GSTMMBT3906TFF

PNP General Purpose Transistor

Product Description

This device is designed as a general purpose amplifier and switch.

Features

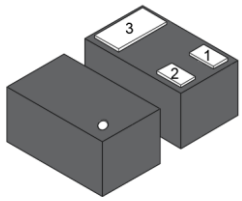
- Complementary to GSTMMBT3904
- Collector-emitter voltage V_{CE} = -40V
- Collector current I_C = -200mA
- RoHS Compliant and Halogen Free

Mechanical Data

- DFN1006-3L package design
- Epoxy meets UL 94 V-0 Flammability Rating

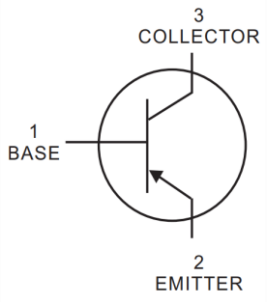
Packages & Pin Assignments

DFN1006-3L



Pin	Description
1	Base
2	Emitter
3	Collector

Equivalent Circuit



Ordering and Marking Information

Ordering Information

Part Number	Package	h_{FE} Range	Marking Code	Quantity/Reel
GSTMMBT3906TFF	DFN1006-3L	✶100-300	3N	10,000 PCS

GSTMMBT3906[1][2]

- **Product Code:** GSTMMBT3906
- **Package Code:** [1] is **TF** for DFN1006-3L
- **Green Level:** **F** for RoHS Compliant and Halogen Free

Marking Information

3N

- **Product Code:** 3N

✶ I_C=-10mA,V_{CE}=-1.0V

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{CBO}	Collector-Base Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-200	mA
P_D	Power Dissipation T_A=25°C*	100	mW
$R_{\Theta JA}$	Thermal Resistance, Junction to Ambient	1250	°C/W
T_J	Junction Temperature Range	150	°C
T_{STG}	Storage Temperature Range	-55 to +150	°C

* Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

Electrical Characteristics (T_A=25°C unless otherwise specified)

Symbol	Description	Conditions	Min	Max	Unit
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C=-1mA, I_B=0mA	-40	-	V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C=-0.01mA, I_E=0mA	-40	-	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E=-0.01mA, I_C=0mA	-5.0	-	V
I_{CEX}	Collector Cutoff Current	V_{CE}=-30V, V_{EB}=-3V	-	-50	nA
I_{EBO}	Emitter Cutoff Current	V_{EB}=-5V, I_C=0mA	-	-100	nA
h_{FE}	DC Current Gain	I_C=-0.1mA, V_{CE}=-1.0V	60	-	-
		I_C=-1mA, V_{CE}=-1.0V	80	-	-
		I_C=-10mA, V_{CE}=-1.0V	100	300	-
		I_C=-50mA, V_{CE}=-1.0V	60	-	-
		I_C=-100mA, V_{CE}=-1.0V	30	-	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C=-10mA, I_B=-1mA	-	-0.25	V
		I_C=-50mA, I_B=-5mA	-	-0.40	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C=-10mA, I_B=-1mA	-0.65	-0.85	V
		I_C=-50mA, I_B=-5mA	-	-0.95	V
f_T	Current Gain-Bandwidth Product	V_{CE}=-20V, I_C=-10mA, f=100MHz	250	-	MHz
Cob	Collector Output Capacitance	V_{CB}=-5.0V, I_E=0, f=1.0MHz	-	4.5	pF
Cib	Base Input Capacitance	V_{EB}=-0.5V, I_E=0, f=1.0MHz	-	10	pF
td	Delay Time	V_{CC}=-3V, I_C=-10mA, I_{B1}=-1mA	-	35	ns
tr	Rise Time		-	35	ns
ts	Storage Time	V_{CC}=-30V, I_C=-10mA, I_{B1}=I_{B2}=-1mA	-	225	ns
tf	Fall Time		-	75	ns

Typical Performance Characteristics (T_A=25°C unless otherwise specified)

