GOOD-ARK
SEMICONDUCTOR

GSBC847xT
NPN Transistor

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 °C unless otherwise noted)

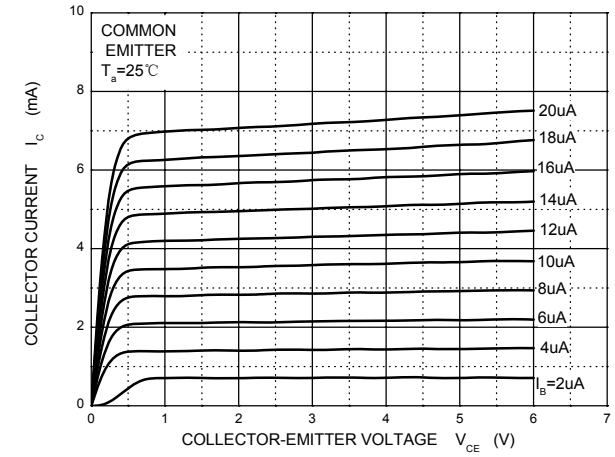
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current –Continuous	I_C	0.1	A
Collector Power Dissipation	P_{C*}	150	mW
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Electrical Characteristics (T_A = 25 °C unless otherwise noted)

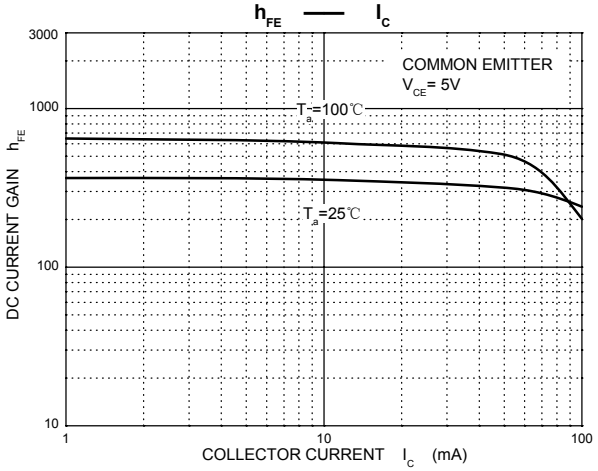
Parameter		Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	I_C= 10μA, I_E=0	50	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	I_C= 10mA, I_B=0	45	-	-	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	I_E= 1 μA, I_C=0	6	-	-	V
Collector Cutoff Current		I_{CBO}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

