GSTMMBT3904AF

NPN General Purpose Transistor

Product Description

Collector-Emitter Voltage 40V
Collector Current 200mA

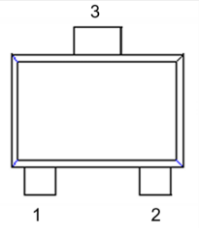
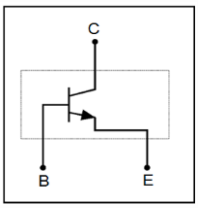
Features

- Complementary to GSTMMBT3906AF
- RoHS Compliant and Halogen Free

Mechanical Data

- Case : SOT-723 Package

Package and Pin Assignment

SOT-723	Equivalent Circuit
	

Pin	Description
1	BASE
2	EMITTER
3	COLLECTOR

Ordering and Marking Information

Ordering Information

Part Number	Package	Marking Code	Quantity/Reel
GSTMMBT3904AF	SOT-723	1N	8,000 PCS

GSTMMBT3904 1 2

- **Product Code:** GSTMMBT3904
- **Package Code:** 1 is **A** for SOT-723 Package
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information

1N

- **Product Code:** 1N

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

Symbol	Parameter	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6.0	V
$I_{C(DC)}$	Collector Current (DC)	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	Parameter	Conditions	Min	Max	Unit
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C=1.0mA, I_B=0mA	40	-	V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C=10uA, I_E=0mA	60	-	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E=10uA, I_C=0mA	6.0	-	V
I_{CBO}	Collector-Base Cutoff Current	V_{CB}=30V, I_E=0	-	100	nA
I_{CEX}	Collector-Emitter Cutoff Current	V_{CE}=30V, $V_{EB(OFF)}$=3V	-	50	nA
I_{EBO}	Emitter-Base Cutoff Current	V_{EB}=5V, I_C=0mA	-	100	nA
h_{FE}	DC Current Gain	I_C=10mA, V_{CE}=1.0V	100	300	-
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C=50mA, I_B=5.0mA		0.3	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C=50mA, I_B=5.0mA		0.95	V
f_T	Current Gain Bandwidth Product	I_C=10mA, V_{CE}=20V, f=100MHz	300	-	MHz
td	Delay Time	V_{CC}=3.0V, I_C=10mA, I_{B1}=1.0mA	-	35	ns
tr	Rise Time		-	35	ns
ts	Storage Time	V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA	-	200	ns
tf	Fall Time		-	50	ns

