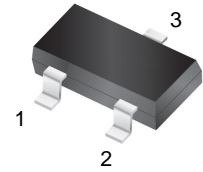


Features

- Ideal for automatic insertion
- For switching and AF amplifier applications



SOT-523

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

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

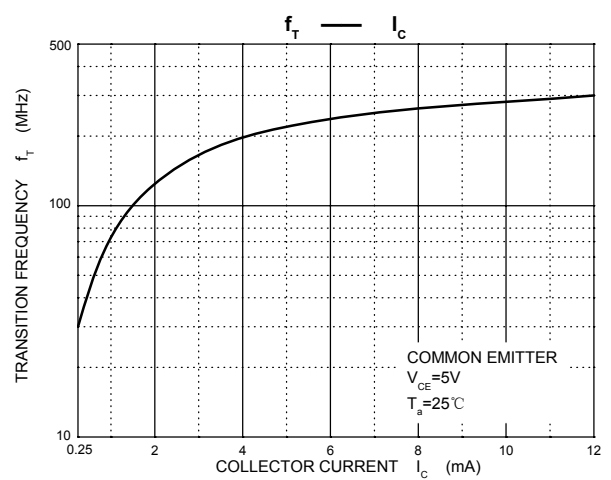
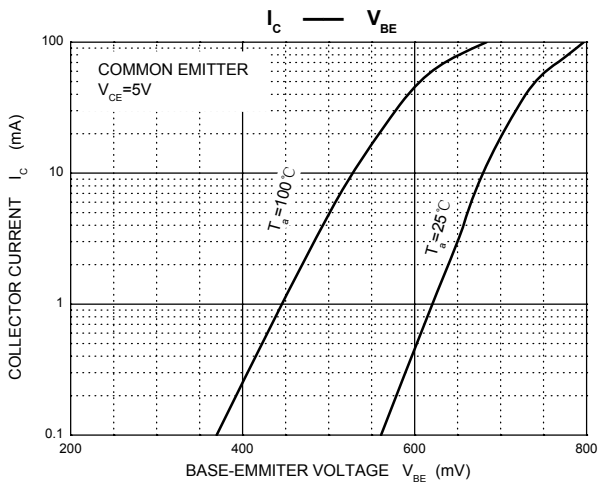
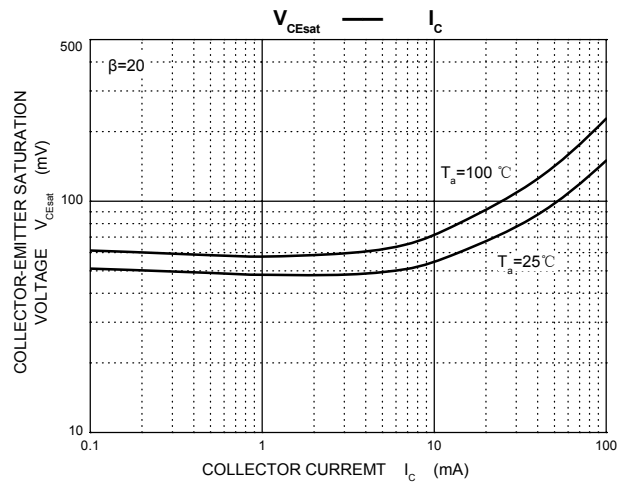
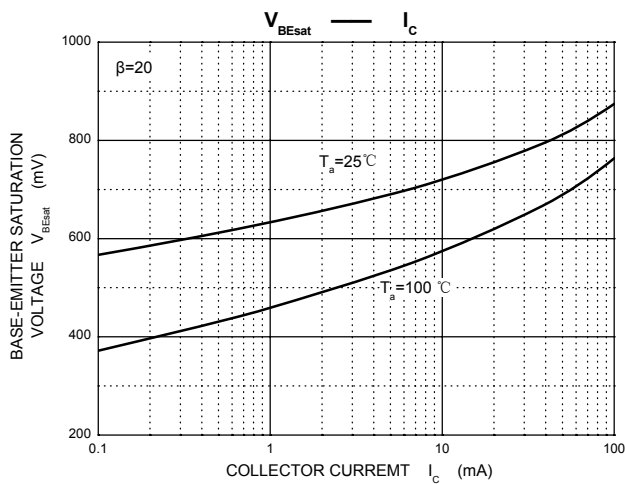
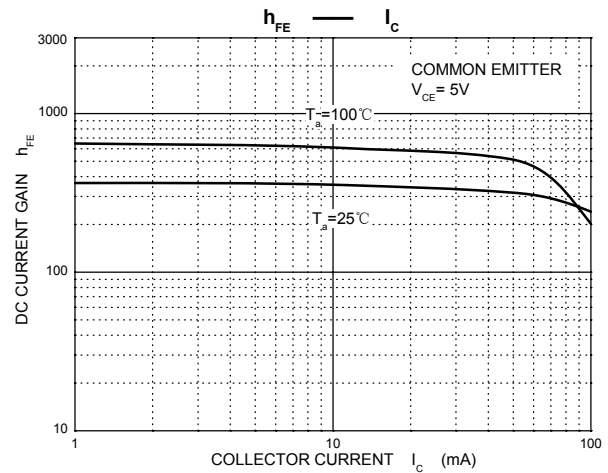
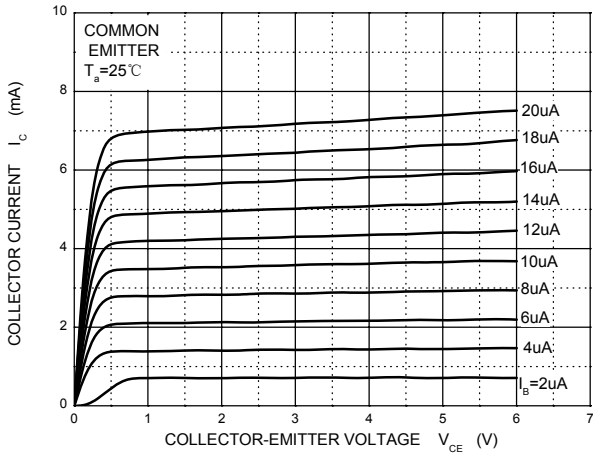
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	50	V
Collector-Emitter Voltage	V_{CE0}	45	V
Emitter-Base Voltage	V_{EB0}	6	V
Collector Current –Continuous	I_c	0.1	A
Collector Power Dissipation	P_{C^*}	150	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$

