

## SOT-23 Plastic-Encapsulate Transistors

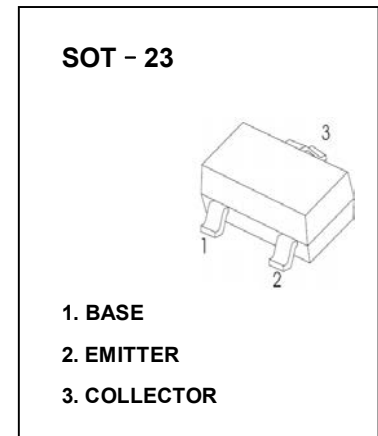
### FEATURES

- For Switching and Amplifier Applications
- Complementary Type PNP Transistor MMBTA56

### MARKING: 1GM

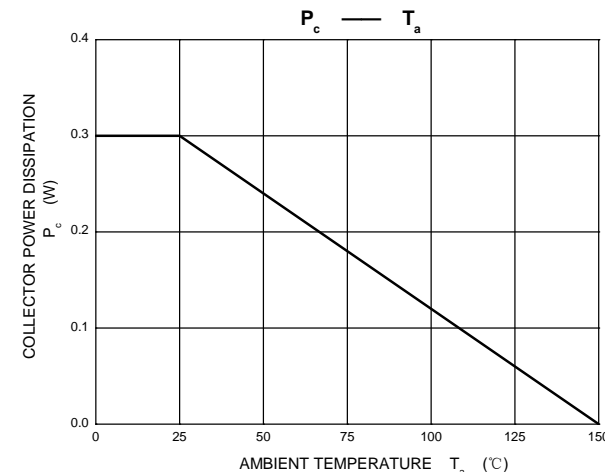
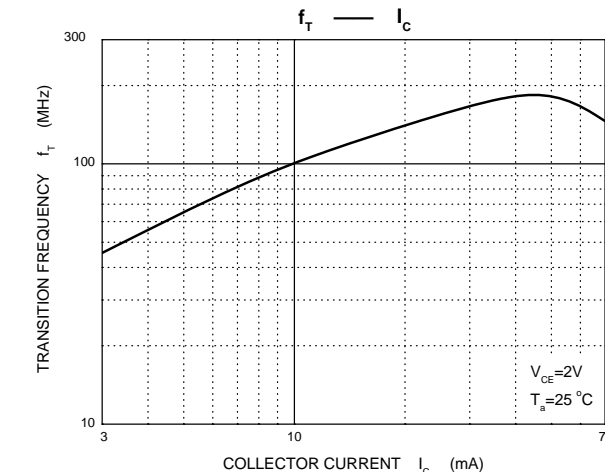
