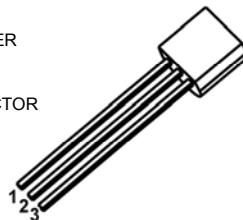


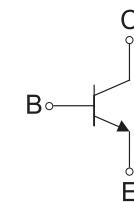
Features

- General purpose switching application

1. Emitter
 2. Base
 3. Collector



TO-92



Schematic Diagram

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current-Continuous	I_C	0.6	A
Collector Power Dissipation	P_C	625	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
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	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	180	-	-	V
Collector-Emitter Breakdown Voltage ¹	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	160	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6	-	-	V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=120\text{V}, I_E=0$	-	-	50	nA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$	-	-	50	nA
DC Current Gain	$h_{FE}(1)$	$V_{CE}=5\text{V}, I_C=1\text{mA}$	80	-	-	-
	$h_{FE}(2)$	$V_{CE}=5\text{V}, I_C=10\text{mA}$	100	-	300	
	$h_{FE}(3)$	$V_{CE}=5\text{V}, I_C=50\text{mA}$	50	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C=10\text{mA}, I_B=1\text{mA}$	-	-	0.15	V
	$V_{CE(sat)(2)}$	$I_C=50\text{mA}, I_B=5\text{mA}$	-	-	0.2	V
Base-Emitter Saturation Voltage	$V_{BE(sat)(1)}$	$I_C=10\text{mA}, I_B=1\text{mA}$	-	-	1	V
	$V_{BE(sat)(2)}$	$I_C=50\text{mA}, I_B=5\text{mA}$	-	-	1	V
Collector Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	-	-	6	pF
Emitter Input Capacitance	C_{ib}	$V_{BE}=0.5\text{V}, I_C=0, f=1\text{MHz}$	-	-	20	pF
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	100	-	300	MHz

Notes:

