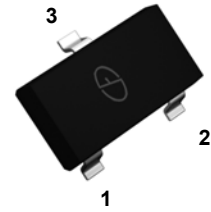


## Feature

- Epitaxial planar die construction
- SOT-323 small outline plastic package
- Ideally for automatic insertion



**SOT-323**

1. BASE
2. EMITTER
- 3.. COLLECTOR

## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-45	V
Emitter -Base Voltage	V <sub>EBO</sub>	-5.0	V
Collector Current-Continuous	I <sub>C</sub>	-500	mA
Collector Power Dissipation	P <sub>C</sub>	200	mW
Thermal Resistance From Junction To Ambient	R <sub>θJA</sub>	625	°C/W
Junction Temperature	T <sub>J</sub>	-55 To +150	°C
Storage Temperature	T <sub>STG</sub>	-55 To +150	°C

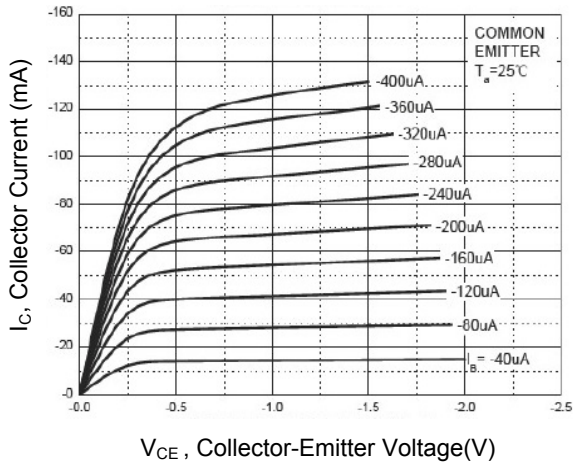
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-50	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-10\text{mA}, I_B=0$	-45	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-1\mu\text{A}, I_C=0$	-5	-	V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-20\text{V}, I_E=0$	-	-100	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$	-	-100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-1\text{V}, I_C=-100\text{mA}$	100	600	
	$h_{FE(2)}$	$V_{CE}=-1\text{V}, I_C=-500\text{mA}$	40	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-0.70	V
Base-Emitter Voltage	$V_{BE(on)}$	$V_{CE}=-1\text{V}, I_C=-500\text{mA}$	-	-1.20	V
Transition Frequency	$f_t$	$V_{CE}=-5\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	80	-	MHZ
Collector Output Capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, I_E=0, f=100\text{MHz}$	-	10	pF

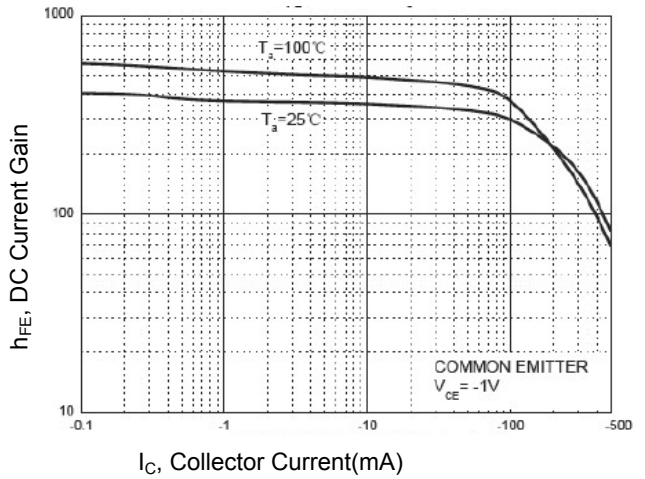
**$h_{FE(1)}$  Classifications**

Rank	GSBC807-16W	GSBC807-25W	GSBC807-40W
Range	100 - 250	160 - 400	250 - 600
Marking	5A	5B	5C