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

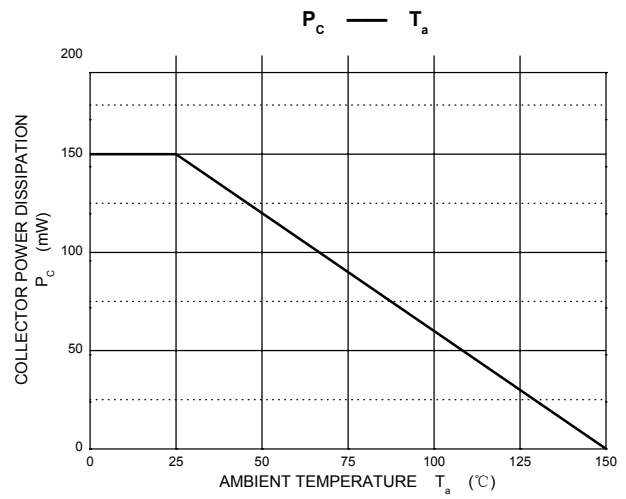
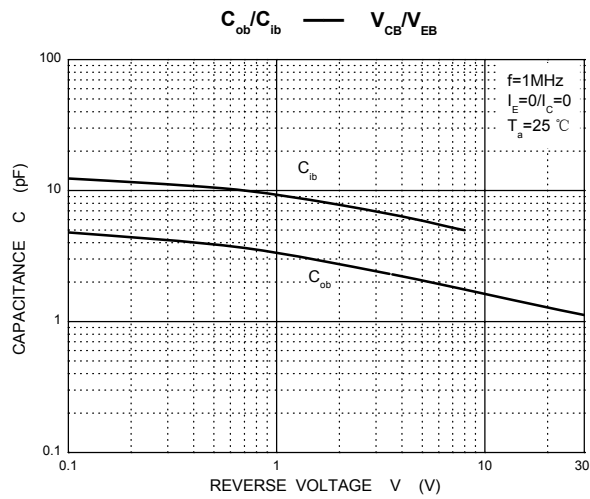
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_c = 10\mu\text{A}, I_E = 0$	50	-	-	V	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_c = 10\text{mA}, I_B = 0$	45	-	-	V	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\mu\text{A}, I_c = 0$	6	-	-	V	
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$	-	-	15	nA	
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}, I_c = 2\text{mA}$	GSBC847AT	110	-	220	-
			GSBC847BT	200		450	
			GSBC847CT	420		800	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c = 10\text{mA}, I_B = 0.5\text{mA}$ $I_c = 100\text{mA}, I_B = 5\text{mA}$	-	-	0.25	V	
			-	-	0.6		
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_c = 10\text{mA}, I_B = 0.5\text{mA}$ $I_c = 100\text{mA}, I_B = 5\text{mA}$	-	0.7	-	V	
			-	0.9			
Base-Emitter Voltage	$V_{BE(on)}$	$V_{CE} = 5\text{V}, I_c = 2\text{mA}$ $V_{CE} = 5\text{V}, I_c = 10\text{mA}$	580	660	700	V	
					770		
Transition Frequency	f_T	$V_{CE} = 5\text{V}, I_c = 10\text{mA}$ $f = 100\text{MHz}$	100	-	-	MHz	
Collector Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	-	4.5	pF	
Noise Figure	NF	$V_{CE} = 5\text{V}, f = 1\text{kHz}$ $R_S = 2\text{k}\Omega, BW = 200\text{Hz}$	-	-	10	dB	
					4		

