

## Features

- Low  $C_{ob}$
- Complementary PNP available
- SOT-723 plastic-encapsulate package
- RoHS compliant



SOT-723  
1. BASE  
2. EMITTER  
3. COLLECTOR

## Applications

- Ideal for General Purpose Amplification and Switching

## Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	7	V
Collector Current -Continuous	$I_C$	150	mA
Collector Dissipation	$P_C$	100	mW
Junction Temperature	$T_J$	-55 to +150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to +150	$^\circ\text{C}$

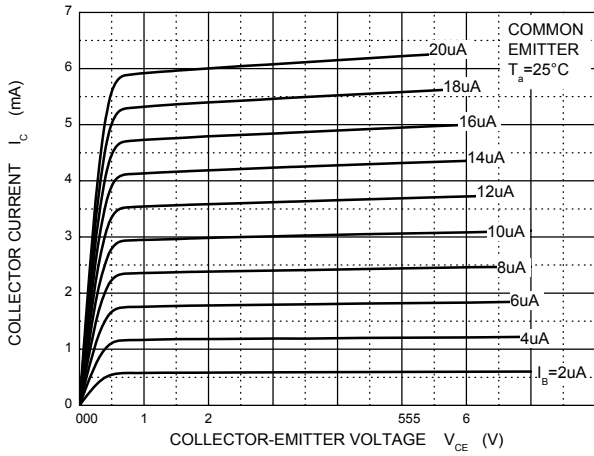
## Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=50\mu\text{A}, I_E=0$	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	50	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=50\mu\text{A}, I_C=0$	7	-	-	V
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0$	-	-	0.1	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=7\text{V}, I_C=0$	-	-	0.1	$\mu\text{A}$
DC Current Transfer Ratio	$h_{FE}$	$V_{CE}=6\text{V}, I_C=1\text{mA}$	120	-	560	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$	-	-	0.4	V
Transition Frequency	$f_T$	$V_{CE}=12\text{V}, I_C=2\text{mA}, f=100\text{MHz}$	-	180	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB}=12\text{V}, I_E=0, f=1\text{MHz}$	-	-	3.5	pF

