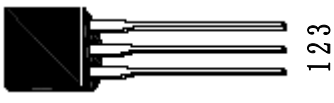
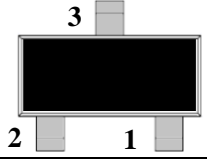


1、Features

- Lead(Pb)-Free
- Collector Current: $I_C=600\text{mA}$
- high voltage amplifier
- h_{FE} 80-250(Test Condition: $V_C=5.0\text{V}$ $I_C=10\text{mA}$)

2、Pinning information

PIN	Description	Simplified outline	
1	Emitter(E)		
2	Base(B)		
3	Collector(C)		
		TO-92	SOT-23

3、Limiting value

($T_a = 25^\circ\text{C}$ unless otherwise noted).

SYMBOL	PARAMETER		Limit	UNIT
Vcbo	Collector-Base Voltage		180	V
Vceo	Collector-Emitter Voltage		160	V
Vebo	Emitter-Base Voltage		6	V
Ic	Collector Current		600	mA
P_D	Total Device Dissipation	TO-92	625	mW
		SOT-23	350	
Tj	Junction Temperature		+150	°C
Tstg	Storage Temperature		-55 to +150	°C

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

SYMBOL	PARAMETER	CONDITIONS	MIN	Typ	MAX	UNIT
BVcbo	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}$, $I_B = 0$	180			V
Bvceo	Collector-Emitter Breakdown Voltage	$I_C = 1\text{mA}$, $I_E = 0$	160			V
Bvebo	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}$, $I_C = 0$	6			V
Icbo	Collector Cut-off Current	$V_{CB} = 120\text{V}$, $I_E = 0$			100	nA
Iebo	Emitter Cut-off Current	$V_{EB} = 4\text{V}$, $I_C = 0$			100	nA
Vce(sat)	Collector-Emitter Saturation Voltage	$I_C=10\text{mA}$ $I_b=1\text{mA}$			0.15	V
		$I_C=50\text{mA}$ $I_b=5\text{mA}$			0.2	
Vbe(sat)	Base-Emitter Saturation Voltage	$I_C=10\text{mA}$ $I_b=1\text{mA}$			1.0	V
		$I_C=50\text{mA}$ $I_b=5\text{mA}$			1.0	
h_{FE}	DC Current Gain	$V_{CE} = 5\text{V}$, $I_C=10\text{mA}$	80		250	
f_T	Current Gain Bandwidth Product	$V_{CE}=10\text{V}$, $I_C= 50\text{mA}$	100		300	MHz
Cob	Output Capacitance	$V_{CB}=10\text{V}$, $f = 1\text{MHz}$			6.0	pF

