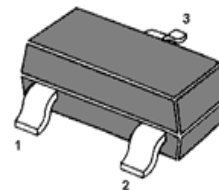


# MMBTSA812

## PNP Silicon Epitaxial Planar Transistor

for audio frequency, general purpose amplifier.

The transistor is subdivided into four groups O, Y, G and L, according to its DC current gain.



1.Base 2.Emitter 3.Collector  
SOT-23 Plastic Package

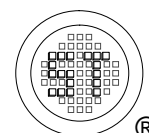
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CB0}$	60	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Emitter Base Voltage	$-V_{EBO}$	6	V
Collector Current	$-I_C$	150	mA
Power Dissipation	$P_{tot}$	300	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{Stg}$	- 55 to +150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient <sup>1)</sup>	$R_{\theta JA}$	417	$^\circ\text{C/W}$

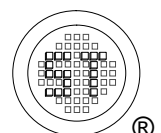
<sup>1)</sup> Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



# MMBTS812

## Characteristics at $T_a = 25^\circ\text{C}$

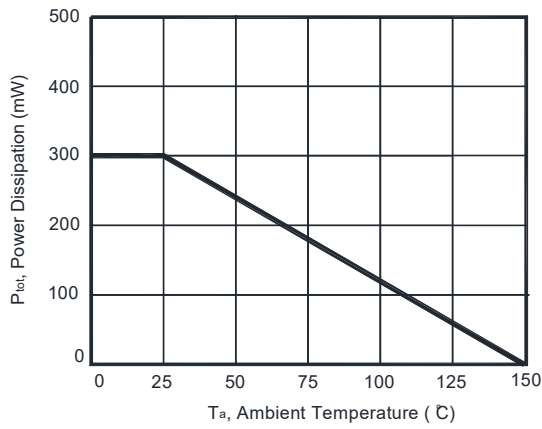
Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $-V_{CE} = 6\text{ V}$ , $-I_C = 1\text{ mA}$ Current Gain Group	O	$h_{FE}$	90	-	180	-
	Y	$h_{FE}$	135	-	270	-
	G	$h_{FE}$	200	-	400	-
	L	$h_{FE}$	300	-	600	-
Collector Cutoff Current at $-V_{CB} = 60\text{ V}$	$-I_{CBO}$	-	-	0.1	$\mu\text{A}$	
Emitter Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	-	0.1	$\mu\text{A}$	
Collector Saturation Voltage at $-I_C = 100\text{ mA}$ , $-I_B = 10\text{ mA}$	$-V_{CE(sat)}$	-	-	0.3	V	
Base Emitter Voltage at $-V_{CE} = 6\text{ V}$ , $-I_C = 1\text{ mA}$	$-V_{BE}$	0.58	-	0.68	V	
Gain Bandwidth Product at $-V_{CE} = 6\text{ V}$ , $-I_C = 10\text{ mA}$	$f_T$	-	180	-	MHz	
Output Capacitance at $-V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{OB}$	-	4.5	-	pF	



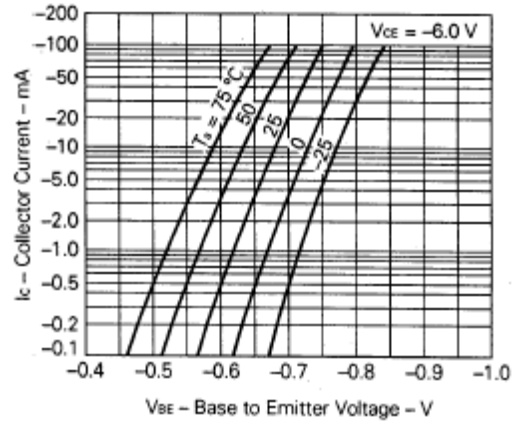
# MMBTSA812

## Electrical Characteristics Curves

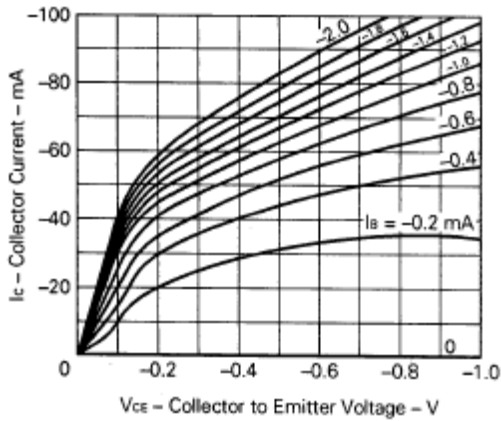
Power Dissipation vs. Temperature



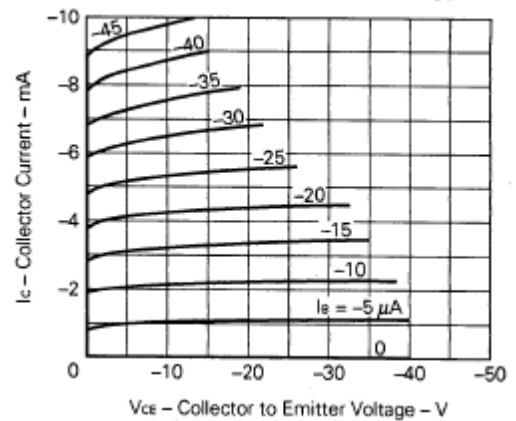
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



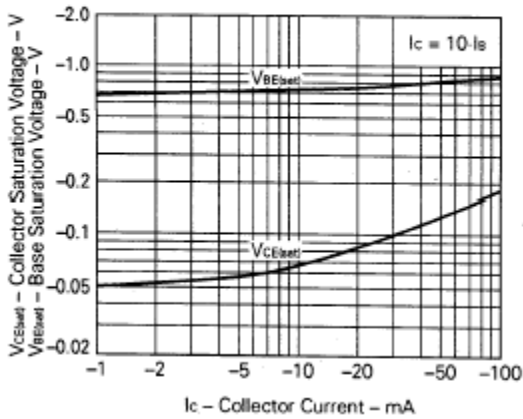
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



