

GSTMMBT4401JZF

NPN General Purpose Transistor

Product Description

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

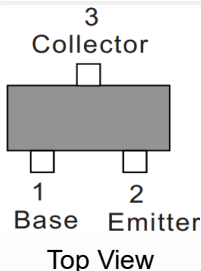
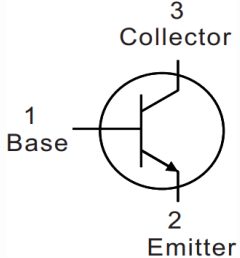
Features

- Complementary to GSTMMBT4403
- Collector-emitter voltage $V_{CE} = 40V$
- Collector current $I_C = 600mA$
- RoHS Compliant and Halogen Free

Mechanical Data

- SOT-23 package design
- Epoxy meets UL 94 V-0 Flammability Rating

Packages & Pin Assignments

SOT-23		Equivalent Circuit
 Top View		
Pin	Description	
1	Base	
2	Emitter	
3	Collector	

Ordering and Marking Information

Ordering Information				
Part Number	Package	h _{FE} Range	Marking Code	Quantity/Reel
GSTMMBT4401JZF	SOT-23	*100-300	2X	3,000 PCS
GSTMMBT4401  				
- Product Code: GSTMMBT4401	- Package Code:  is JZ for SOT-23		- Green Level: F for RoHS Compliant and Halogen Free	
Marking Information				
2X				
- Product Code: 2X				

* $I_C=150mA, V_{CE}=1.0V$

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	60	V
V _{EBO}	Emitter-Base Voltage	6.0	V
I _{C(DC)}	Collector Current (DC)	600	mA
P _D	Power Dissipation T _A =25°C*	300	mW
R _{ΘJA}	Thermal Resistance, Junction to Ambient	417	°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 =0.1mA, I _E =0mA	60	-	V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	I _E =0.1mA, I _C =0mA	6.0	-	V
I _{CEX}	Collector Cutoff Current	V _{CE} =35V, V _{EB} =0.4V	-	100	nA
I _{BL}	Base Cutoff Current	V _{CE} =35V, V _{EB} =0.4V	-	100	nA
h _{FE}	DC Current Gain	I _C =0.1mA, V _{CE} =1.0V	20	-	-
		I _C =1mA, V _{CE} =1.0V	40	-	-
		I _C =10mA, V _{CE} =1.0V	80	-	-
		I _C =150mA, V _{CE} =1.0V	100	300	-
		I _C =500mA, V _{CE} =2.0V	40	-	-
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C =150mA, I _B =15mA	-	0.40	V
		I _C =500mA, I _B =50mA	-	0.75	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C =150mA, I _B =15mA	-	0.95	V
		I _C =500mA, I _B =50mA	-	1.2	V
f _T	Current Gain - Bandwidth Product	V _{CE} =10V, I _C =20mA, f=100MHz	250	-	MHz
C _{cb}	Collector-Base Capacitance	V _{CB} =5.0V, I _E =0, f=1.0MHz	-	6.5	pF
C _{eb}	Emitter-Base Capacitance	V _{EB} =0.5V, I _C =0, f=1.0MHz	-	30	pF
t _d	Delay Time	V _{CC} = 30V, I _C = 150mA, I _{B1} = 15 mA	-	15	ns
t _r	Rise Time	V _{CC} = 30V, I _C = 150mA, I _{B1} = 15 mA	-	20	ns
t _s	Storage Time	V _{CC} = 30V, I _C = 150mA, I _{B1} = I _{B2} = 15 mA	-	225	ns
t _f	Fall Time	V _{CC} = 30V, I _C = 150mA, I _{B1} = I _{B2} = 15 mA	-	30	ns

