

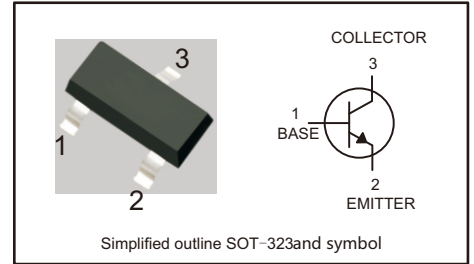


**MMBT2222A**  
**NPN TRANSISTOR**  
**FEATURES**

- Epitaxial planar die construction

**PINNING**

PIN	DESCRIPTION
1	BASE
2	EMITTER
3	COLLECTOR



**MAXIMUM RATINGS (Ta=25°C unless otherwise noted)**

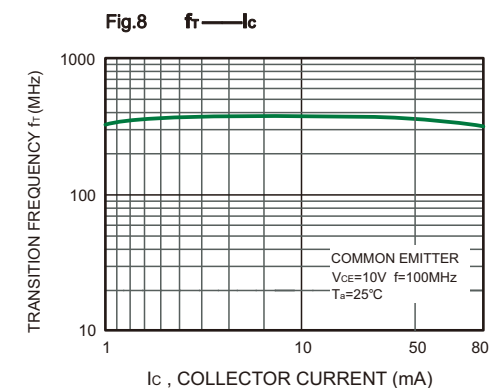
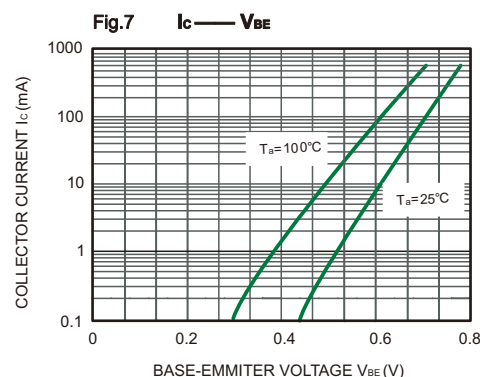
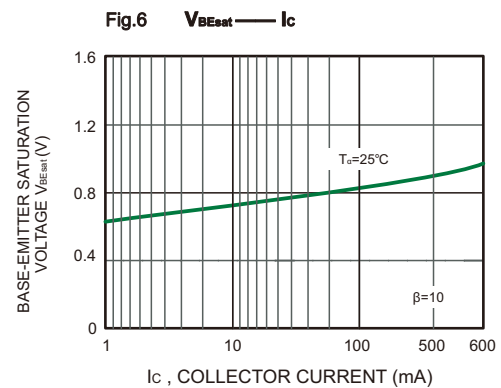
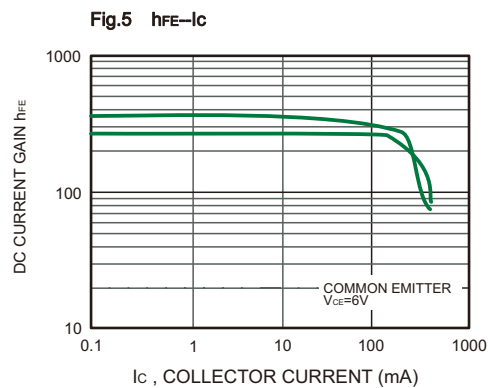
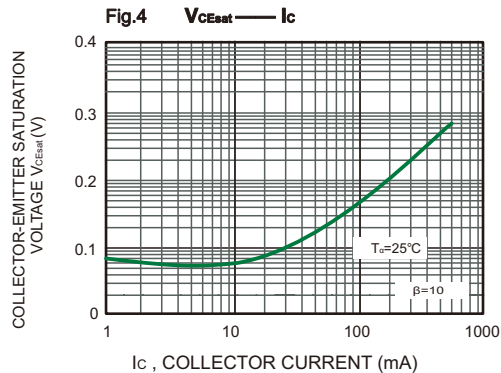
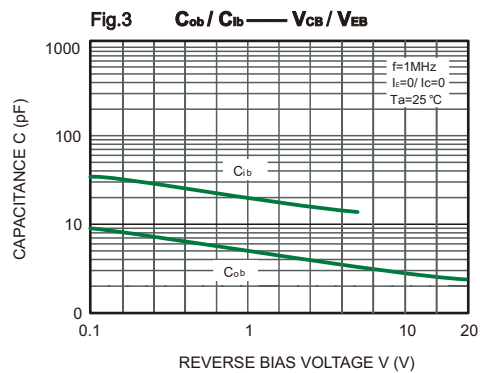
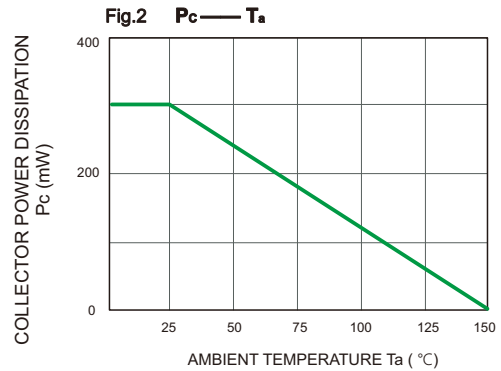
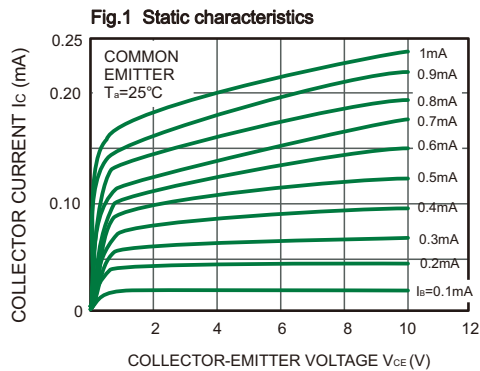
Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	75	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current — Continuous	$I_C$	600	mA
Collector Power Dissipation	$P_C$	300	mW
Thermal Resistance From Junction To Ambient	$R_{thJA}$	417	°C/W
Operation Junction and Storage Temperature Range	$T_J, T_{stg}$	-55~+150	°C

**ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$			0.01	$\mu A$
Collector cut-off current	$I_{CEX}$	$V_{CE} = 30V, V_{BE(off)} = 3V$			0.01	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 3V, I_C = 0$			0.1	$\mu A$
DC current gain	$h_{FE1}$	$V_{CE} = 10V, I_C = 150mA$	100		300	
	$h_{FE2}$	$V_{CE} = 10V, I_C = 0.1mA$	40			
	$h_{FE3}$	$V_{CE} = 10V, I_C = 500mA$	42			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500mA, I_B = 50mA$			1.0	V
		$I_C = 150mA, I_B = 15mA$			0.3	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 500mA, I_B = 50mA$			2.0	V
		$I_C = 150mA, I_B = 15mA$			1.2	
Transition frequency	$f_T$	$V_{CE} = 20V, I_C = 20mA, f = 100MHz$	300			MHz
Delay time	$t_d$	$V_{CC} = 30V, V_{BE(off)} = -0.5V, I_C = 150mA, I_{B1} = 15mA$			10	ns
Rise time	$t_r$				25	ns
Storage time	$t_s$	$V_{CC} = 30V, I_C = 150mA, I_{B1} = -I_{B2} = 15mA$			225	ns
Fall time	$t_f$				60	ns

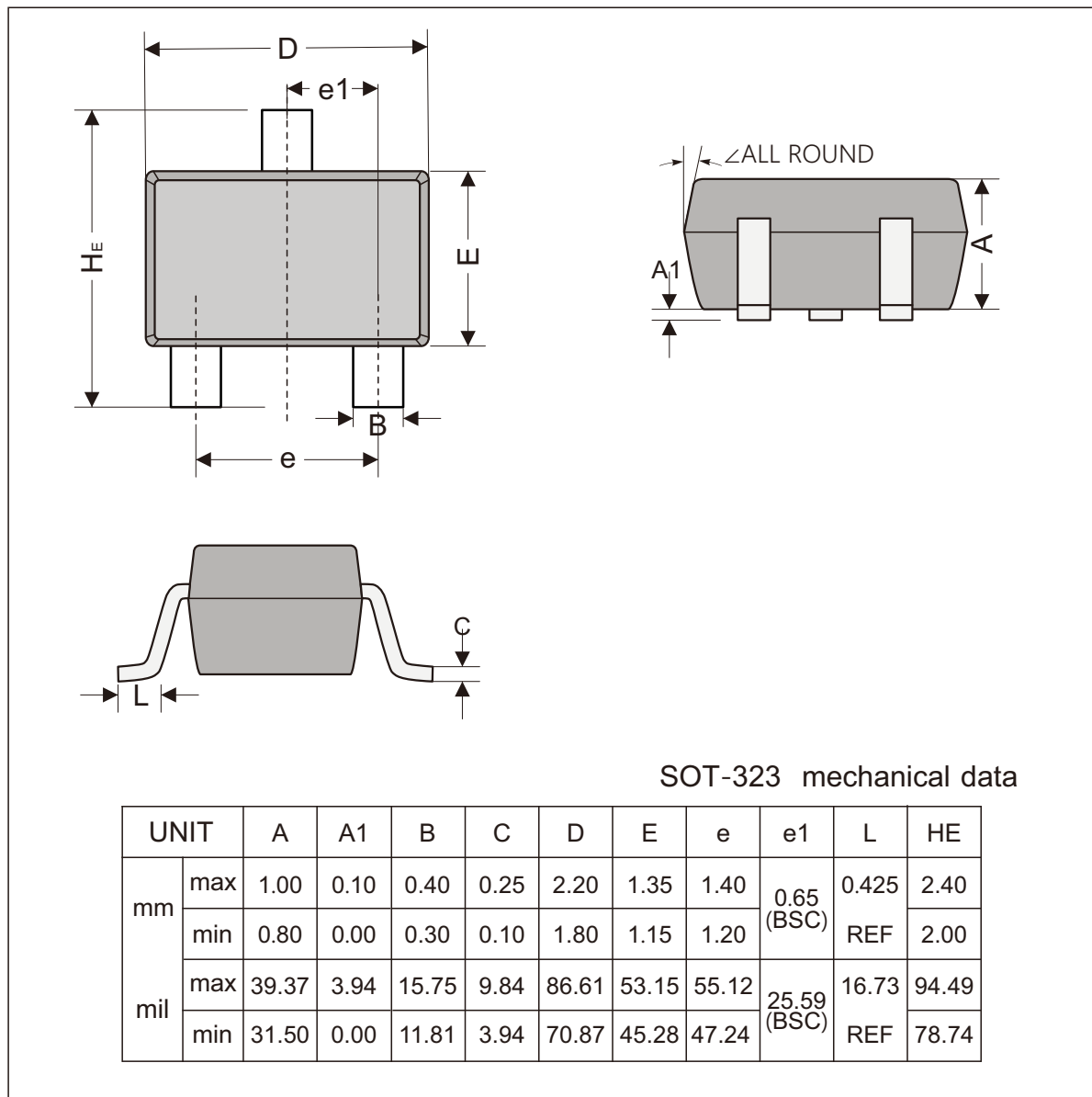


### TYPICAL CHARACTERISTICS

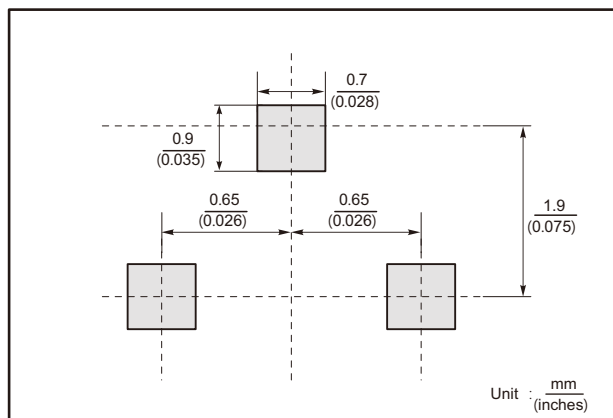




### SOT-323 Package Outline Dimensions



#### The recommended mounting pad size

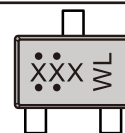


#### Marking

Type number	MMBT2222AWG
Marking code	1P

#### MARKING DIAGRAM

1. "XXX" : Print content
2. "W L" : Date Code  
"W" : Week code  
"L" : Batch code
3. ". ." : The position and quantity of "." vary, representing 10 different years.





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