

GSTMMBT3906WF

PNP General Purpose Transistor

Product Description

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

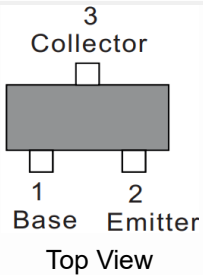
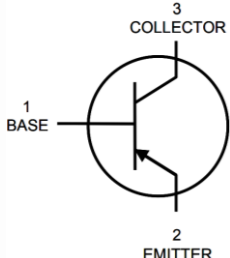
Features

- Collector-Emitter Voltage: -40V
- Collector-Base Voltage: -40V
- Collector Current-Continuous: -200mA

Mechanical Data

- SOT-323 Package
- Epoxy Meets UL 94 V-0 Flammability Rating
- RoHS Compliant and Halogen Free

Package & Pin Assignment

SOT-323		Equivalent Circuit
 <p>Top View</p>		
Pin	Description	
1	Base	
2	Emitter	
3	Collector	

Ordering and Marking Information

Ordering Information			
Part Number	Package	Marking Code	Quantity / Reel
GSTMMBT3906WF	SOT-323	K5N	3,000 PCS
GSTMMBT3906 1 F			
- Product Code: GSTMMBT3906	- Package Code: 1 W for SOT-323	- Green Level: F for RoHS Compliant and Halogen Free	
Marking Information			
K5N	- Product Code: K5N		

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

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*	200	mW
R _{θJA}	Thermal Resistance, Junction to Ambient	625	°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)CBO}	Collector-Base Breakdown Voltage	I _C =-10μA, I _E =0	-40		V
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	I _C =-1mA, I _B =0	-40		V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	I _E =-10μA, I _C =0	-5		V
I _{BL}	Base Cutoff Current	V _{CE} =-30V, V _{EB(off)} =-3V		-50	nA
I _{CEx}	Collector Cut-Off Current	V _{CE} =-30V, V _{EB(off)} =-3V		-50	nA
h _{FE}	DC Current Gain	V _{CE} =-1V, I _C =-100μA	60		
		V _{CE} =-1V, I _C =-1mA	80		
		V _{CE} =-1V, I _C =-10mA	100	300	
		V _{CE} =-1V, I _C =-50mA	60		
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C =-10mA, I _B =-1mA		-0.2	V
		I _C =-50mA, I _B =-5mA		-0.3	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C =-10mA, I _B =-1mA		-0.85	V
		I _C =-50mA, I _B =-5mA		-0.95	V
f _T	Transition Frequency	V _{CE} =-20V, I _C =-10mA, f=100MHz	250		MHz
C _{obo}	Collector Output Capacitance	V _{CB} =-5V, I _E =0, f=1MHz		4.5	pF
C _{ibo}	Input Capacitance	V _{BE} =-0.5V, I _C =0, f=1.0MHz		10	pF

Static Characteristics

Symbol	Description	Conditions	Min	Max	Unit
t _d	Delay time	V _{CC} =-3V, V _{BE(off)} =-0.5V, I _C =-10mA, I _{B1} =-1mA		35	nS
t _r	Delay time			35	nS
t _s	Storage time	V _{CC} =3V, I _C =-10mA, I _{B1} =I _{B2} =-1mA		225	nS
t _f	Fall time			75	nS

