

GSTMMBT2222AWF

NPN General Purpose Transistor

Product Description

Collector-Emitter Voltage 40V
Collector Current 600mA

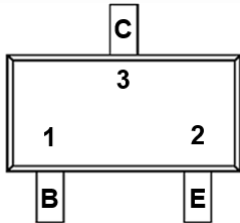
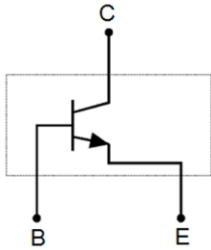
Features

- Ideal for Low-Power Amplification and Switching
- RoHS Compliant and Halogen Free

Mechanical Data

- Case : SOT-323 Package
- Epoxy meets UL 94 V-0 Flammability Rating

Package and Pin Assignment

SOT-323	Equivalent Circuit								
									
<table><tr><th>Pin</th><th>Description</th></tr><tr><td>1</td><td>BASE</td></tr><tr><td>2</td><td>EMITTER</td></tr><tr><td>3</td><td>COLLECTOR</td></tr></table>	Pin	Description	1	BASE	2	EMITTER	3	COLLECTOR	
Pin	Description								
1	BASE								
2	EMITTER								
3	COLLECTOR								

Ordering and Marking Information

Ordering Information			
Part Number	Package	Marking Code	Quantity/Reel
GSTMMBT2222AWF	SOT-323	K3P	3,000 PCS
GSTMMBT2222AWF			
- Product Code: GSTMMBT2222AW		- Green Level: F for RoHS Compliant and Halogen Free	
Marking Information			
K3P			
- Product Code: K3P			

GSTMMBT2222AWF

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

Symbol	Parameter	Rating	Unit
V _{CB0}	Collector-Base Voltage	75	V
V _{CEO}	Collector-Emitter Voltage	40	V
V _{EBO}	Emitter-Base Voltage	6.0	V
I _C	Collector Current	600	mA
P _C	Collector Power Dissipation	200	mW
R _{ΘJA}	Thermal Resistance From Junction To Ambient	625	°C/W
T _J	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-55 to +150	°C

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

Symbol	Description	Conditions	Min	Max	Unit
V _{CEO}	Collector-Emitter Breakdown Voltage	I _C = 10mA, I _B = 0	40		V
V _{CB0}	Collector-Base Breakdown Voltage	I _C = 10μA, I _E = 0	75		V
V _{EBO}	Emitter-Base Breakdown Voltage	I _E = 10μA, I _C = 0	6		V
I _{CB0}	Collector Cutoff Current	V _{CB} = 70V, I _E = 0		100	nA
I _{CEO}	Collector Cutoff Current	V _{CE} = 35V, I _B = 0		100	nA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 3V, I _B = 0		100	nA
h _{FE}	DC Current Gain	I _C = 0.1mA, V _{CE} = 10V	35		
		I _C = 1.0mA, V _{CE} = 10V	50		
		I _C = 10mA, V _{CE} = 10V	75		
		I _C = 150mA, V _{CE} = 10V	100	300	
		I _C = 500mA, V _{CE} = 10V	40		
V _{CE(SAT)}	Collector-Emitter Saturation Voltage	I _C = 150mA, I _B = 15mA		0.3	V
		I _C = 500mA, I _B = 50mA		1.0	V
V _{BE(SAT)}	Base-Emitter Saturation Voltage	I _C = 150mA, I _B = 15mA	0.6	1.2	V
		I _C = 500mA, I _B = 50mA		2.0	V
f _T	Current Gain-Bandwidth Product	V _{CE} = 20V, I _C = 20mA, f = 100MHz	300		MHZ
Cob	Output Capacitance	V _{CB} = 10V, I _E = 0, f = 1MHz		8	pF

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

Switching Characteristic					
Symbol	Description	Conditions	Min	Max	Unit
t _d	Delay Time	V _{CC} = 30V, I _C = 150mA, V _{BE} = 0.5V, I _{B1} = 15mA		10	ns
t _r	Rise Time	V _{CC} = 30V, I _C = 150mA, V _{BE} = 0.5V, I _{B1} = 15mA		25	ns
t _s	Storage Time	V _{CC} = 30V, I _C = 150mA, I _{B1} = I _{B2} = 15mA		225	ns
t _f	Fall Time	V _{CC} = 30V, I _C = 150mA, I _{B1} = I _{B2} = 15mA		60	ns

