

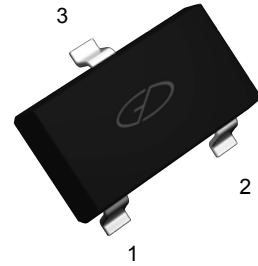
**Features**

- Power dissipation of 300mW
- High stability and high reliability

**Mechanical Data**

- SOT-23 small outline plastic package
- Epoxy UL: 94V-0

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



SOT-23

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

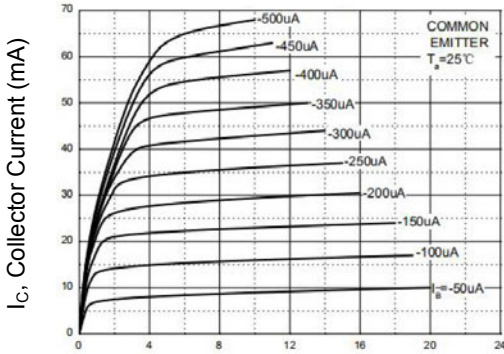
Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	-300	V
Collector - Emitter Voltage	$V_{CE0}$	-300	V
Emitter - Base Voltage	$V_{EB0}$	-5	V
Collector Current - Continuous	$I_C$	-0.5	A
Collector Power Dissipation	$P_C$	300	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	417	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	-55 to +150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Min	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CB0}$	$I_C=-100\mu\text{A}, I_E=0$	-300	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CE0}$	$I_C=-1\text{mA}, I_B=0$	-300	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EB0}$	$I_E=-100\mu\text{A}, I_C=0$	-5	-	V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-200\text{V}, I_E=0$	-	-250	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$	-	-100	nA
DC Current Gain <sup>1</sup>	$h_{FE(1)}$	$V_{CE}=-10\text{V}, I_C=-1\text{mA}$	25	-	-
	$h_{FE(2)}$	$V_{CE}=-10\text{V}, I_C=-10\text{mA}$	40	-	-
	$h_{FE(3)}$	$V_{CE}=-10\text{V}, I_C=-30\text{mA}$	25	-	-
Collector-Emitter Saturation Voltage <sup>1</sup>	$V_{CE(sat)}$	$I_C=-20\text{mA}, I_B=-2\text{mA}$	-	-0.50	V
Base-Emitter Voltage <sup>1</sup>	$V_{BE(sat)}$	$I_C=-20\text{mA}, I_B=-2\text{mA}$	-	-0.90	V
Transition Frequency	$f_T$	$V_{CE}=-20\text{V}, I_C=-10\text{mA}$ $F=30\text{MHz}$	50	-	MHz

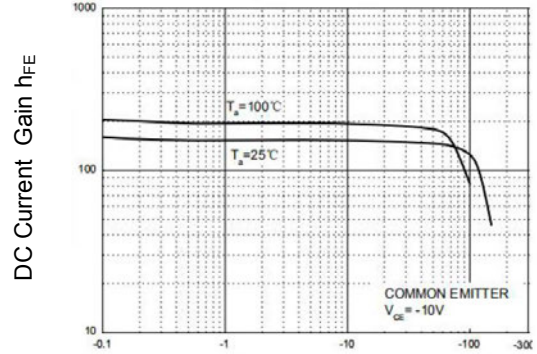
Note: 1) Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

**Typical Electrical and Thermal Characteristic Curves**



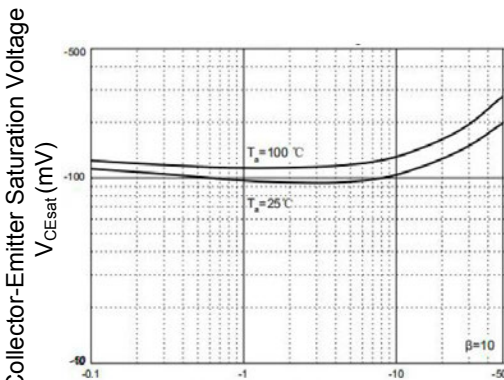
$V_{CE}$ , Collector - Emitter Voltage (V)

**Figure 1. Collector Current vs. Collector - Emitter Voltage**



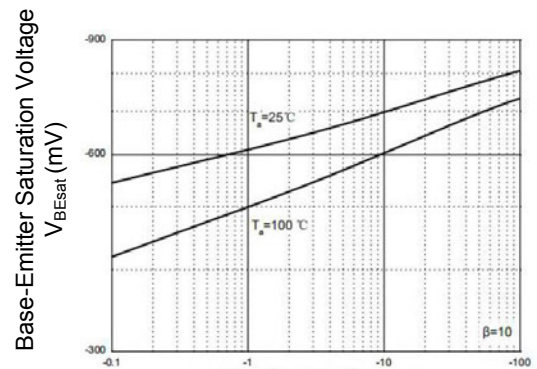
$I_C$ , Collector Current (mA)