5. Electrical Characteristics Curve

Figure 1. Typical Pulsed Current Gain vs Collector Current

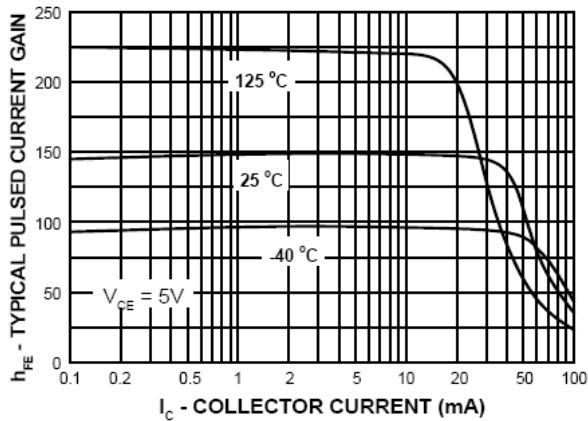


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

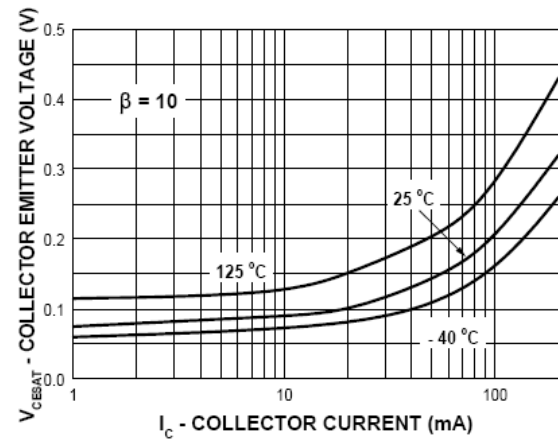


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

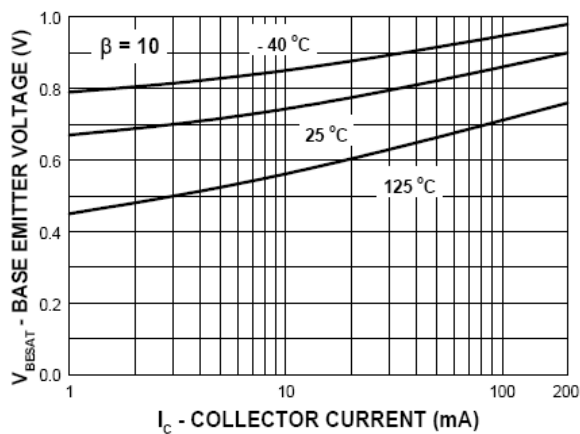


Figure 4. Base-Emitter On Voltage vs Collector Current

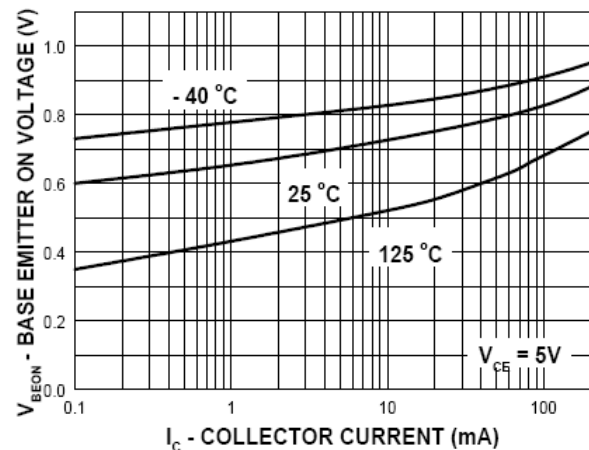


Figure 5. Collector Cutoff Current vs Ambient Temperature

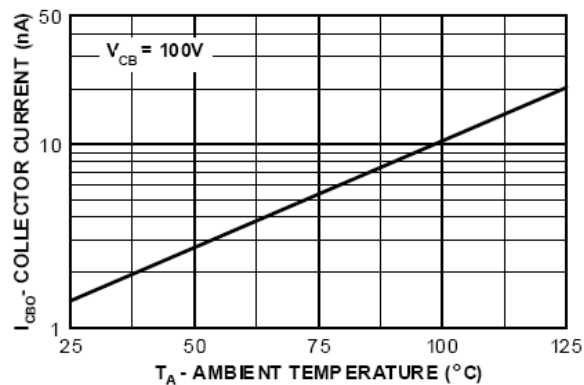


Figure 6. Input and Output Capacitance vs Reverse Voltage

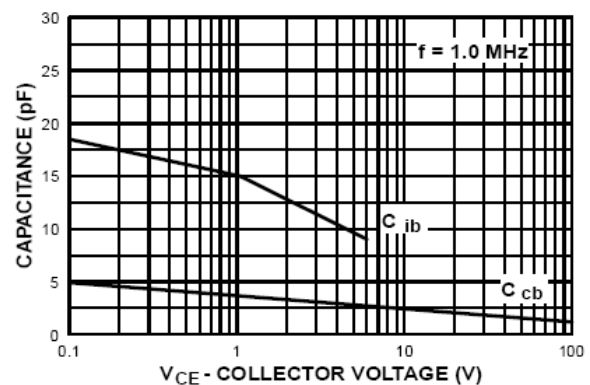


Figure 7. Collector- Emitter Breakdown Voltage with Resistance Between Emitter-Base