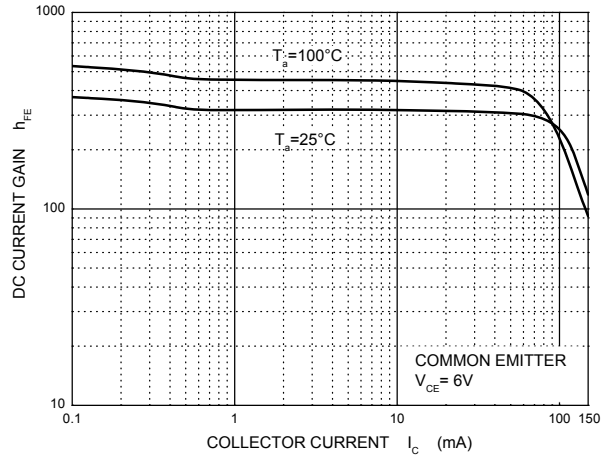
## Classification of $h_{FE}$

Rank	Q	R	S
Range	120 to 270	180 to 390	270 to 560
Marking	BQ	BR	BS

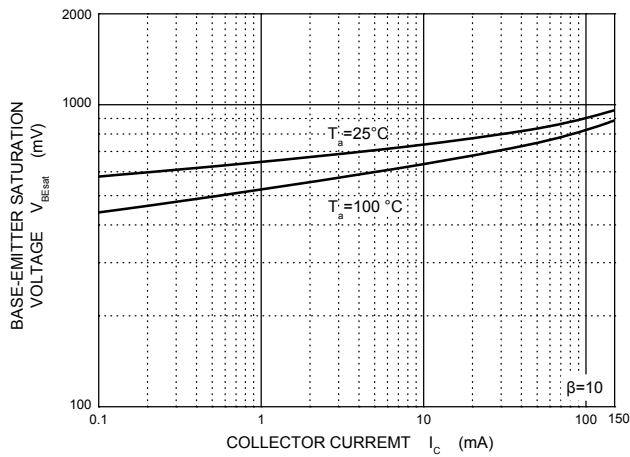
**Typical Characteristic Curves**



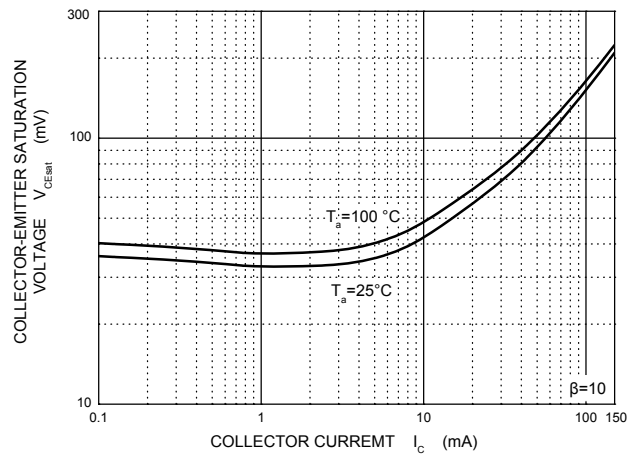
**Static Characteristic**



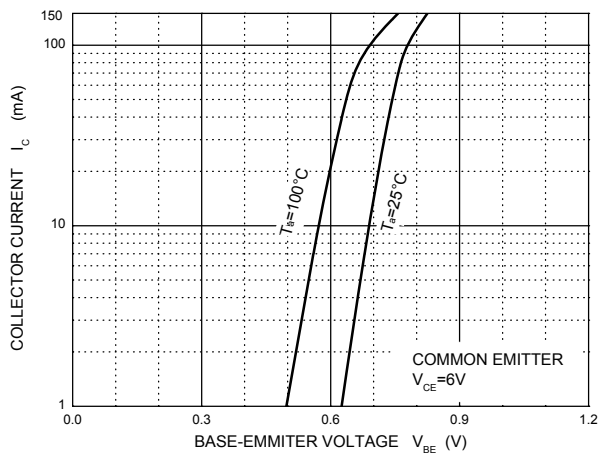
$h_{FE} - I_c$



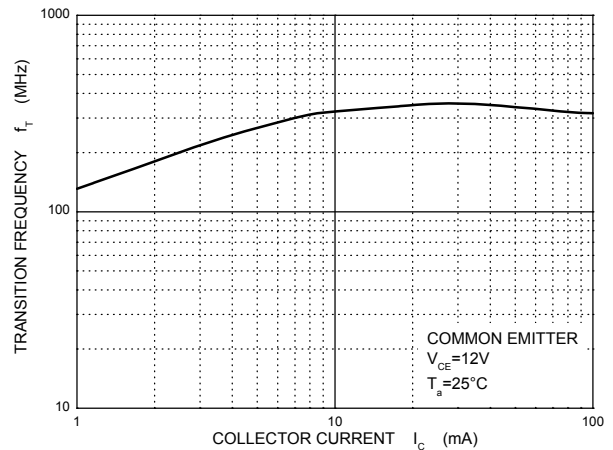
$V_{BEsat} - I_c$



$V_{CEsat} - I_c$

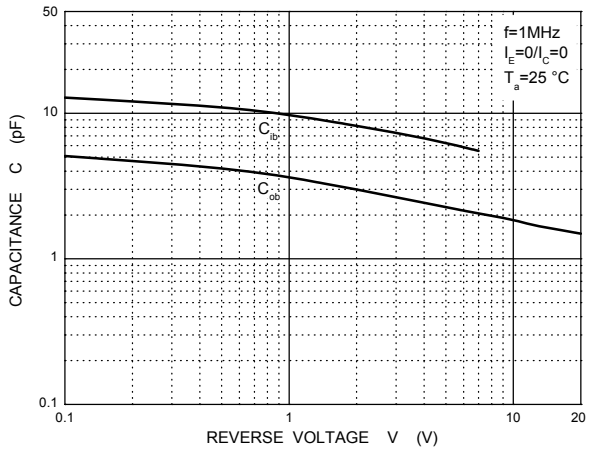


$I_c - V_{BE}$

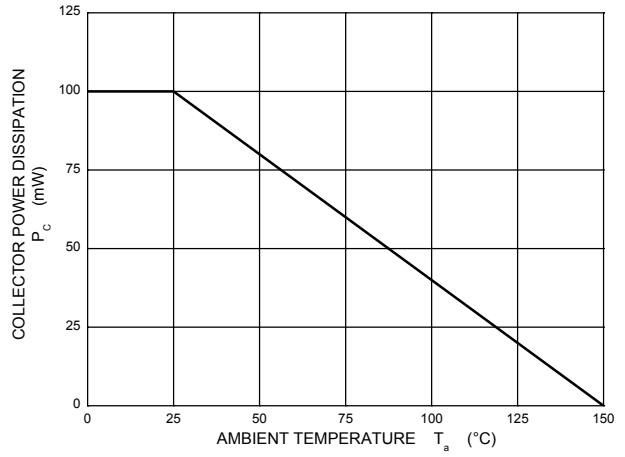