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

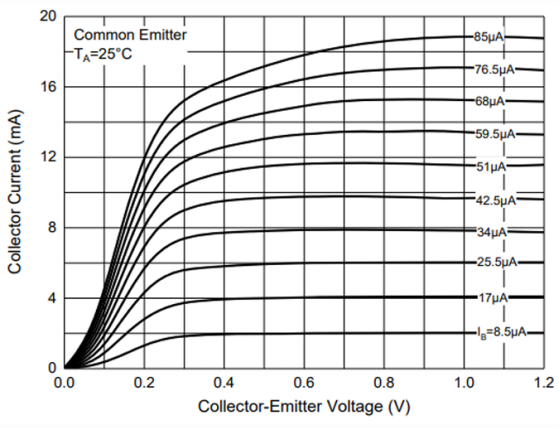


Figure 1. Static Characteristic

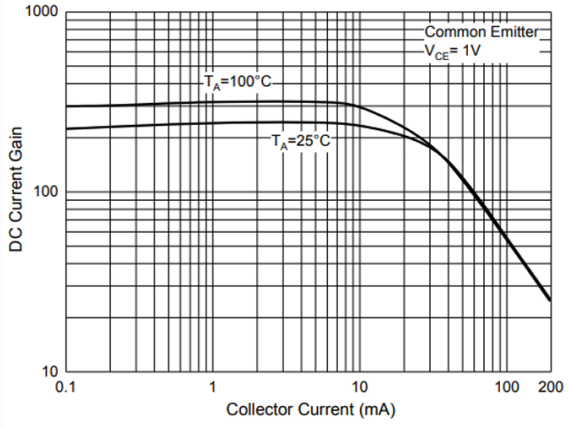


Figure 2. DC Current Gain Characteristics

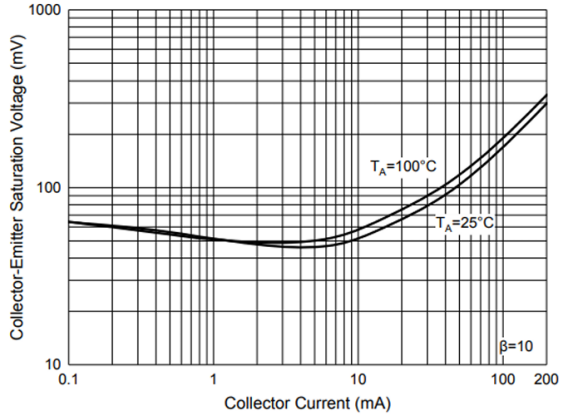


Figure 3. Collector-Emitter Saturation Voltage

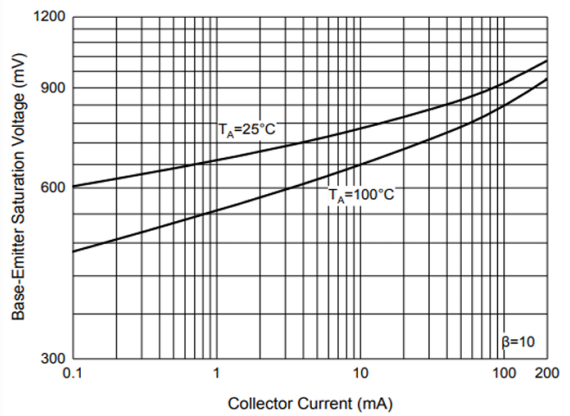


Figure 4. Base-Emitter Saturation Voltage

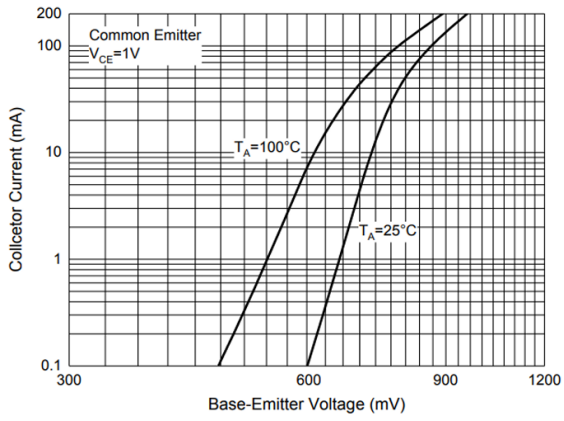


Figure 5. Base-Emitter Voltage Characteristics

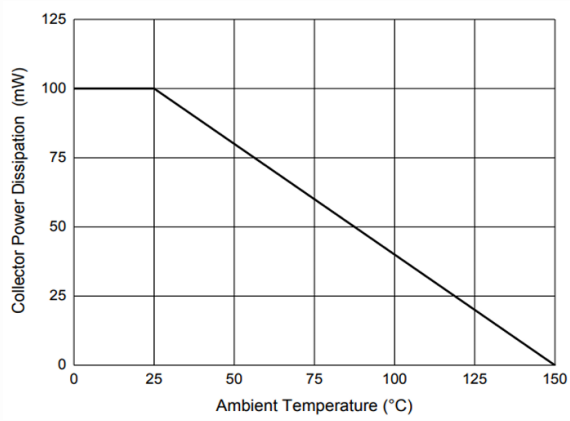
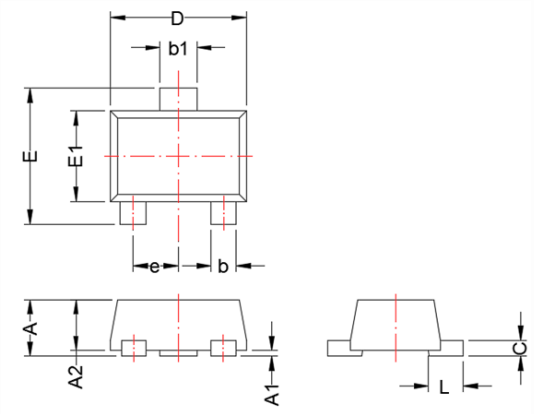


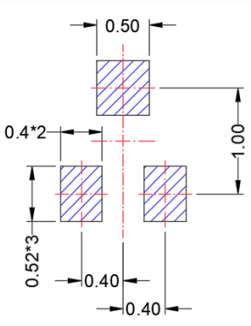
Figure 6. Power Derating Curve

SOT-723

Package Dimension



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	0.10	0.000	0.004
A2	0.45	0.55	0.018	0.022
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.08	0.20	0.003	0.008
D	1.10	1.30	0.043	0.051
E	1.10	1.30	0.043	0.051
E1	0.70	0.90	0.028	0.035
e	0.4 BSC		0.016 BSC	
L	0.2	0.42	0.008	0.017

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

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