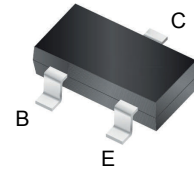
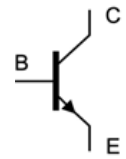


**Features**

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



SOT-523



Schematic Diagram

**Absolute Maximum Ratings** ( $T_A=25^\circ\text{C}$  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	$I_C$	100	mA
Peak Collector Current	$I_{CM}$	200	mA
Power Dissipation	$P_{tot}$	150	mW
Max. Thermal Resistance from Junction to Ambient <sup>1</sup>	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$

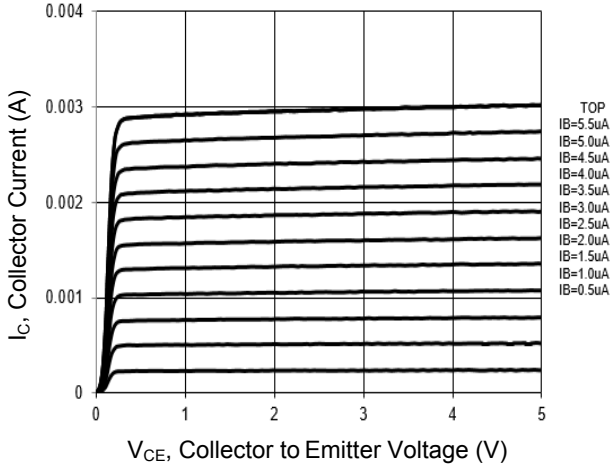
Note:

1. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.

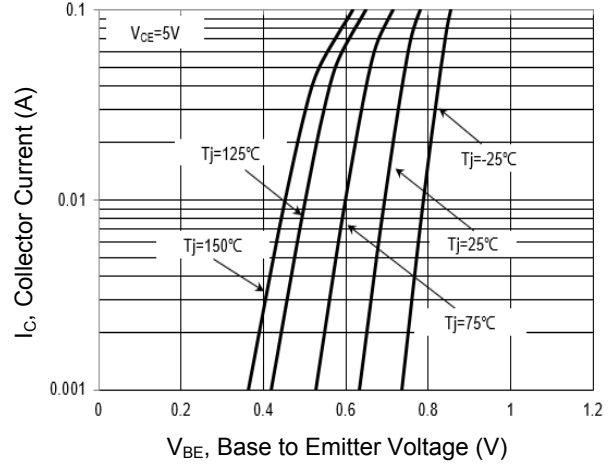
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
DC Current Gain Current Gain Group	A	$V_{CE}=5\text{V}, I_C=2\text{mA}$	110	-	220	-
	B		200	-	450	-
	C		420	-	800	-
Collector Base Cutoff Current	$I_{CBO}$	$V_{CB}=30\text{V}$	-	-	15	nA
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$	50	-	-	V
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$	45	-	-	V
Emitter Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$	6	-	-	V
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$	-	-	250	mV
		$I_C=100\text{mA}, I_B=5\text{mA}$	-	-	600	mV
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE}=5\text{V}, I_C=2\text{mA}$	580	-	700	mV
		$V_{CE}=5\text{V}, I_C=10\text{mA}$	-	-	720	mV
Transition Frequency	$f_T$	$V_{CE}=5\text{V}, I_C=10\text{mA}, F=100\text{MHz}$	-	300	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, F=1\text{MHz}$	-	-	6	pF

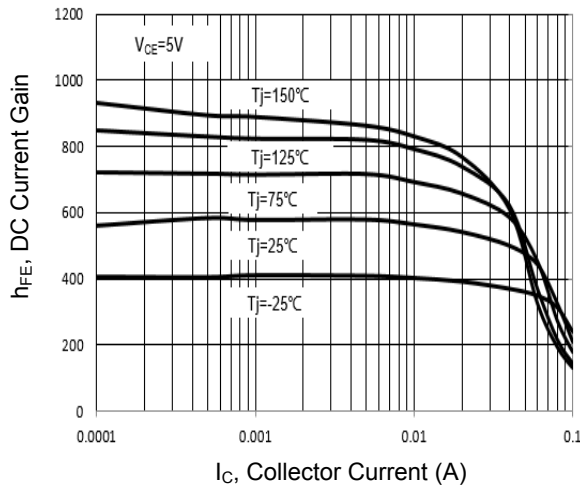
**Ratings and Characteristic Curves**



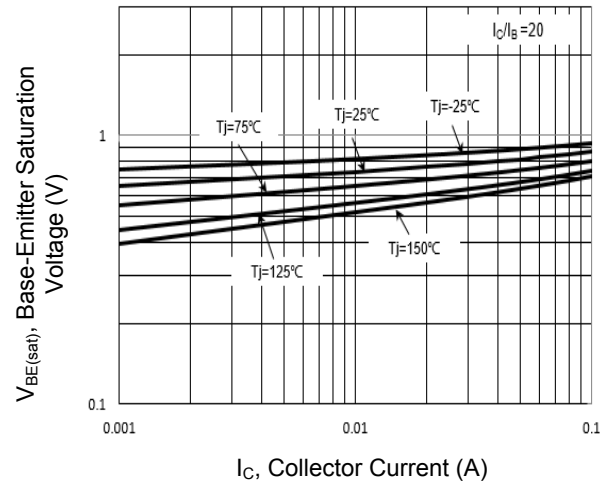
**Figure 1. Output Characteristics Curve**