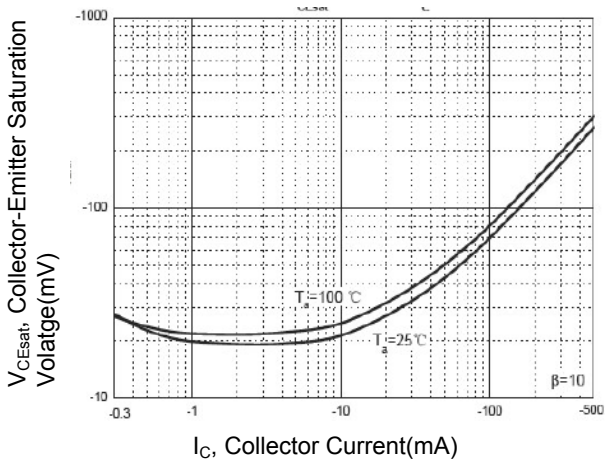
**Typical Characteristic Curves**



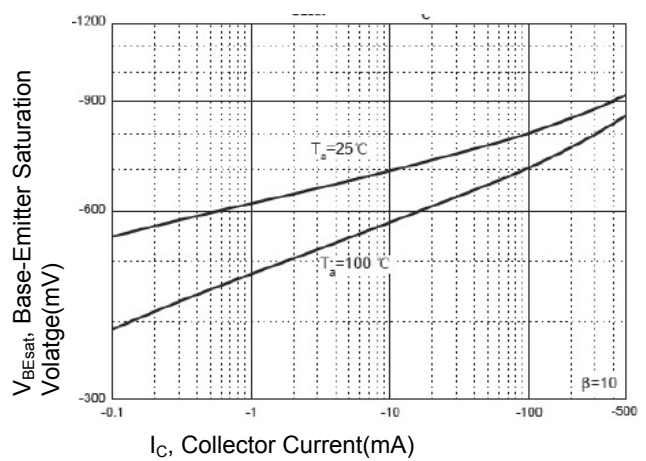
**Figure 1. Static Characteristic**



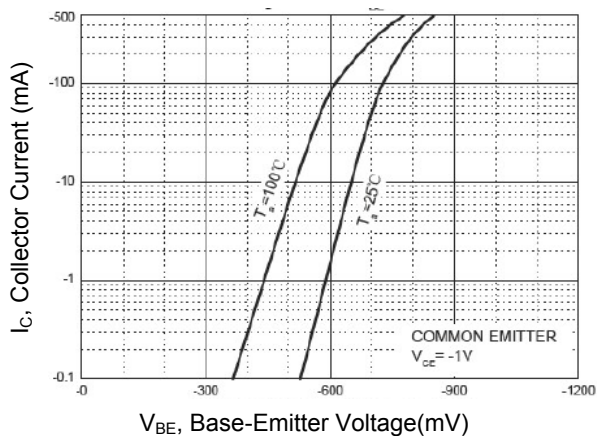
**Figure 2. DC Current Gain**



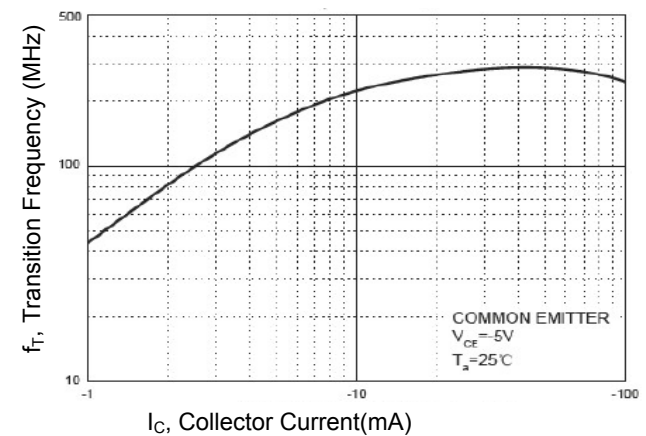
**Figure 3. Collector Emitter Saturation Voltage vs.  $I_C$**