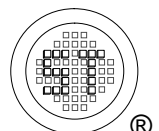
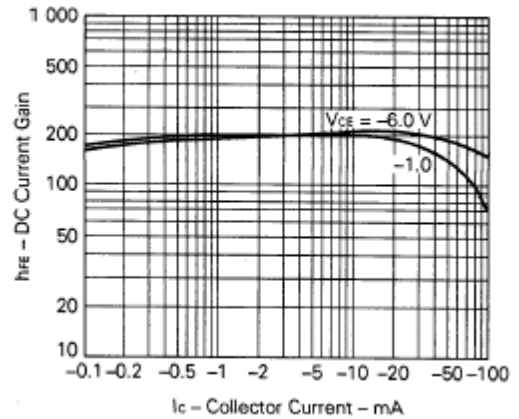
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT

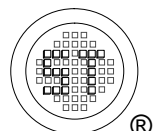
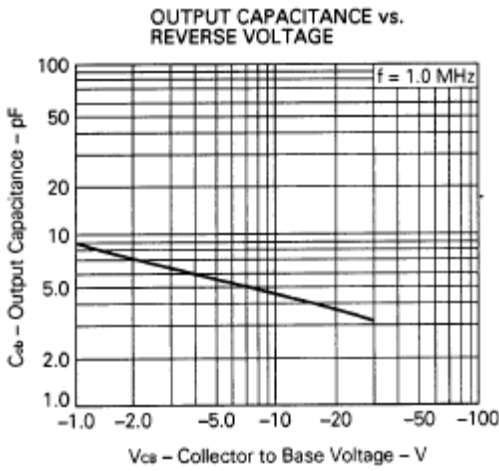
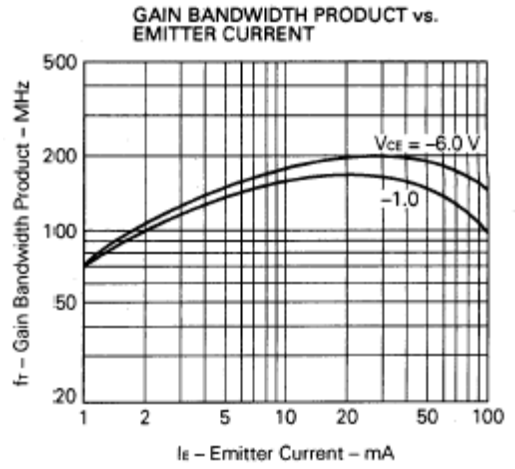
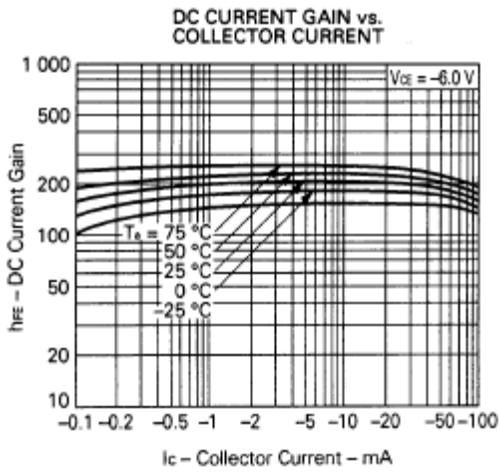


DC CURRENT GAIN vs. COLLECTOR CURRENT



# MMBTA812

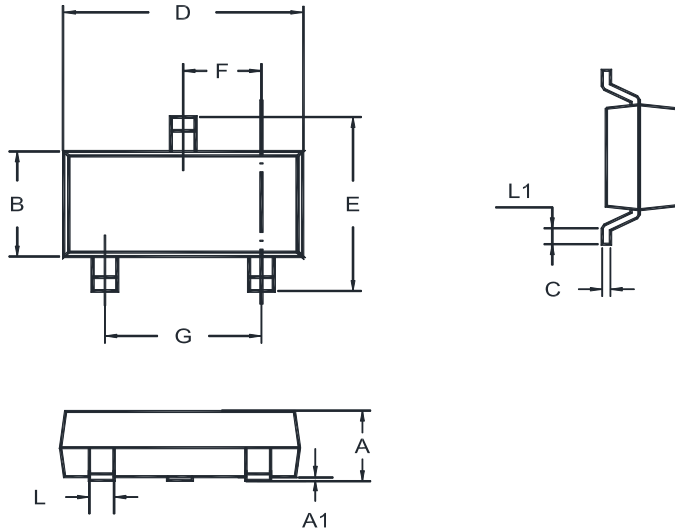
## Electrical Characteristics Curves



# MMBTSA812

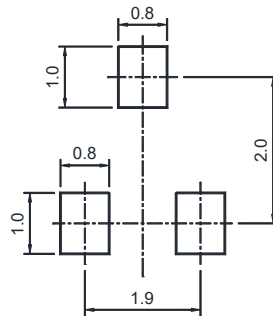
## Package Outline (Dimensions in mm)

SOT-23



Unit	A	A1	B	C	D	E	F	G	L	L1
mm	1.20	0.100	1.40	0.19	3.04	2.6	1.02	2.04	0.51	0.2
	0.89	0.013	1.20	0.08	2.80	2.2	0.89	1.78	0.37	MIN

## Recommended Soldering Footprint



## Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-23	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

## Marking information

"\*\*" = Part No.

MMBTSA812Y:3E

MMBTSA812G:3F

MMBTSA812L:3G

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial

