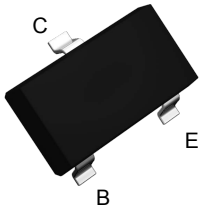
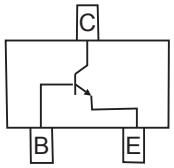
GS8050
NPN Transistor

Features

- Epoxy meets UL-94V-0 flammability rating
- Power dissipation of 300mW
- High stability and high reliability



SOT-23



Schematic Diagram

Mechanical Data

- Case:SOT-23
- Terminals: Plated solderable per MIL-STD-750, method 2026
- Mounting position: Any

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	25	V
Collector-Base Voltage	V_{CBO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current, Continuous	I_C	500	mA
Collector Power Dissipation	P_D	300	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	417	℃/W
Operation Junction Temperature	T_J	-55 to +150	℃
Storage Temperature	T_{STG}	-55 to +150	℃

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

Parameter	Symbol	Conditions	Min	Max	Unit
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1.0mA, I_B=0	25	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=100μA, I_E=0	40	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=100μA, I_C=0	5	-	V
Collector Cut-Off Current	I_{CBO}	V_{CB}=40V, I_E=0	-	100	nA
Collector Cut-Off Current	I_{CEO}	V_{CE}=20V, I_B=0	-	100	nA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=5V, I_C=0	-	100	nA
DC Current Gain	h_{FE}	I_C=1mA, V_{CE}=1.0V	-	-	-
	$h_{FE(1)}$	I_C=50mA, V_{CE}=1.0V	200	350	
	$h_{FE(2)}$	I_C=500mA, V_{CE}=1.0V	50	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=10mA, I_B=1.0mA	-	-	V
		I_C=500mA, I_B=50mA	-	0.6	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=10mA, I_B=1.0mA	-	-	V
		I_C=500mA, I_B=50mA	-	1.2	
Output Capacitance	C_{ob}	V_{CB}=6V, F=1.0MHZ, I_E=0	-	-	pF
Input Capacitance	C_{ib}	V_{EB}=0.5V, F=1.0MHZ, I_C=0	-	-	pF
Current Gain-Bandwidth Product	f_T	I_C=20mA, V_{CE}=6V, F=30MHZ	150	-	MHZ
Noise Figure	N_F	V_{CE}=5.0V, F=1.0kHZ, I_C=100μA, R_S=1.0K	-	-	dB