Typical Characteristic Curves

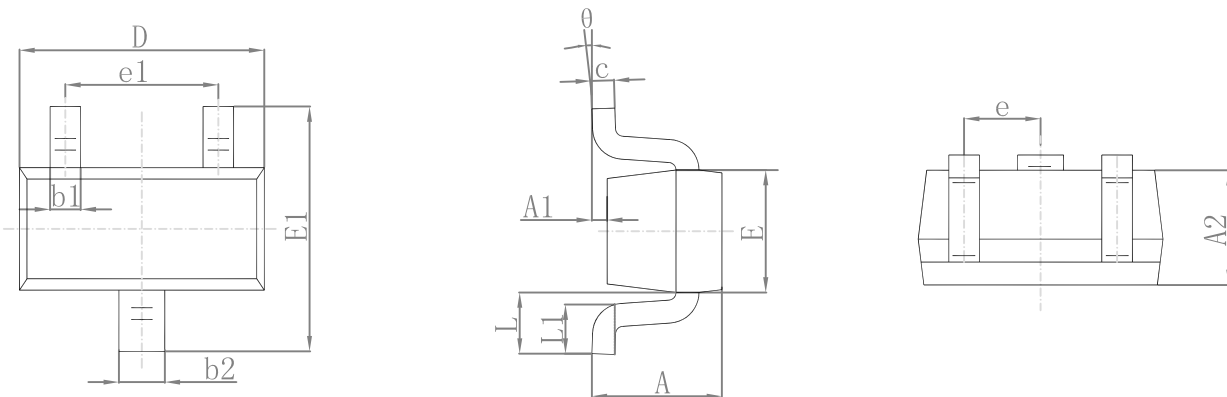
Static Characteristic



Typical Characteristic Curves

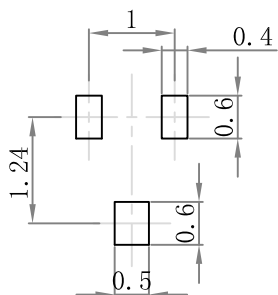


Package Outline Dimensions TO-523



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Suggested Pad Layout



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

Marking and Ordering Information

Device	Package	Marking	Quantity	HSF Status
GSBC847AT	SOT-523	1E	3000pcs / Reel	RoHS Compliant
GSBC847BT	SOT-523	1F	3000pcs / Reel	RoHS Compliant
GSBC847CT	SOT-523	1G	3000pcs / Reel	RoHS Compliant