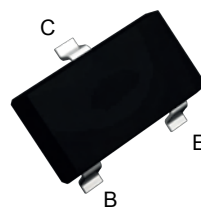
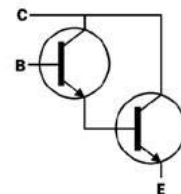


Features

- High Collector Current
- High Current Gain



SOT-23



Schematic Diagram

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	416	$^\circ\text{C/W}$
Operation Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	80	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}$, $I_B=0$	60	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$, $I_C=0$	10	-	-	V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=60\text{V}$, $I_E=0$	-	-	0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=4\text{V}$, $I_C=0$	-	-	0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=1\text{V}$, $I_C=100\mu\text{A}$	2000	-	-	-
	$h_{FE(2)}$	$V_{CE}=5\text{V}$, $I_C=10\text{mA}$	4000	-	-	-
	$h_{FE(3)}$	$V_{CE}=5\text{V}$, $I_C=100\text{mA}$	10000	-	-	-
	$h_{FE(4)}$	$V_{CE}=5\text{V}$, $I_C=0.5\text{A}$	2000	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100\text{mA}$, $I_B=0.1\text{mA}$	-	-	1	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=100\text{mA}$, $I_B=0.1\text{mA}$	-	-	1.5	V
Transition Frequency	f_T	$V_{CE}=5\text{V}$, $I_C=50\text{mA}$, $f=100\text{MHz}$	-	170	-	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$	-	3.5	-	pF