Typical Characteristics

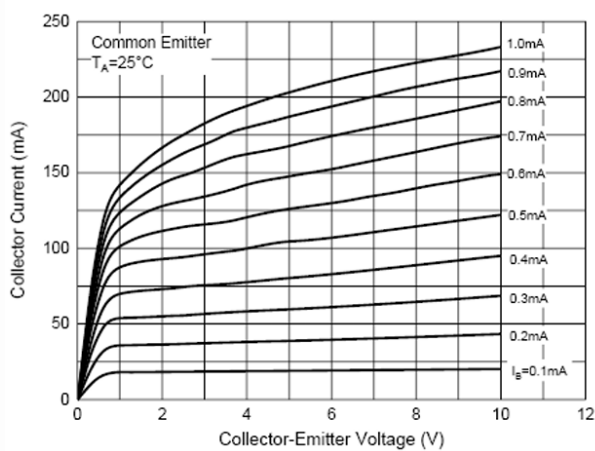


Figure 1. Static Characteristic

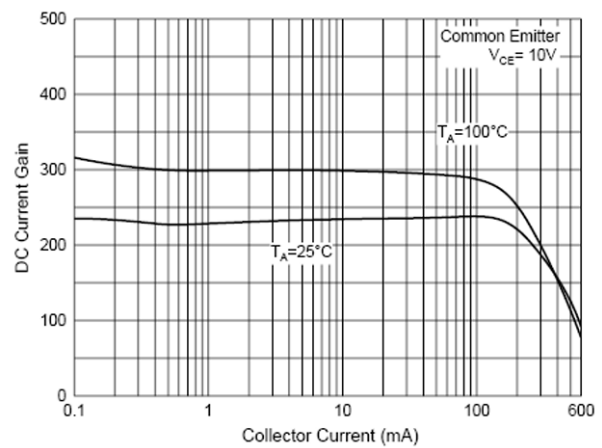


Figure 2. DC Current Gain Characteristics

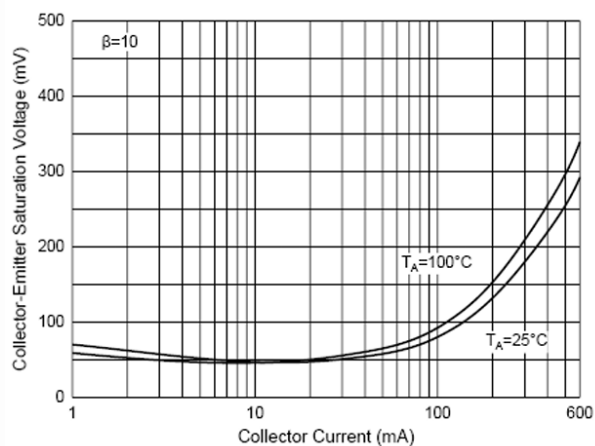


Figure 3. Collector-Emitter Saturation Voltage

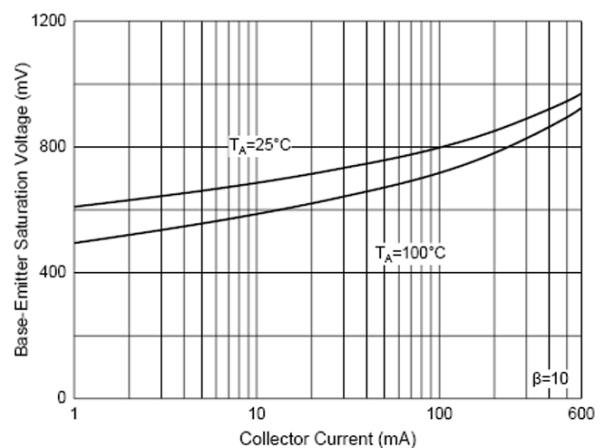


Figure 4. Base-Emitter Saturation Voltage

Typical Characteristics (Continue)

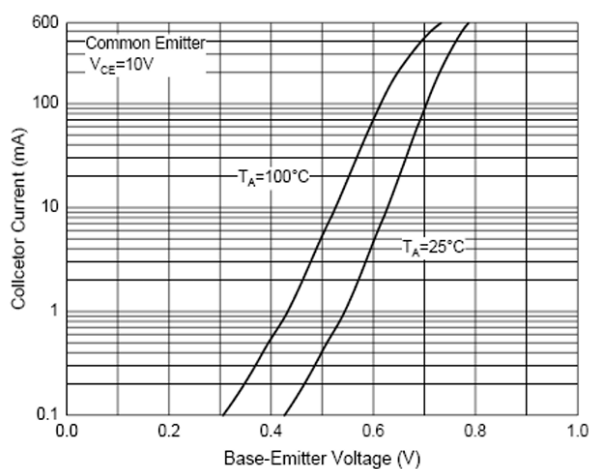
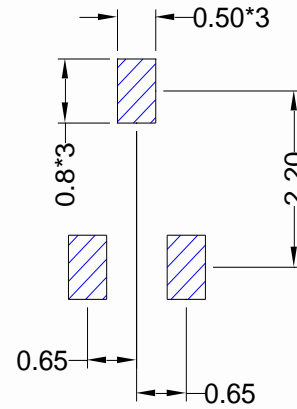
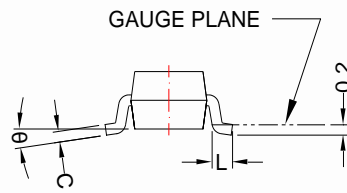
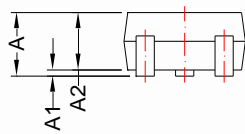
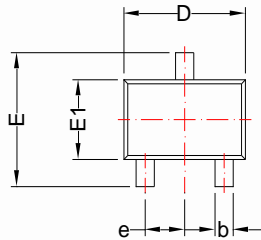


Figure 5. Base-Emitter Voltage Characteristics

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 and Tie Bar extrusions.

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