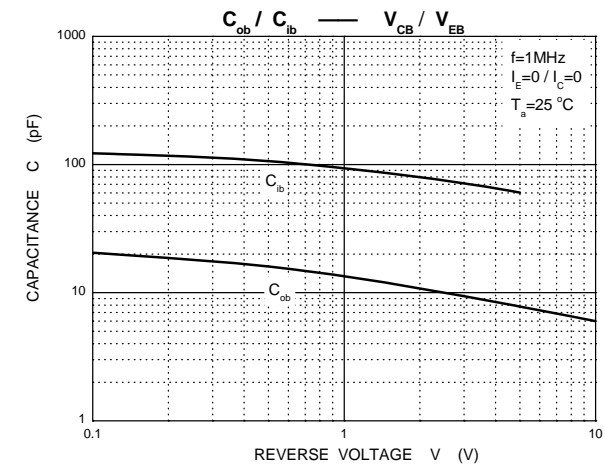
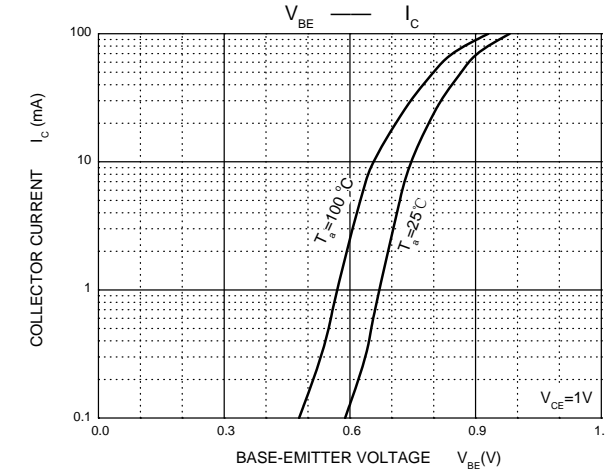
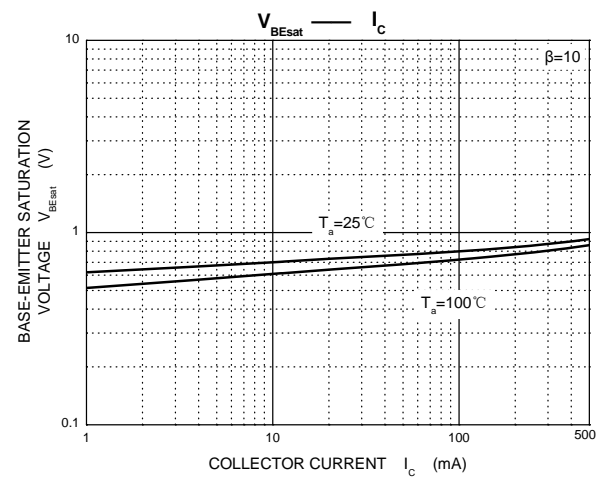
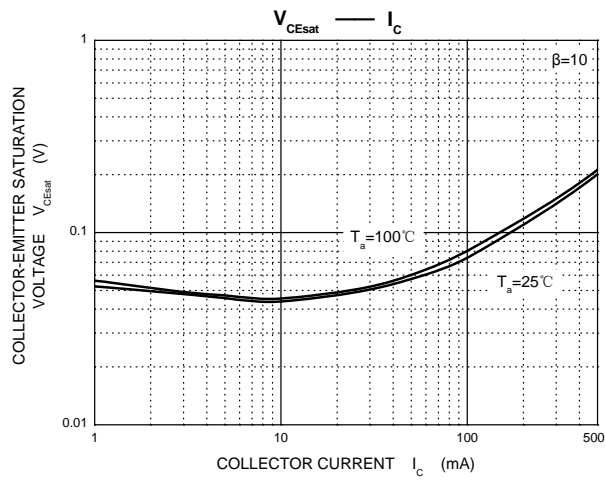
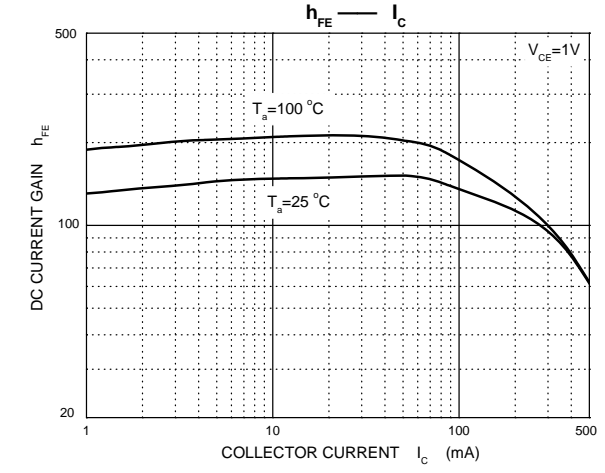
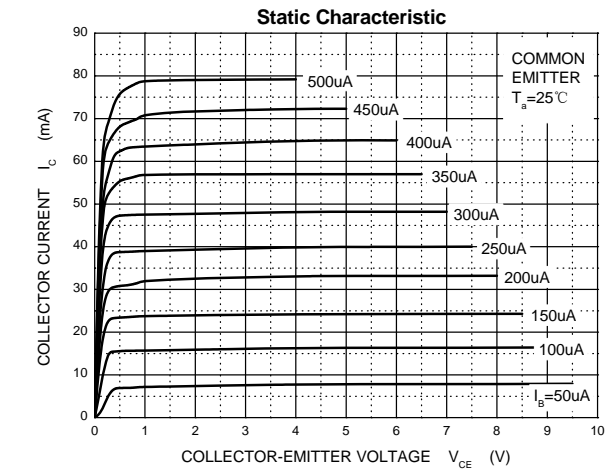
### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