Typical Characteristic Curves

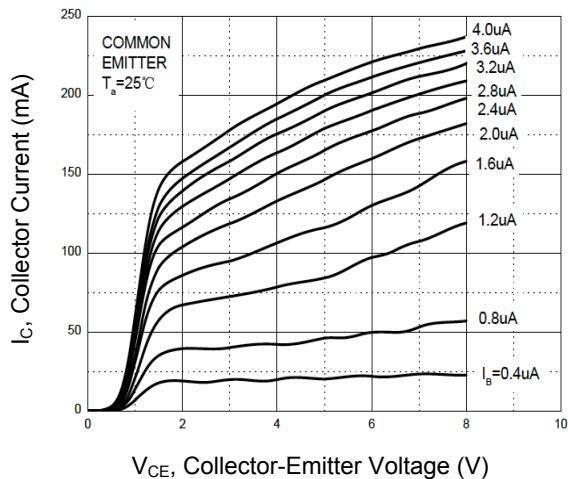


Figure 1. Static Characteristic

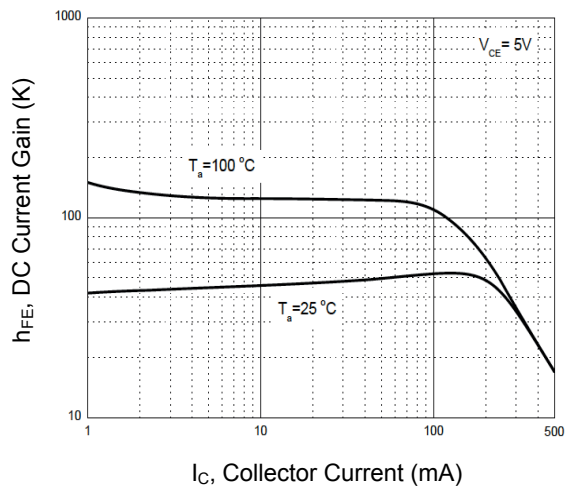


Figure 2. DC Current Gain vs. Collector Current

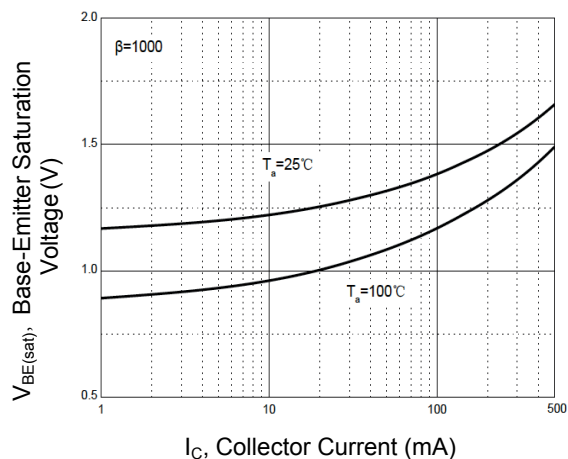


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

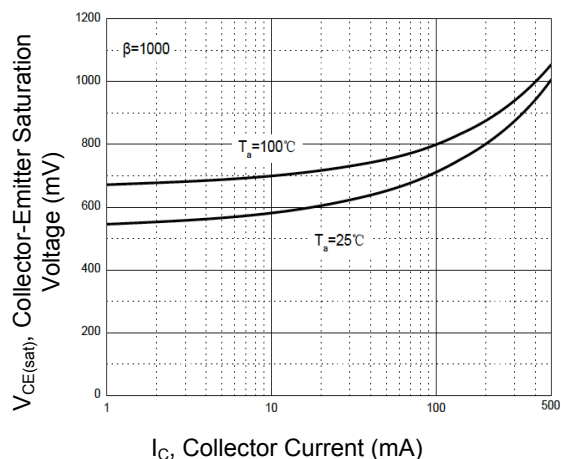


Figure 4. Collector-Emitter Saturation Voltage vs. Collector Current

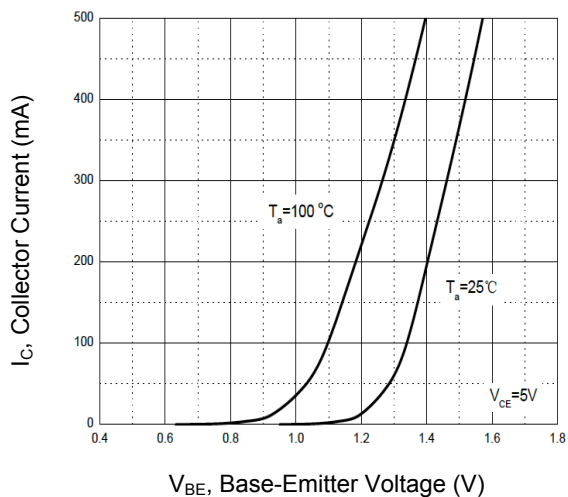


Figure 5. Collector Current vs. Base-Emitter Voltage

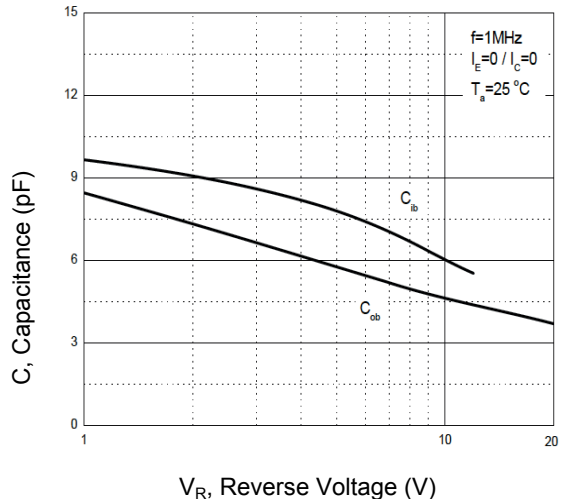


Figure 6. Capacitance Characteristics

Typical Characteristic Curves

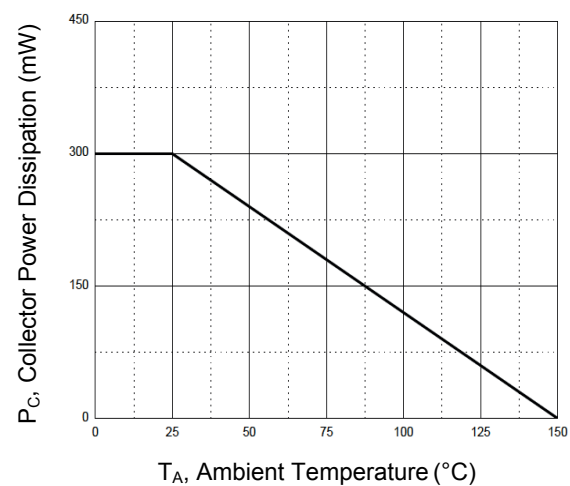
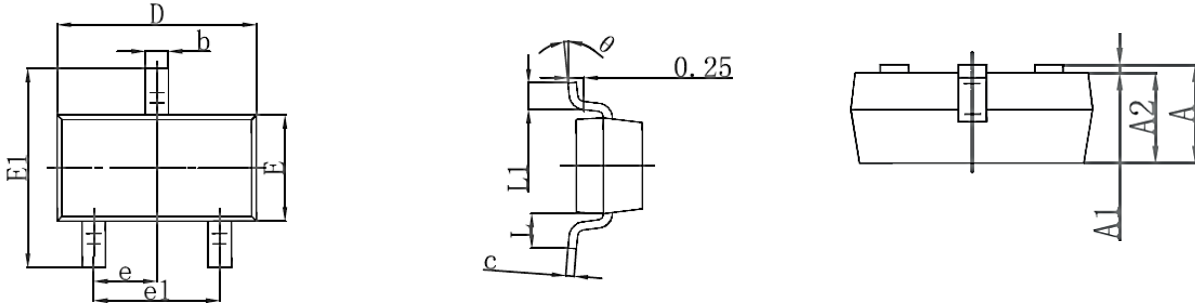


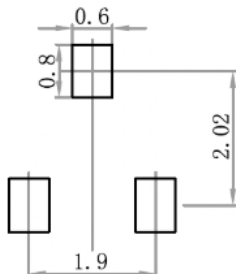
Figure 7. Power Dissipation vs. Ambient Temperature

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Recommended Pad Layout



Note:

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

Order Information

Device	Package	Marking	Packaging	SPQ
GSBCV47	SOT-23	FG	Tape & Reel	3,000 Pcs / Reel