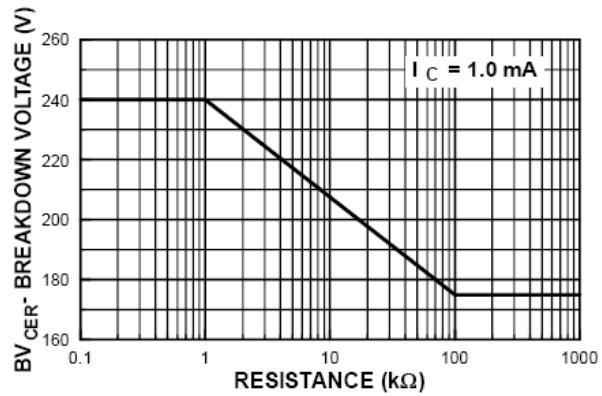


Figure 8. Small Signal Current Gain vs Collector Current

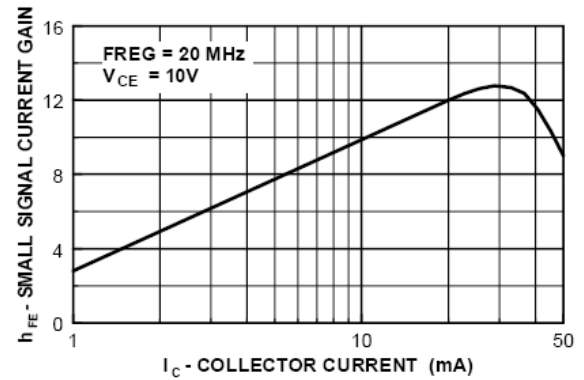
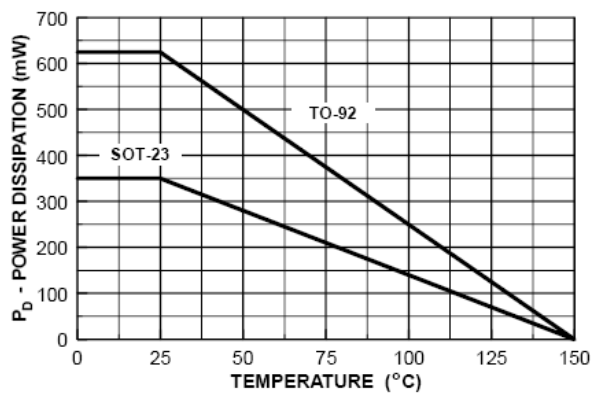
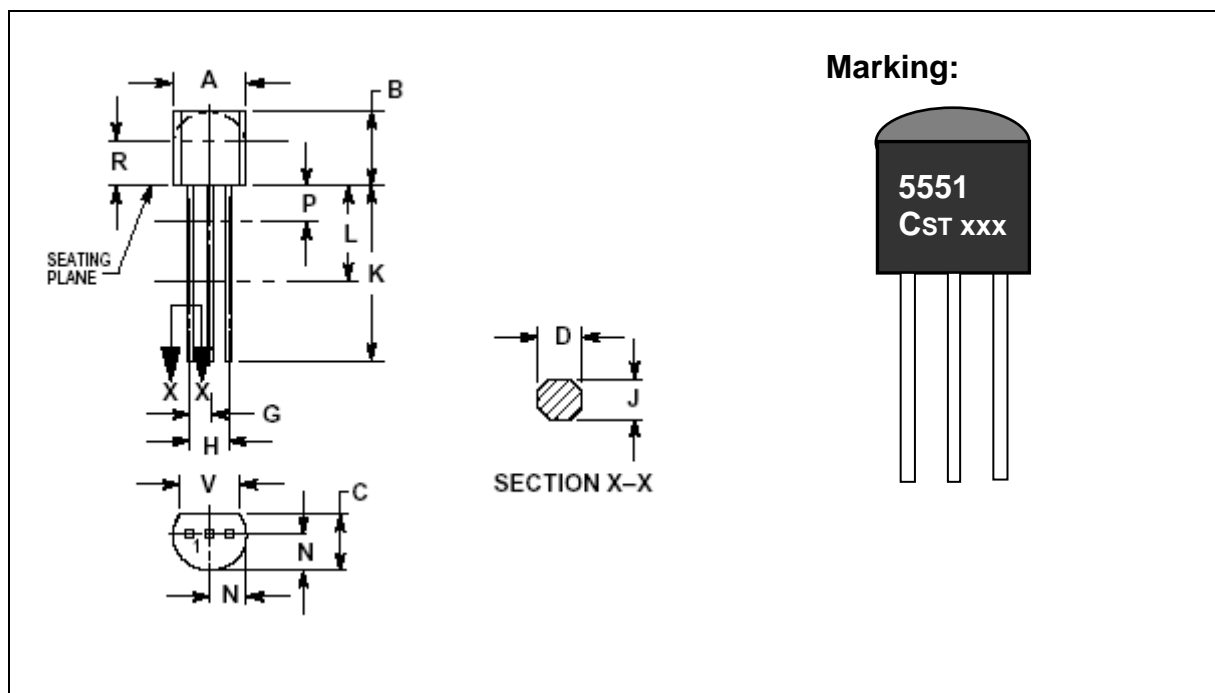