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

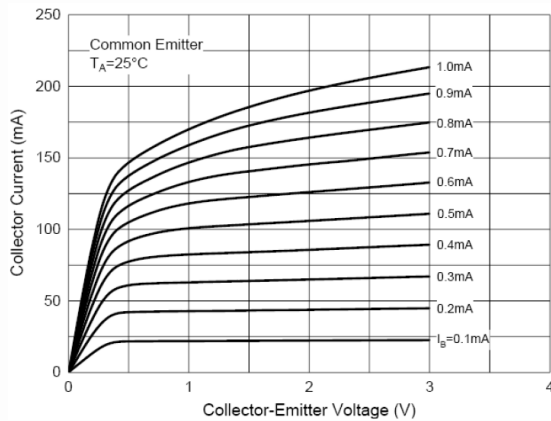


Figure 1. Static Characteristic

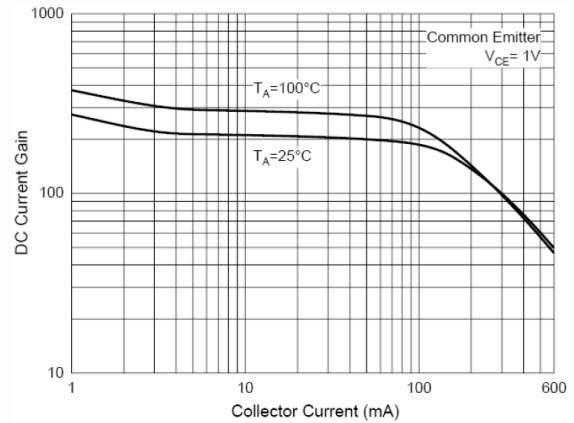


Figure 2. Typical h_{FE} vs. Collector Current

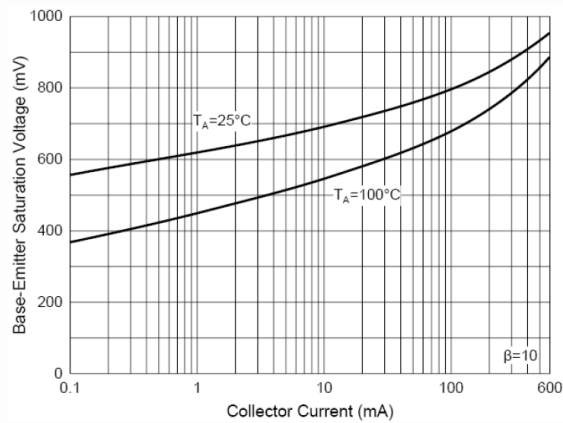


Figure 3. Typical $V_{CE(sat)}$ vs. Collector Current

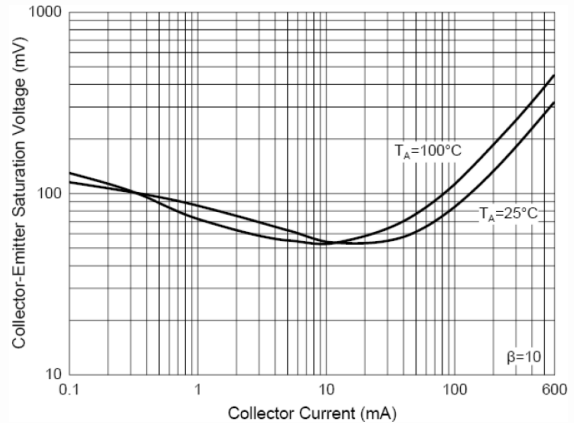


Figure 4. Typical $V_{BE(sat)}$ vs. Collector Current

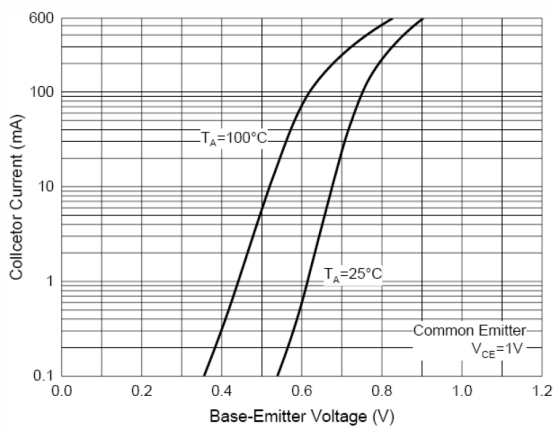


Figure 5. Typical Collector Current vs. Collector-Emitter Voltage

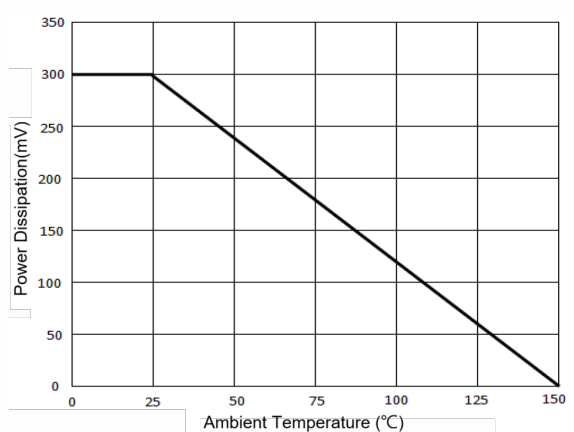
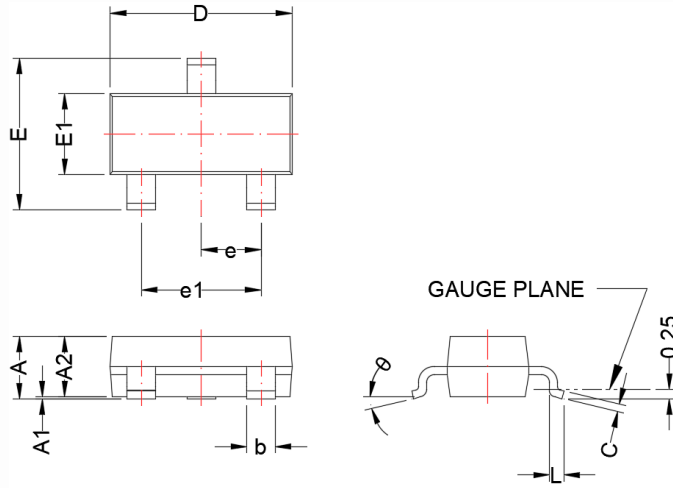


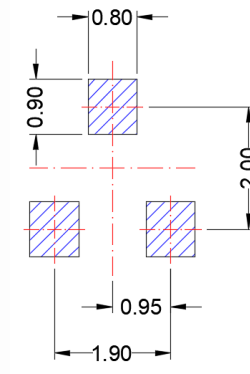
Figure 6. Transition Frequency vs. Collector Current

SOT-23

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.75	1.17	0.030	0.046
A1	0.01	0.15	0.000	0.006
A2	0.70	1.02	0.028	0.040
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

NOTE:

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

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