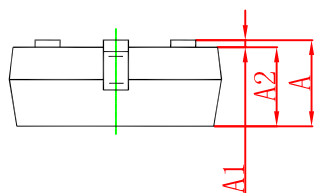
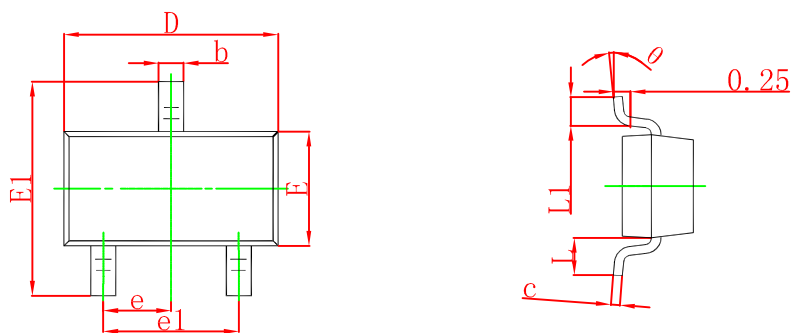
Symbol	Parameter	Value	Unit
$V_{\text{CBO}}$	Collector-Base Voltage	80	V
$V_{\text{CEO}}$	Collector-Emitter Voltage	80	V
$V_{\text{EBO}}$	Emitter-Base Voltage	4	V
$I_{\text{C}}$	Collector Current	500	mA
$P_{\text{C}}$	Collector Power Dissipation	300	mW
$R_{\theta\text{JA}}$	Thermal Resistance From Junction To Ambient	416	$^{\circ}\text{C}/\text{W}$
$T_{\text{J}}, T_{\text{stg}}$	Operation Junction and Storage Temperature Range	-55~+150	$^{\circ}\text{C}$



### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

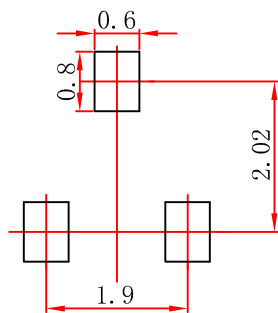
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	$I_{\text{C}}=0.1\text{mA}, I_{\text{E}}=0$	80			V
Collector-emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	$I_{\text{C}}=1\text{mA}, I_{\text{B}}=0$	80			V
Emitter-base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	$I_{\text{E}}=0.1\text{mA}, I_{\text{C}}=0$	4			V
Collector cut-off current	$I_{\text{CBO}}$	$V_{\text{CB}}=80\text{V}, I_{\text{E}}=0$			0.1	$\mu\text{A}$
Collector cut-off current	$I_{\text{CEO}}$	$V_{\text{CE}}=60\text{V}, I_{\text{B}}=0$			1	$\mu\text{A}$
Emitter cut-off current	$I_{\text{EBO}}$	$V_{\text{EB}}=3\text{V}, I_{\text{C}}=0$			0.1	$\mu\text{A}$
DC current gain	$h_{\text{FE}(1)}$	$V_{\text{CE}}=1\text{V}, I_{\text{C}}=10\text{mA}$	100		400	
	$h_{\text{FE}(2)}$	$V_{\text{CE}}=1\text{V}, I_{\text{C}}=100\text{mA}$	100			
Collector-emitter saturation voltage	$V_{\text{CE}(\text{sat})}$	$I_{\text{C}}=100\text{mA}, I_{\text{B}}=10\text{mA}$			0.25	V
Base-emitter saturation voltage	$V_{\text{BE}(\text{sat})}$	$I_{\text{C}}=100\text{mA}, I_{\text{B}}=10\text{mA}$			1.2	V
Transition frequency	$f_{\text{T}}$	$V_{\text{CE}}=2\text{V}, I_{\text{C}}=10\text{mA}, f=100\text{MHz}$	100			MHz





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	8°

### SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.