Typical Characteristic Curves

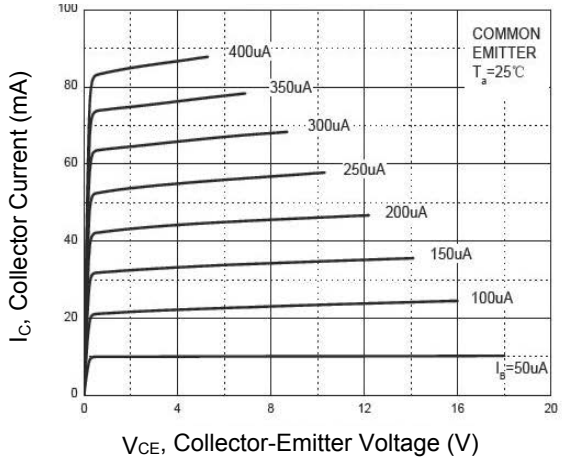


Figure 1. Static Characteristic

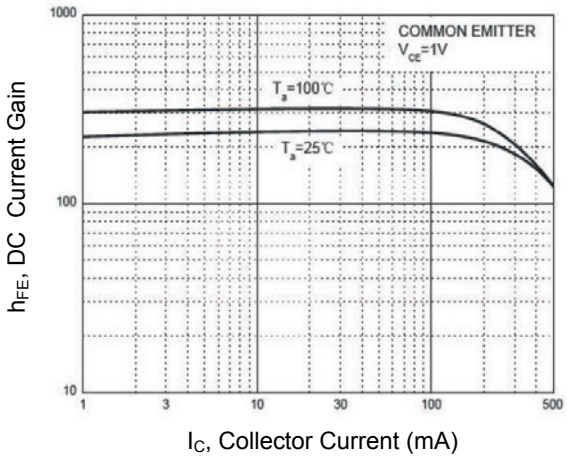


Figure 2. DC Current Gain vs. Collector Current

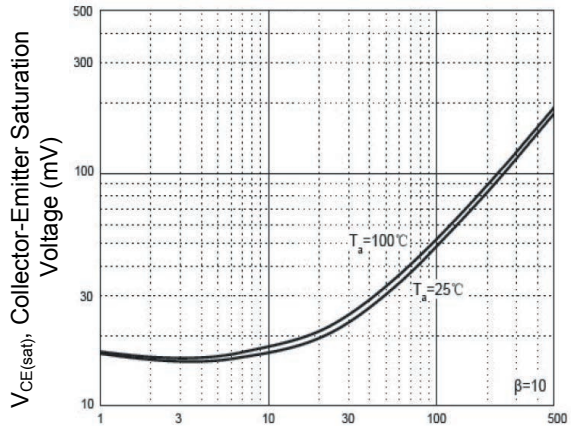


Figure 3. Collector-Emitter Saturation Voltage vs. Collector Current

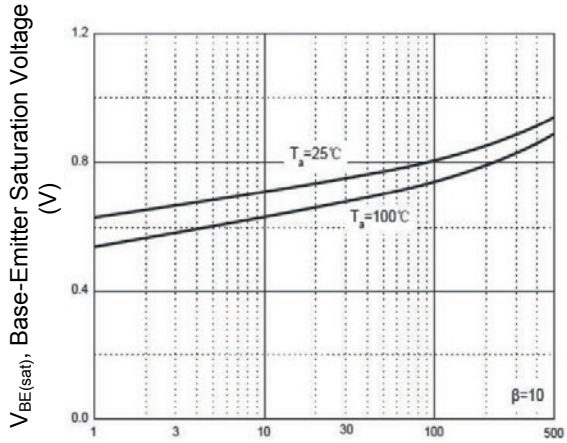


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

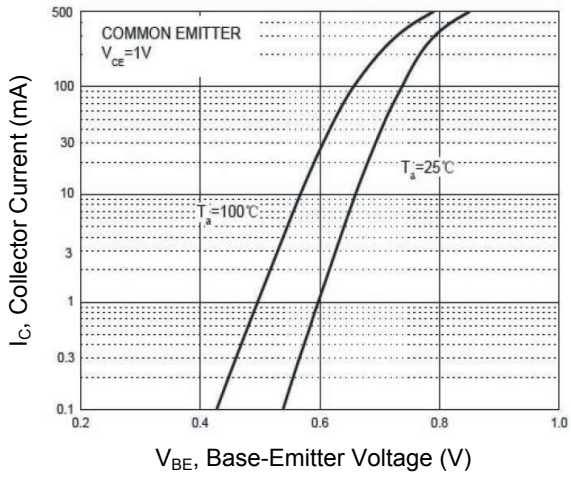


Figure 5. Collector Current vs. Base-Emitter Voltage

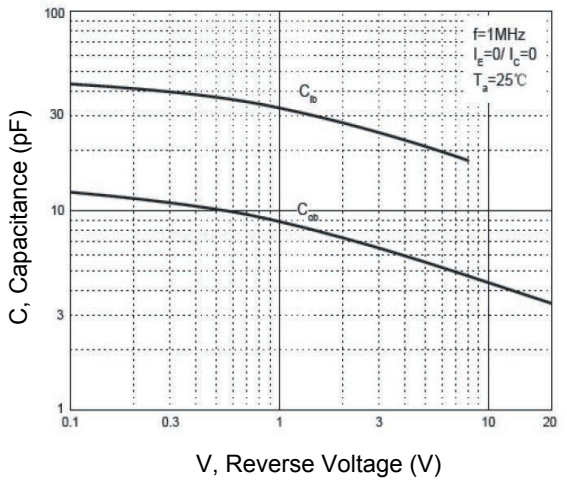


Figure 6. Capacitance Characteristics

Typical Characteristic Curves

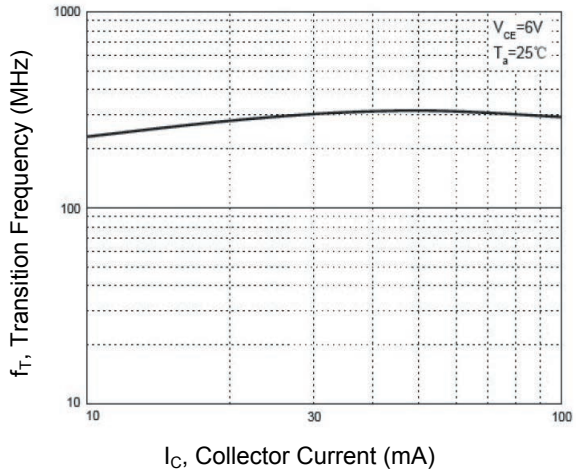