Typical Characteristic Curves

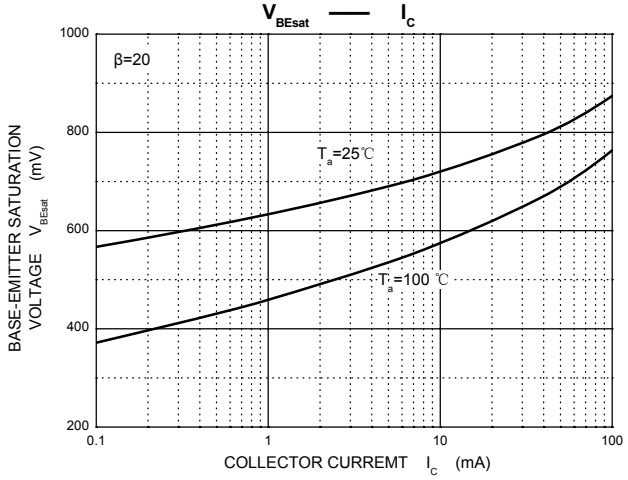
Static Characteristic



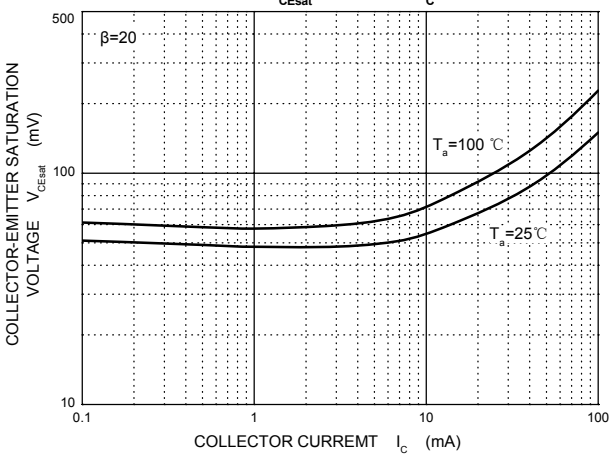
h_{FE} — I_C



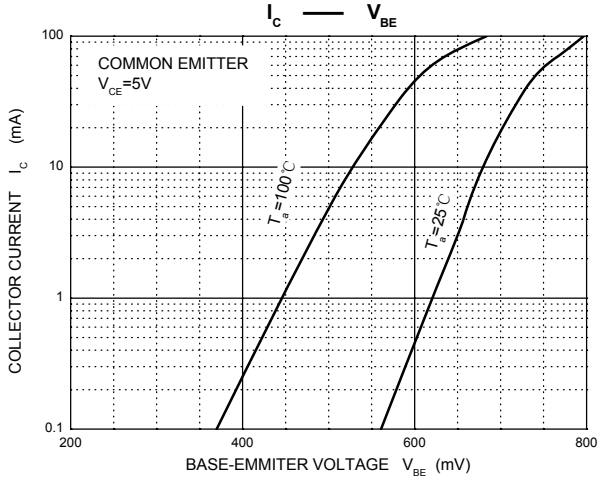
V_{BEsat} — I_C



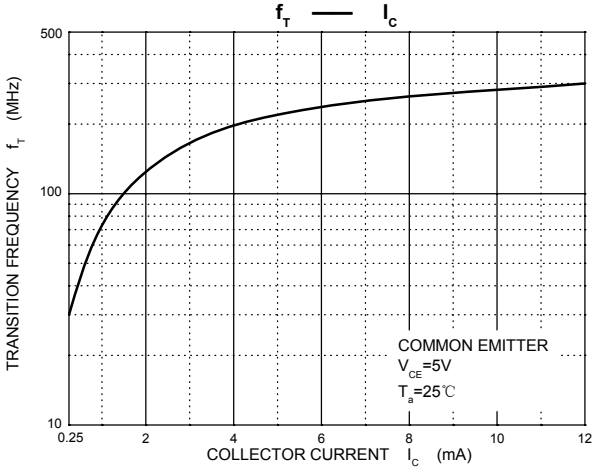
V_{CEsat} — I_C



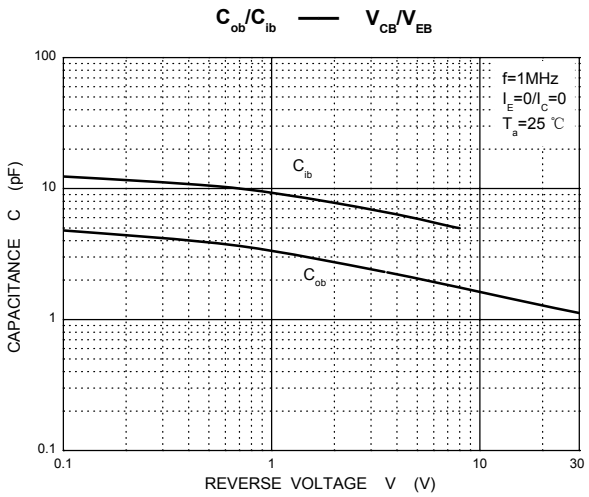
I_C — V_{BE}

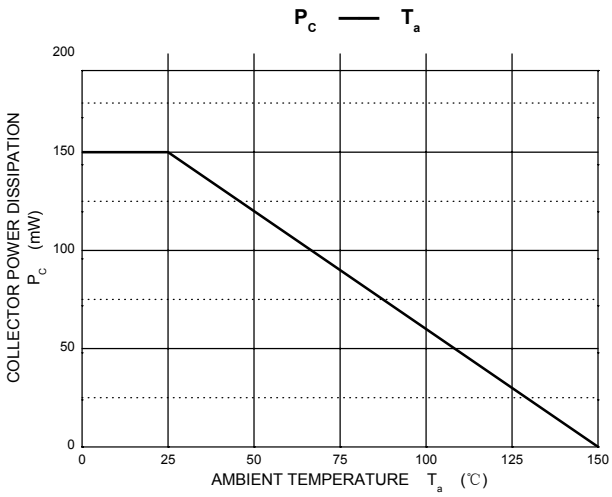


f_T — I_C

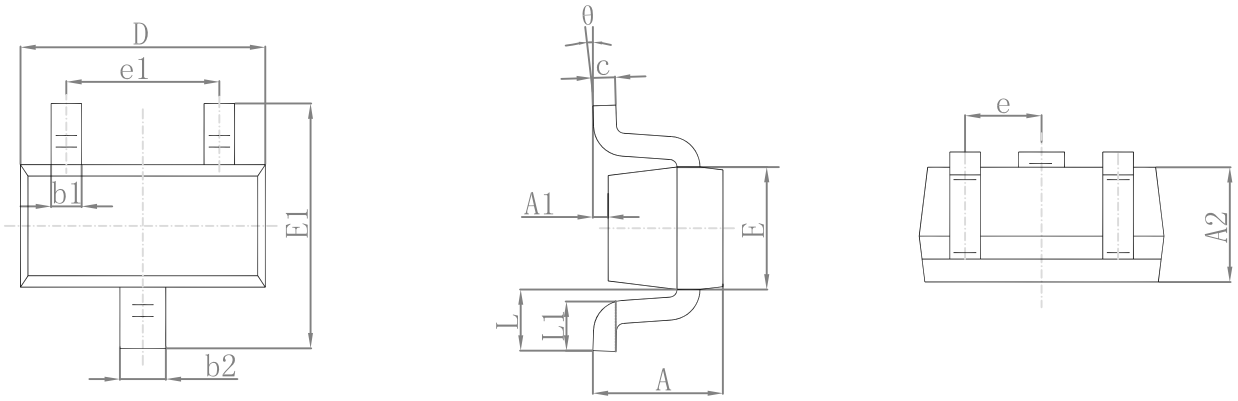


Typical Characteristic Curves



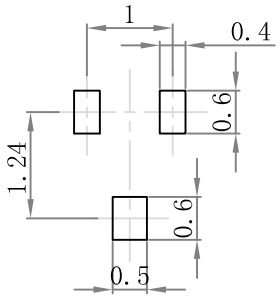


Package Outline Dimensions TO-523



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:±0.05mm.
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