**Figure 4. Base Emitter Saturation Voltage vs.  $I_C$**

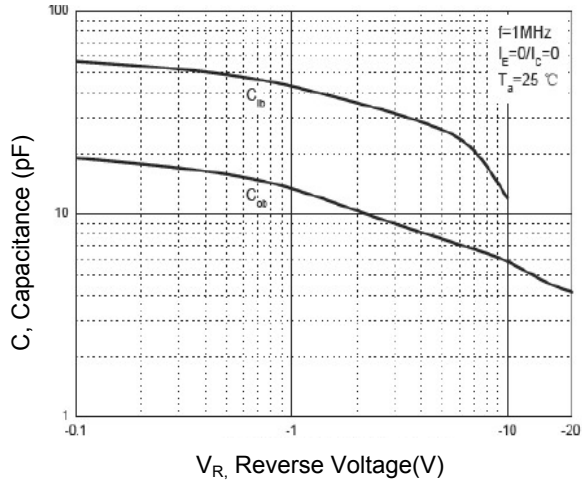


**Figure 5. Collector Current vs. Base Emitter Voltage**

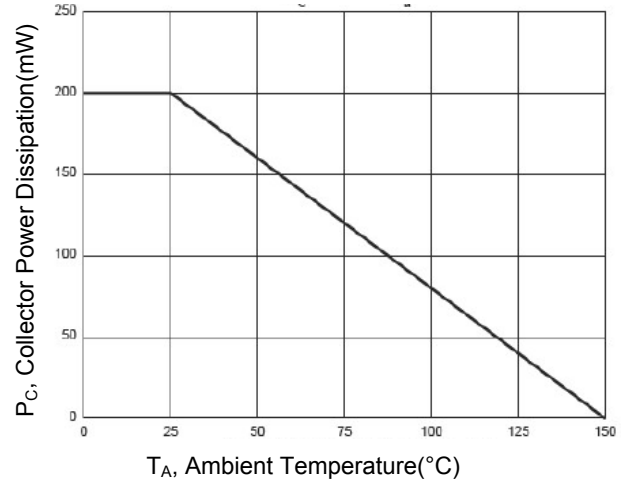


**Figure 6. Transition Frequency vs.  $I_C$**

**Typical Characteristic Curves**

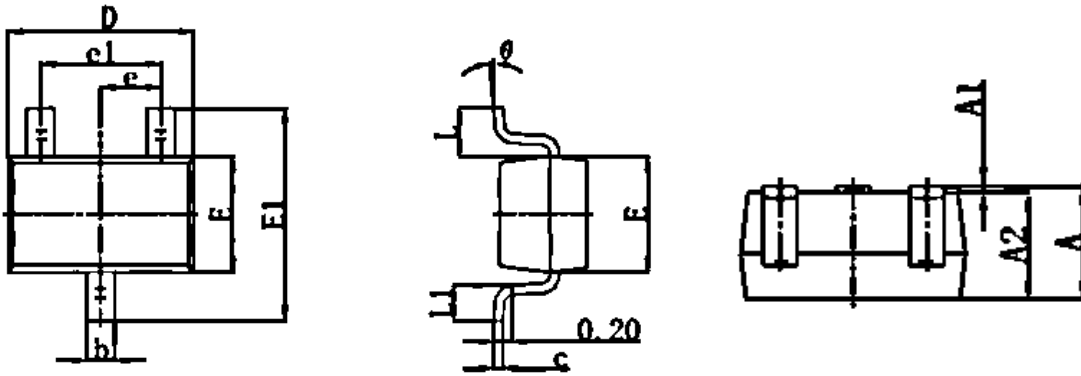


**Figure 7. Capacitance Characteristics**



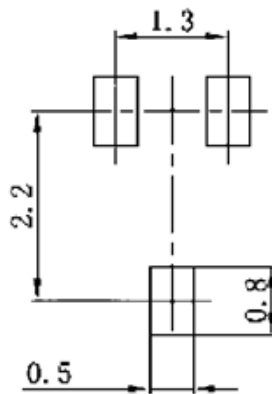
**Figure 8. Power Derating**

**Package Outline Dimensions (SOT-323)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.400	0.006	0.016
c	0.080	0.250	0.003	0.010
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	2.100	2.450	0.083	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
		0.460	0.010	0.018
θ	0°	8°	0°	8°

**Recommended Pad Layout**



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