$f_T - I_c$

**Typical Characteristic Curves**

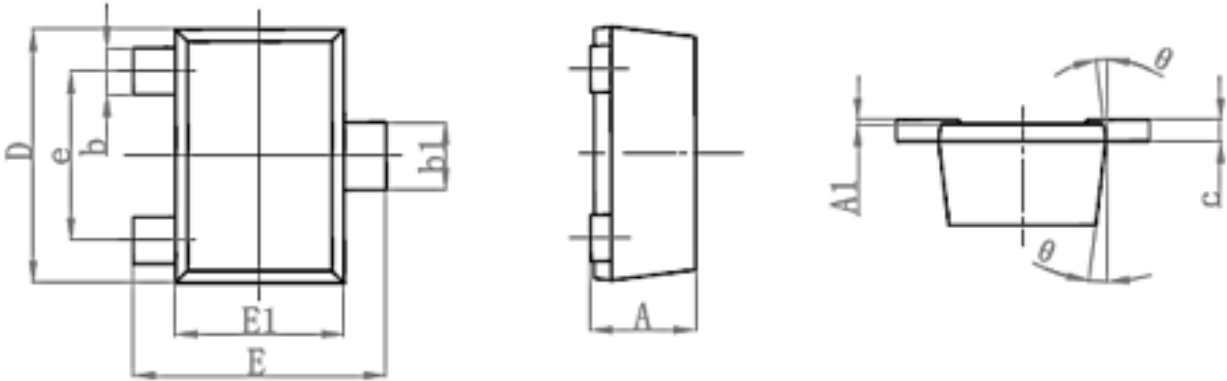


$C_{ob}/C_{ib}$  —  $V_{CB}/V_{EB}$



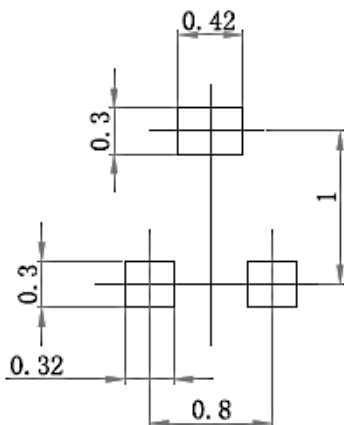
$P_c$  —  $T_a$

**Package Outline Dimensions SOT-723**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A		0.500		0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c		0.150		0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
K	7° REF.		7° REF.	

**Suggested Pad Layout**



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