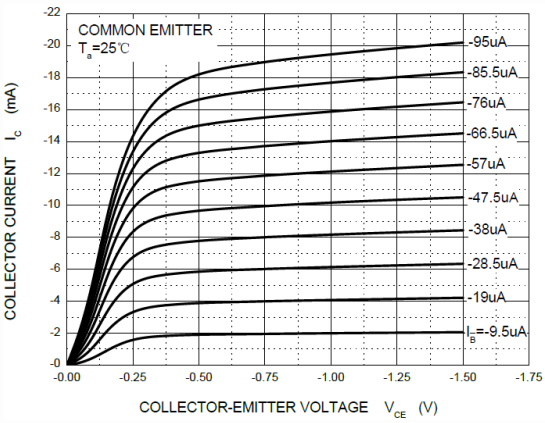


Figure 1. Static Characteristic

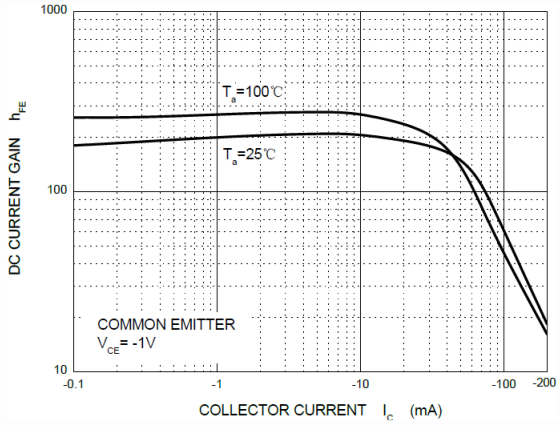


Figure 2. Typical h_{FE} vs. Collector Current

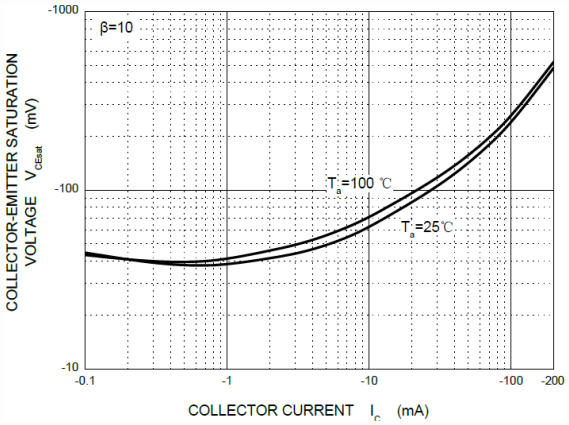


Figure 3. Typical $V_{CE\ (sat)}$ vs. Collector Current

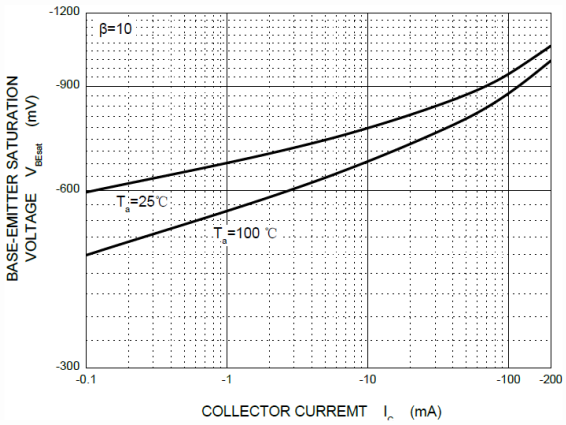


Figure 4. Typical $V_{BE\ (sat)}$ vs. Collector Current

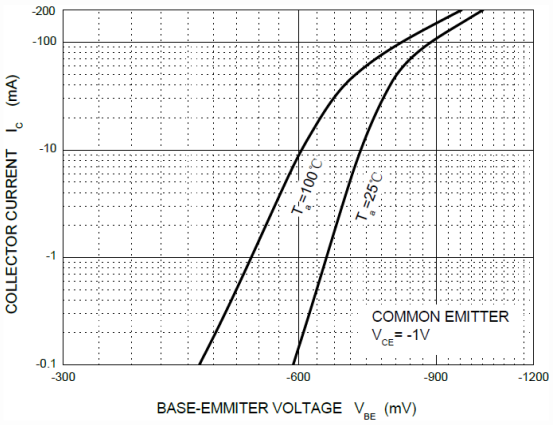


Figure 5. Typical Collector Current vs. Collector-Emitter Voltage

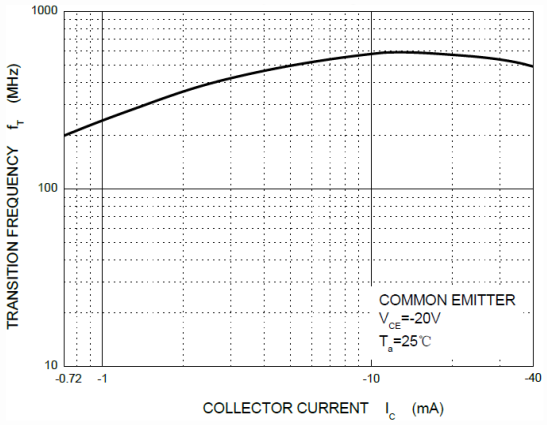


Figure 6. Transition Frequency vs. Collector Current

Typical Performance Characteristics (Continued)

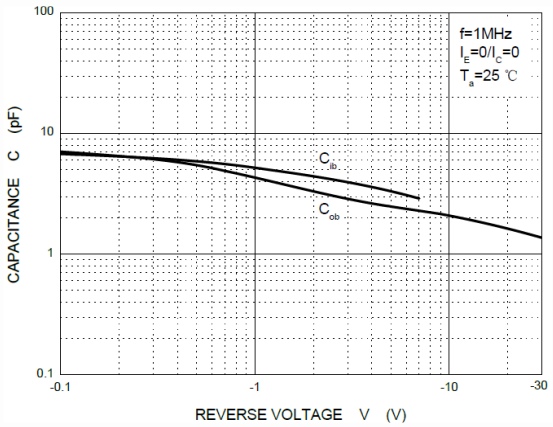


Figure 7. Typical Capacitance Characteristics

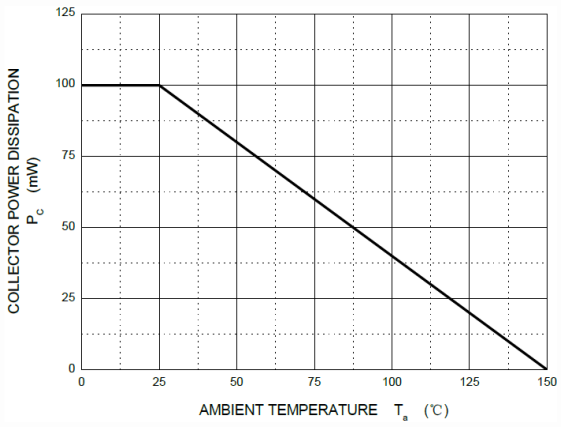
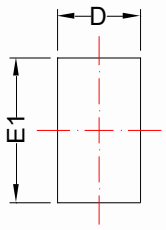