Figure 7. Transition Frequency vs. Collector Current

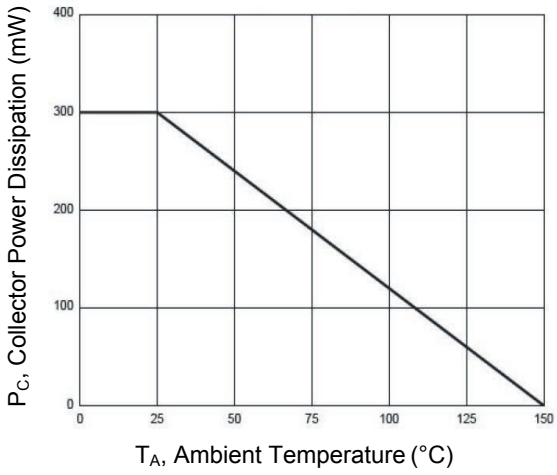
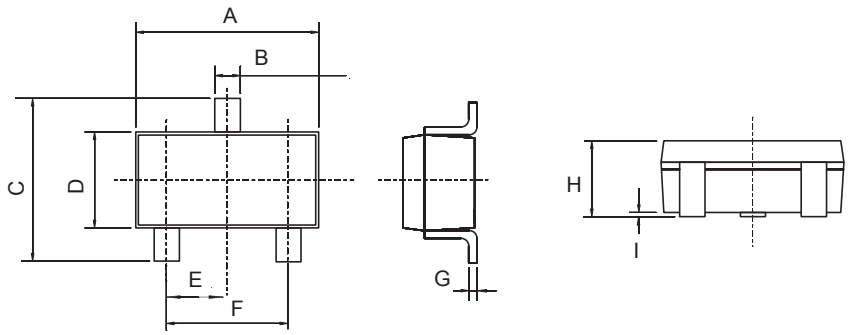


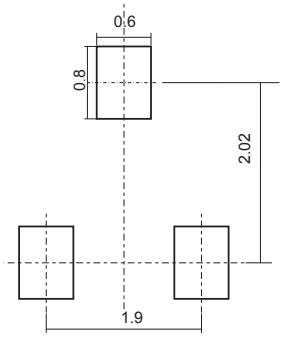
Figure 8. Power Dissipation vs. Ambient Temperature

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.70	3.10	0.106	0.122
B	0.35	0.50	0.014	0.020
C	2.20	3.00	0.087	0.118
D	1.20	1.65	0.047	0.065
E	0.89	1.02	0.035	0.040
F	1.78	2.04	0.070	0.080
G	0.08	0.19	0.003	0.007
H	0.90	1.40	0.035	0.055
I	0.10 REF		0.004 REF	

Recommended Pad Layout



Unit: mm

Order Information

Device	Package	Marking	Packaging	SPQ
GS8050	SOT-23	J3Y	Tape & Reel	3,000pcs / Reel