Figure 9. Power Dissipation vs Ambient Temperature

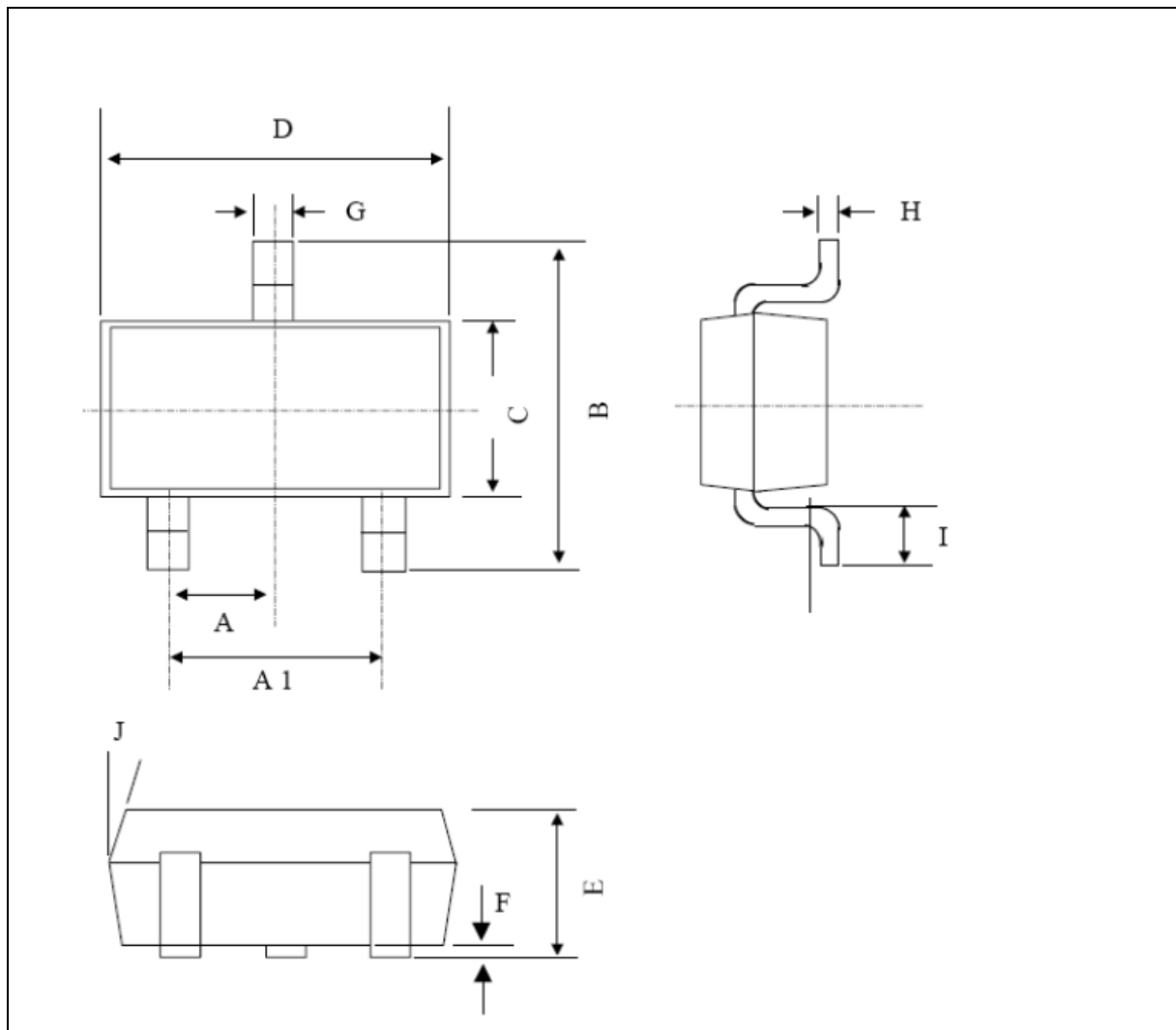


6、Package outline(TO-92)



DIM	Inches		Milimeters		DIM	Inches		Milimeters	
	Min	Max	Min	Max		Min	Max	Min	Max
A	0.175	0.205	4.45	5.20	K	0.500	-	12.70	-
B	0.170	0.210	4.32	5.33					
C	0.134	0.142	3.40	3.60	N	0.080	0.105	2.04	2.66
D	0.016	0.021	0.407	0.533	P	-	0.100	-	2.54
G	0.045	0.055	1.27	2.41	R	0.079	-	2.00	-
H	0.095	0.105	2.42	2.66	V	0.135	-	3.43	-
J	0.012	0.018	0.30	0.45					

7、Package outline(SOT-23)



DIM	Inches		Milimeters		DIM	Inches		Milimeters	
	Min	Max	Min	Max		Min	Max	Min	Max
A	0.037BSC		0.95BSC		F	0.000	0.004	0.00	0.10
A1	0.074BSC		1.90BSC		G	0.012	0.020	0.30	0.50
B	0.089	0.100	2.25	2.55	H	0.003	0.006	0.08	0.15
C	0.047	0.055	1.20	1.40	I	0.012	0.020	0.30	0.50
D	0.114	0.122	2.9	3.10	J	5°	10°	5°	10°
E	0.039	0.045	0.90	1.15					