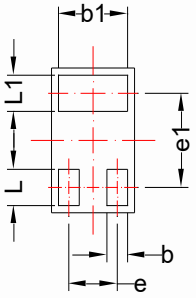


Figure 8. Power Dissipation vs. Ambient Temperature

DFN1006-3L

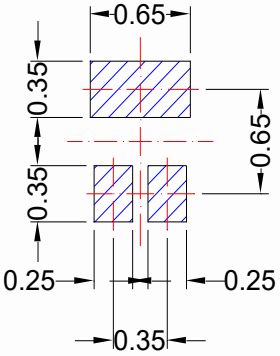
Package Dimension



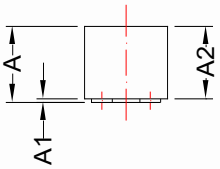


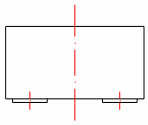
BACKSIDE VIEW

Recommended Land Pattern



Unit: mm





Dimensions

Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.45	0.55	0.018	0.022
A1	0.00	0.05	0.000	0.002
b	0.45	0.55	0.018	0.022
b1	0.1	0.20	0.004	0.008
C	0.12	0.18	0.005	0.007
D	0.95	1.05	0.037	0.041
E	0.55	0.65	0.022	0.026
E1	0.15	0.25	0.006	0.010
e	0.65 BSC		0.026 BSC	
L	0.20	0.30	0.008	0.012
L1	0.05 REF		0.002 REF	

NOTE:
Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions.

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