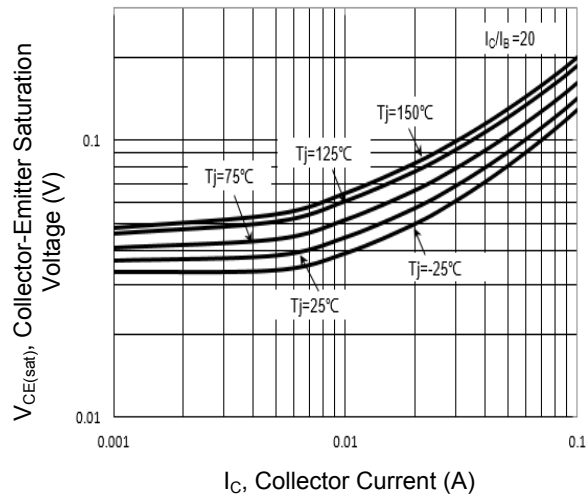
**Figure 2. Collector Current vs. Base to Emitter Voltage**



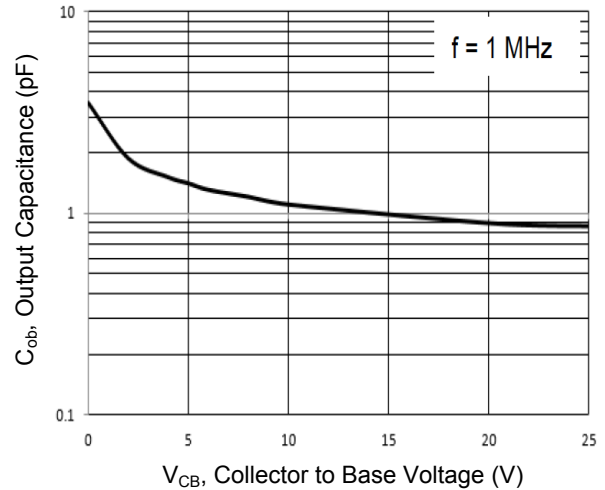
**Figure 3. DC Current Gain vs. Collector Current**



**Figure 4.  $V_{BE(sat)}$  vs. Collector Current**

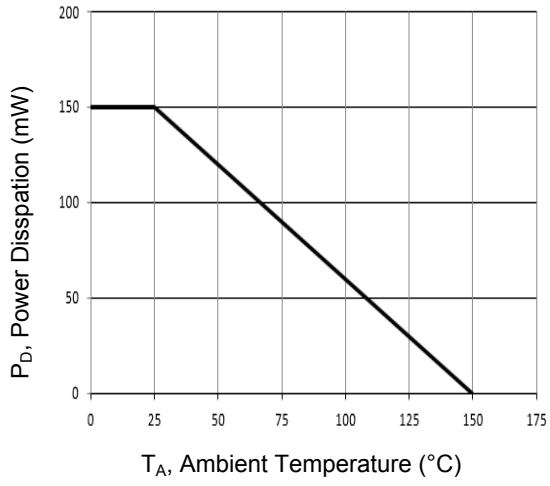


**Figure 5.  $V_{CE(sat)}$  vs. Collector Current**



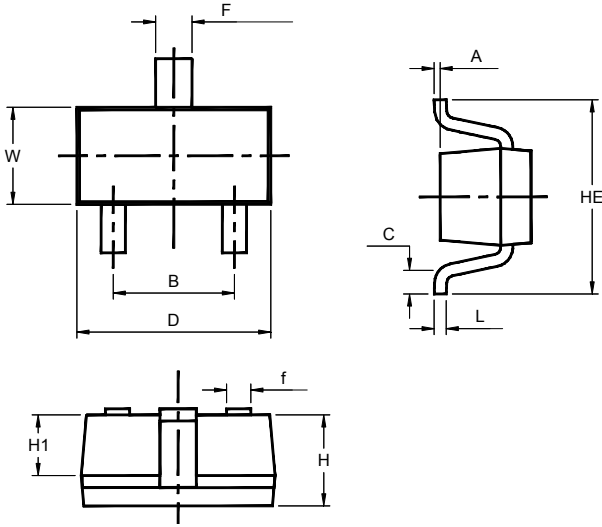
**Figure 6. Output Capacitance**

**Ratings and Characteristic Curves**



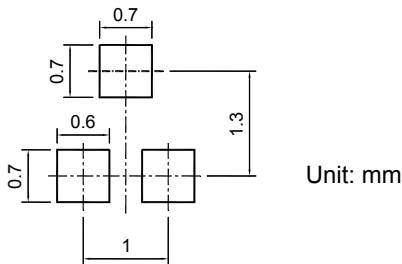
**Figure 7. Power Derating Curve**

**Package Outline Dimensions (SOT-23)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	-	0.10	-	0.004
B	0.95	1.05	0.037	0.041
C	0.17	-	0.007	-
D	1.50	1.70	0.059	0.067
H	0.65	0.85	0.026	0.033
H1	0.40	0.60	0.016	0.024
HE	1.50	1.70	0.059	0.067
F	0.25	0.35	0.010	0.014
f	0.15	0.25	0.006	0.010
L	0.05	0.15	0.002	0.006
W	0.70	0.90	0.028	0.035

**Recommended Pad Layout**



**Order Information**

Device	Package	Marking	Carrier	Quantity
GSBC847AT	SOT-523	1E	Tape & Reel	3,000pcs / Reel
GSBC847BT	SOT-523	1F	Tape & Reel	3,000pcs / Reel
GSBC847CT	SOT-523	1G	Tape & Reel	3,000pcs / Reel

For more information, please contact us at: [inquiry@goodarksemi.com](mailto:inquiry@goodarksemi.com)