**Figure 2. DC Current Gain vs. Collector Current**



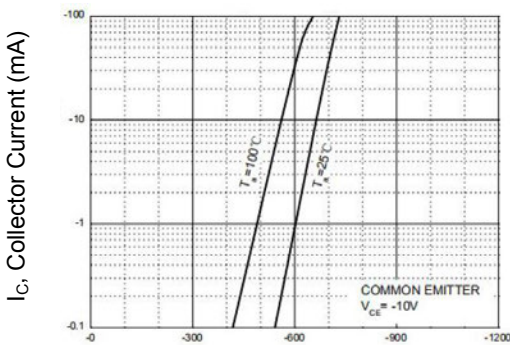
$I_C$ , Collector Current (mA)

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



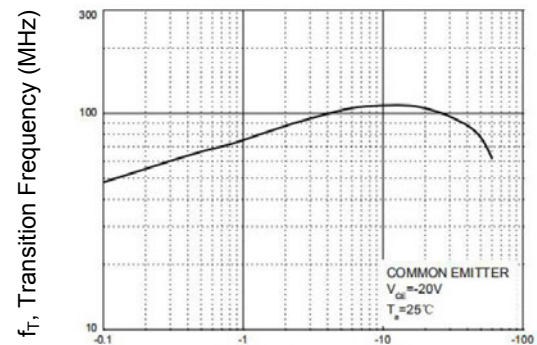
$I_C$ , Collector Current (mA)

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



$V_{BE}$ , Base - Emitter Voltage (mV)

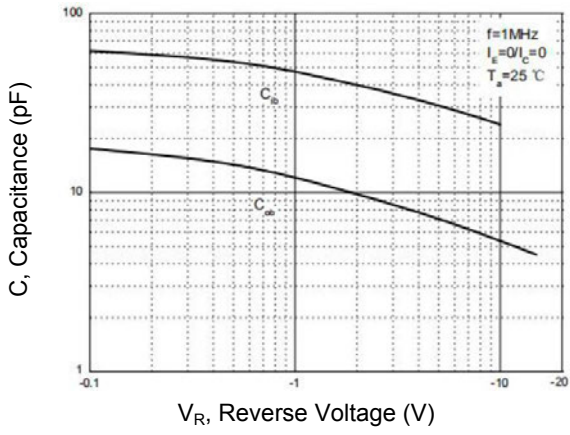
**Figure 5. Collector Current vs. Base - Emitter Voltage**



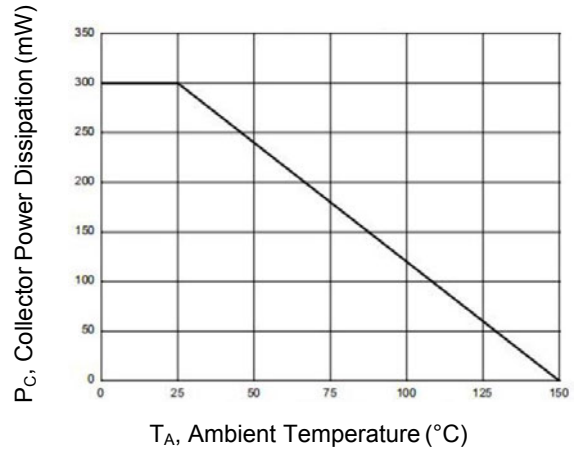
$I_C$ , Collector Current (mA)

**Figure 6. Transition Frequency vs. Collector Current**

**Typical Electrical and Thermal Characteristic Curves**

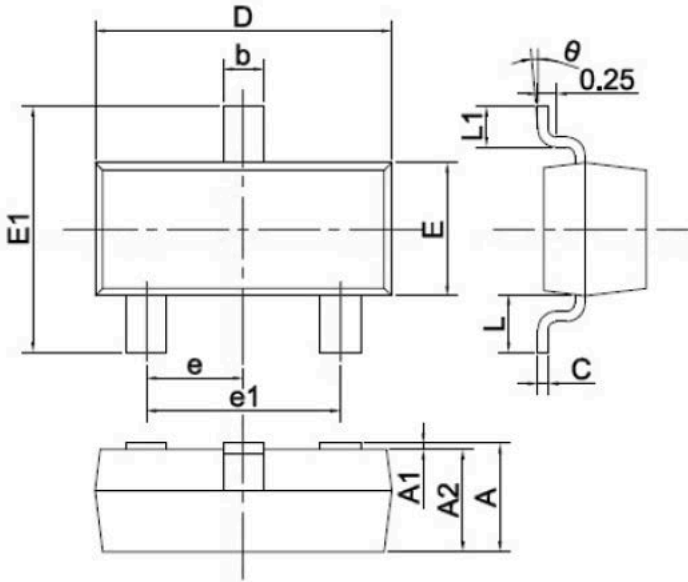


**Figure 7. Capacitance Characteristics**



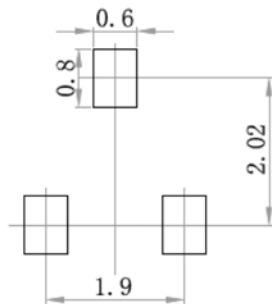
**Figure 8. Power Dissipation vs Ambient Temperature**

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



Symbol	Dimensions in Millimeters	
	Min	Max
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 TYP.	
e1	1.800	2.000
L	0.550 REF.	
L1	0.300	0.500
$\theta$	0°	8°

**Recommended Pad Layout**



**Note:**

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