Typical Performance Characteristics

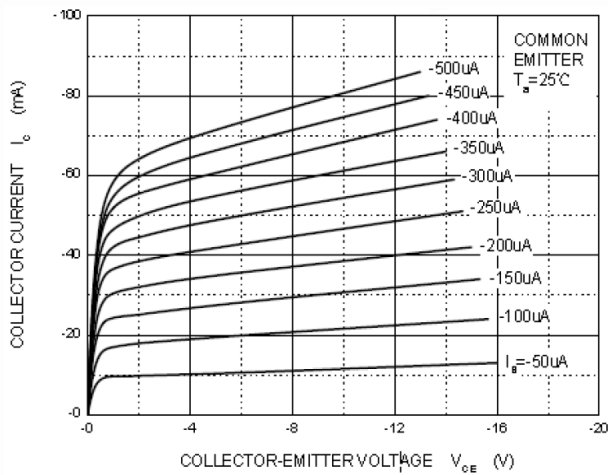


Figure 1. Static Characteristic

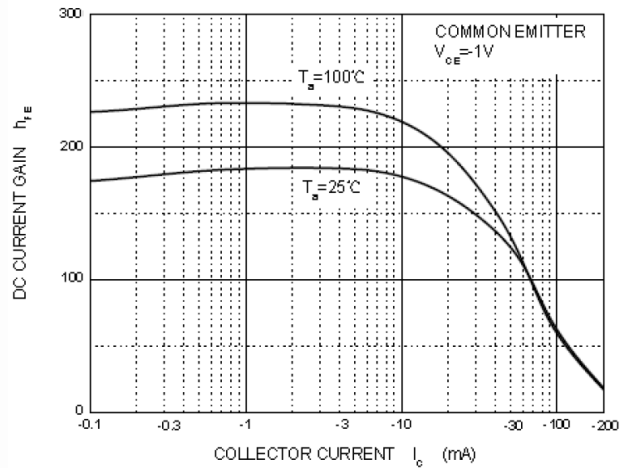


Figure 2. Typical h_{FE} vs. Collector Current

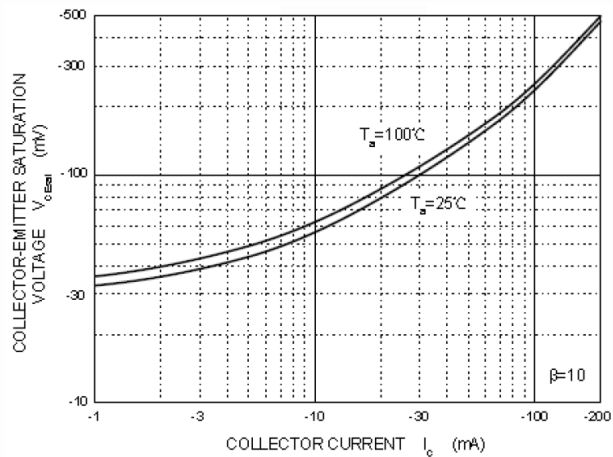


Figure 3. Collector-Emitter Saturation Voltage vs. Collector Current

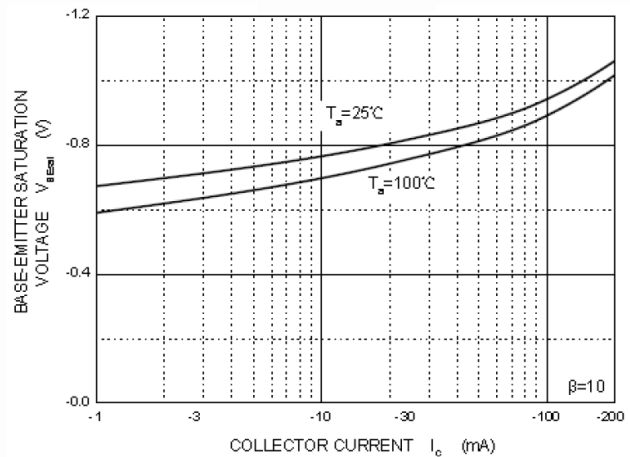


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

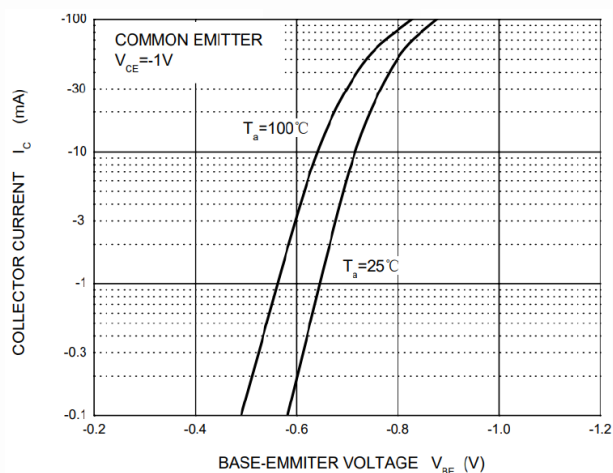


Figure 5. Base-Emitter ON Voltage vs. Collector Current

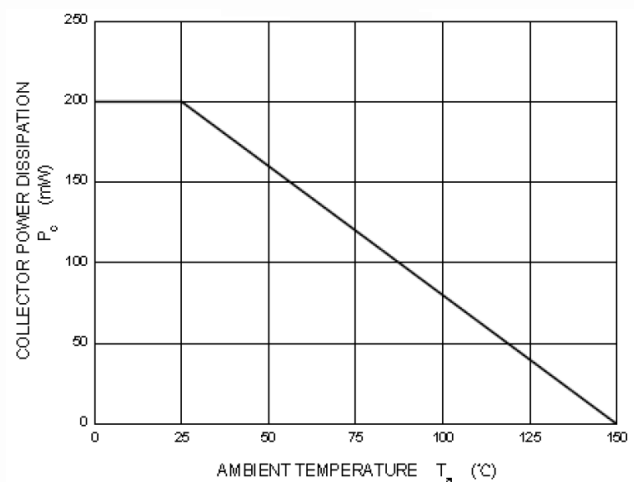
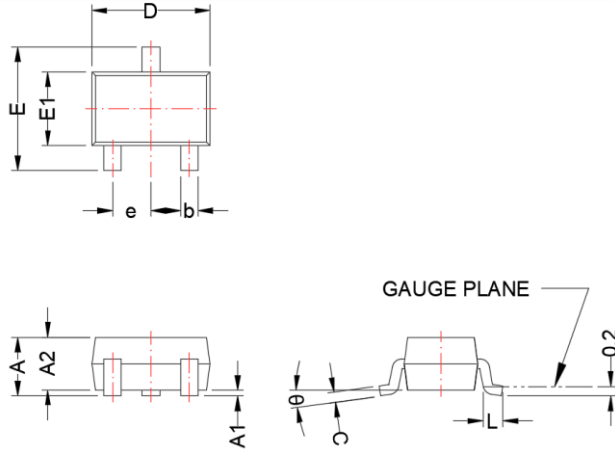


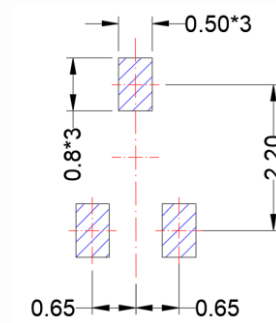
Figure 6. Power Dissipation vs. Ambient Temperature

SOT-323

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.80	1.10	0.031	0.043
A1	0.00	0.10	0.000	0.004
A2	0.80	1.00	0.031	0.039
b	0.20	0.40	0.008	0.016
c	0.08	0.26	0.003	0.010
D	1.80	2.20	0.071	0.087
E	1.80	2.40	0.071	0.094
E1	1.15	1.35	0.045	0.053
e	0.65 BSC		0.026 BSC	
L	0.26	0.45	0.010	0.018
θ	0°	8°	0°	8°





NOTE:



Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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