	I <sub>C</sub>	200	mA
Total Power Dissipation	PD	350	mW

### Characteristics at Ta = 25°C

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BVCBO	60	-	-	V	I <sub>C</sub> =10μA, I <sub>E</sub> =0
BVCEO	40	-	-	V	I <sub>C</sub> =1mA, I <sub>B</sub> =0
BVEBO	6	-	-	V	I <sub>E</sub> =10μA, I <sub>C</sub> =0
ICEX	-	-	50	nA	V <sub>CE</sub> =30V, V <sub>EB</sub> =3V
IEBO	-	-	50	nA	V <sub>EB</sub> =3V
VCE(sat)1	-	-	200	mV	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA
VCE(sat)2	-	-	300	mV	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA
VBE(sat)1	650	-	850	mV	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA
VBE(sat)2	-	-	950	mV	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA
hFE1	40	-	-		V <sub>CE</sub> =1V, I <sub>C</sub> =0.1mA
hFE2	70	-	-		V <sub>CE</sub> =1V, I <sub>C</sub> =1mA
hFE3	100	-	300		V <sub>CE</sub> =1V, I <sub>C</sub> =10mA
hFE4	60	-	-		V <sub>CE</sub> =1V, I <sub>C</sub> =50mA
hFE5	30	-	-		V <sub>CE</sub> =1V, I <sub>C</sub> =100mA
fT	300	-	-	MHz	V <sub>CE</sub> =20V, I <sub>E</sub> =-10mA, f=100MHz
Cob	-	-	4	pF	V <sub>CB</sub> =10V, f=100KHz
Cib	-	-	8	pF	V <sub>EB</sub> =0.5V, f=100KHz
td	-	-	35	ns	V <sub>CC</sub> =3V, V <sub>BE</sub> (OFF)=0.5V, I <sub>C</sub> =10mA, I <sub>B1</sub> =1mA
tstg	-	-	35	ns	V <sub>CC</sub> =3V, V <sub>BE</sub> (OFF)=0.5V, I <sub>C</sub> =10mA, I <sub>B1</sub> =1mA
tf	-	-	200	ns	V <sub>CC</sub> =3V, I <sub>C</sub> =10mA, I <sub>B1</sub> =-I <sub>B2</sub> =1mA
tf	-	-	50	ns	V <sub>CC</sub> =3V, I <sub>C</sub> =10mA, I <sub>B1</sub> =-I <sub>B2</sub> =1mA



## Characteristics Curve



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