1. Pulse test: Pulse width $\leq 300\text{us}$, duty cycle $\leq 2\%$.

Classification of $h_{FE}(2)$

Rank	A	B	C
Range	100-150	150-200	200-300

Typical Characteristic Curves

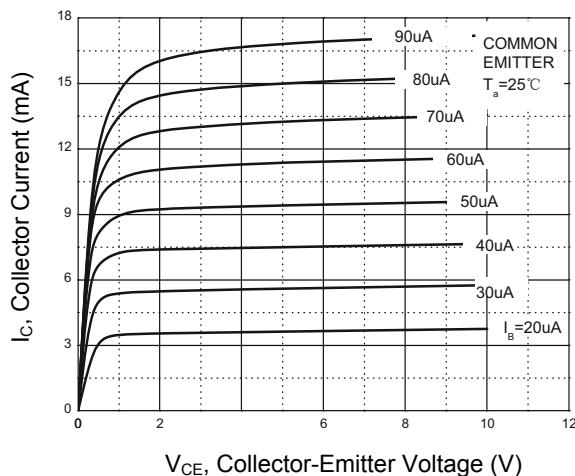


Figure 1. Static Characteristic

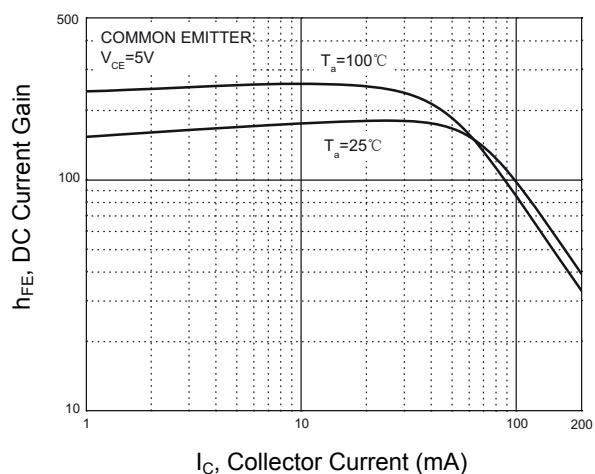


Figure 2. $h_{FE} — I_c$

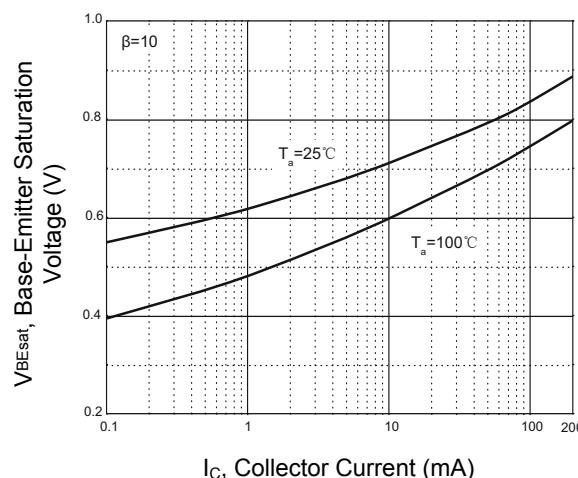


Figure 3. $V_{BEsat} — I_c$

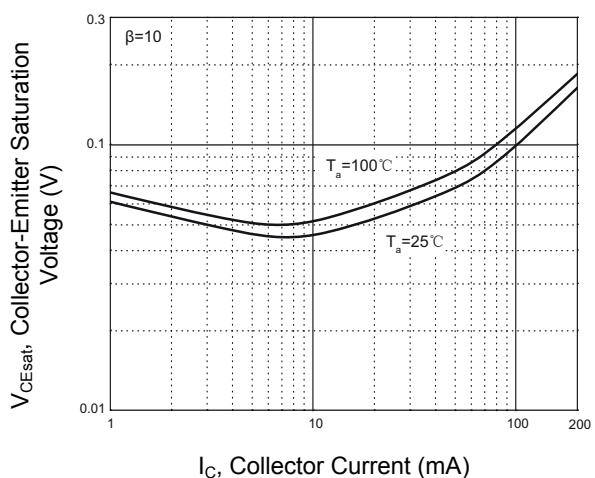


Figure 4. $V_{CEsat} — I_c$

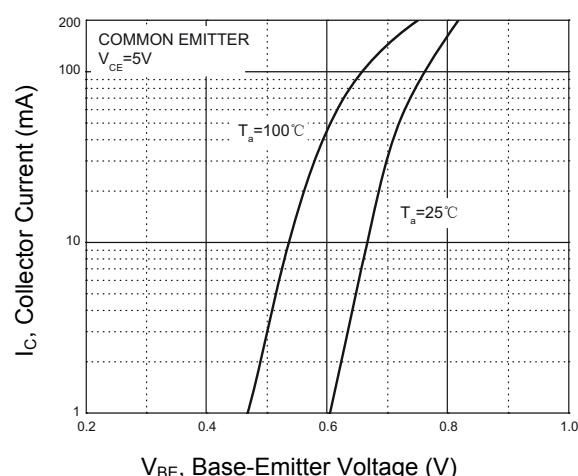


Figure 5. $V_{BE} — I_c$

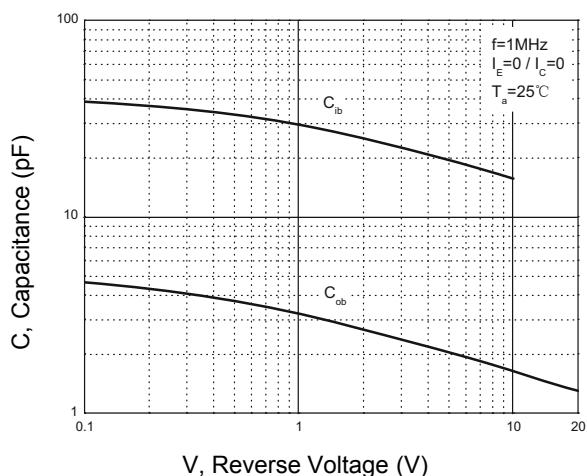


Figure 6. $C_{ob}/C_{ib} — V_{CB}/V_{EB}$

Typical Characteristic Curves

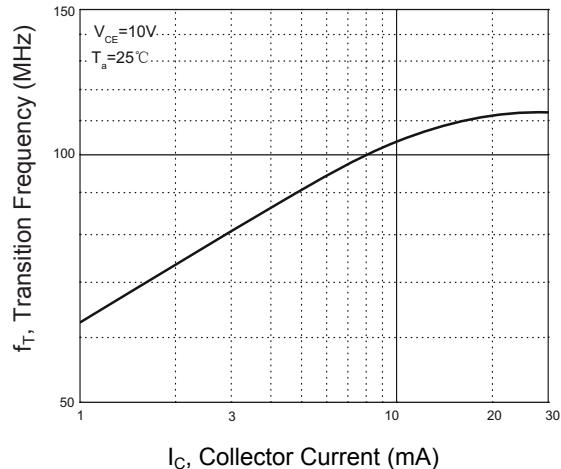


Figure 7. f_T — I_C

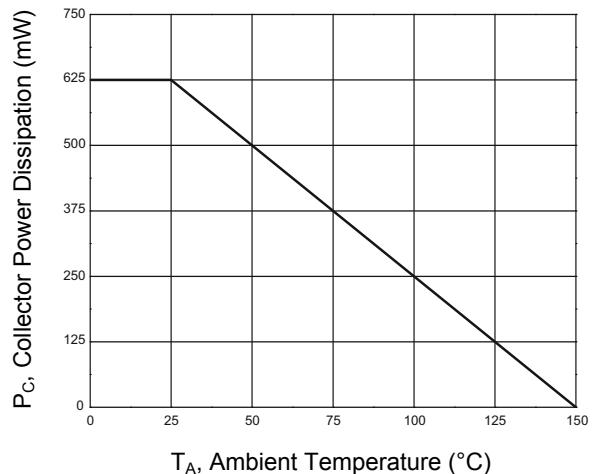
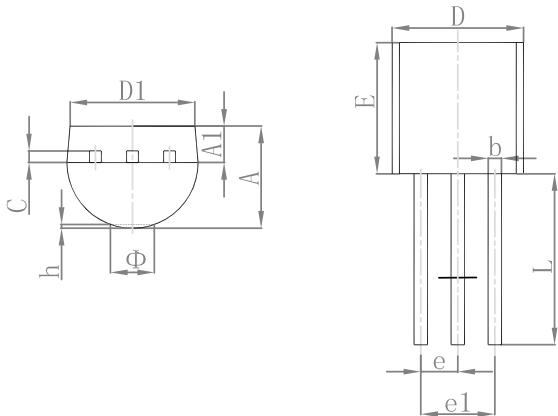


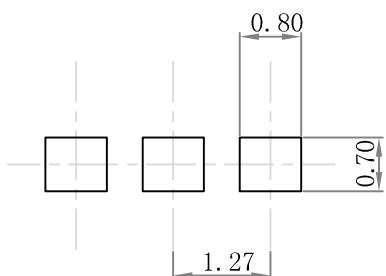
Figure 8. P_C — T_a

Package Outline Dimensions (TO-92)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430	-	0.135	-
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ	-	1.600	-	0.063
h	0.000	0.380	0.000	0.015

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	Quantity	HSF Status
2N5551	TO-92	2N5551	2,000pcs / Box	RoHS Compliant