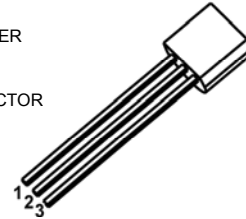


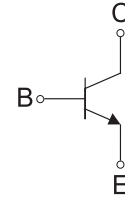
**Features**

- General purpose switching application

- 1. EMILTTER
- 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	$^{\circ}\text{C/W}$
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 <sup>1</sup>	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	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

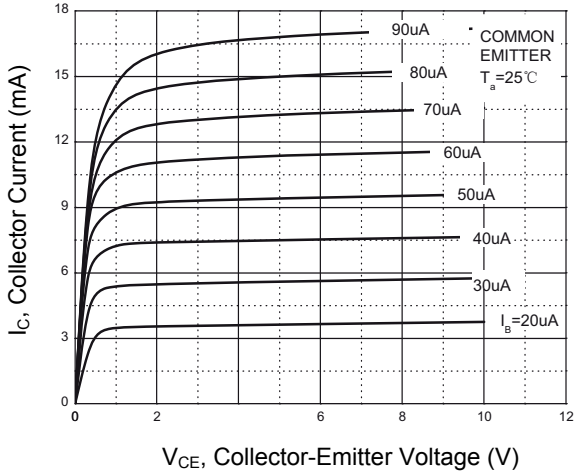
Notes:

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

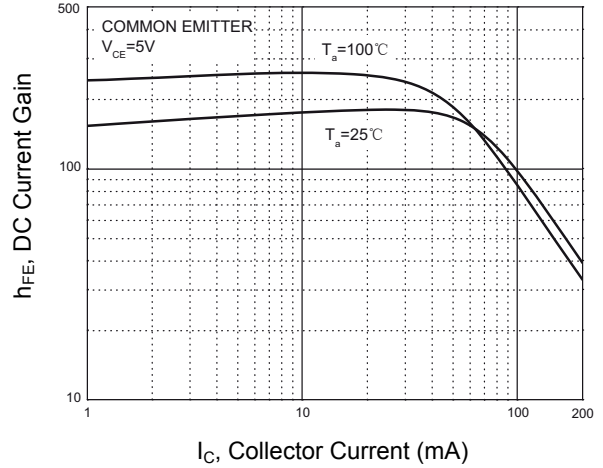
**Classification of  $h_{FE(2)}$**

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

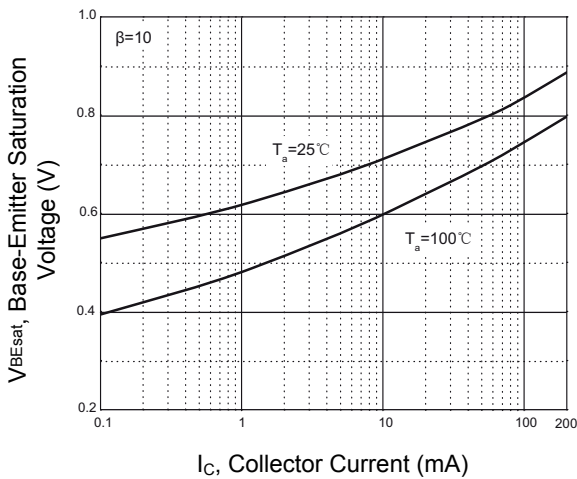
**Typical Characteristic Curves**



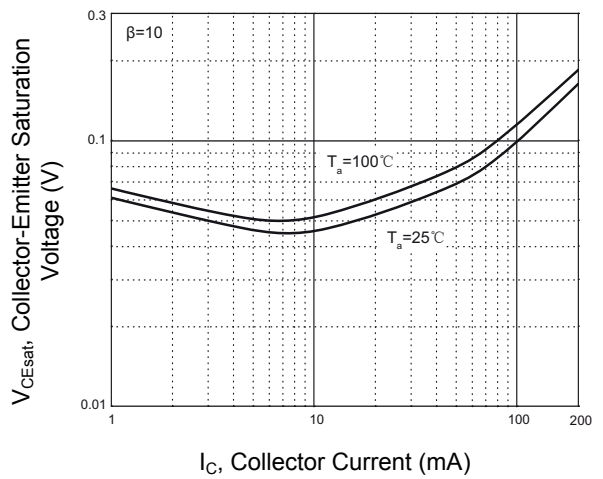
**Figure 1. Static Characteristic**



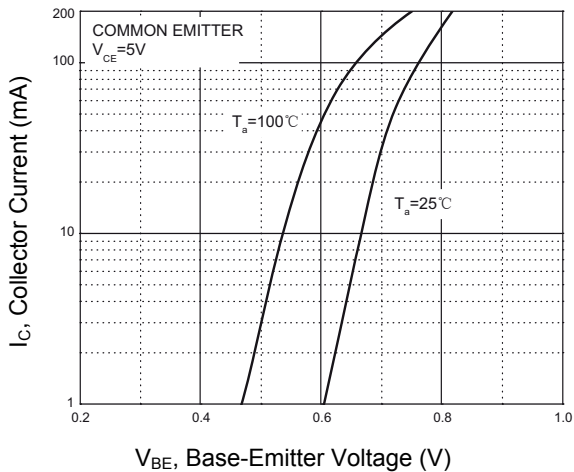
**Figure 2.  $h_{FE} - I_C$**



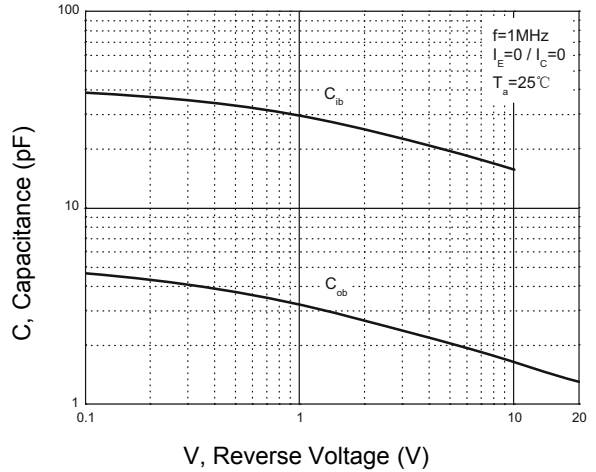
**Figure 3.  $V_{BEsat} - I_C$**



**Figure 4.  $V_{CEsat} - I_C$**

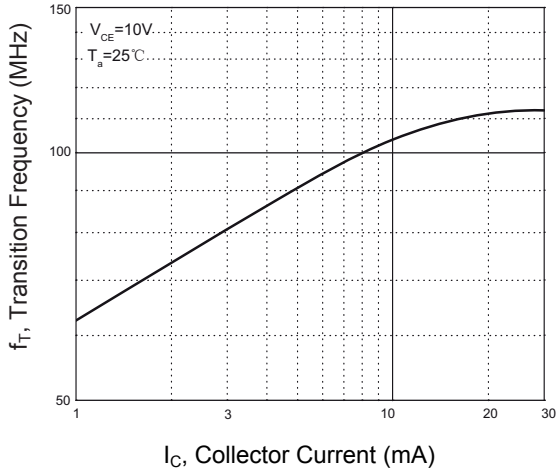


**Figure 5.  $V_{BE} - I_C$**

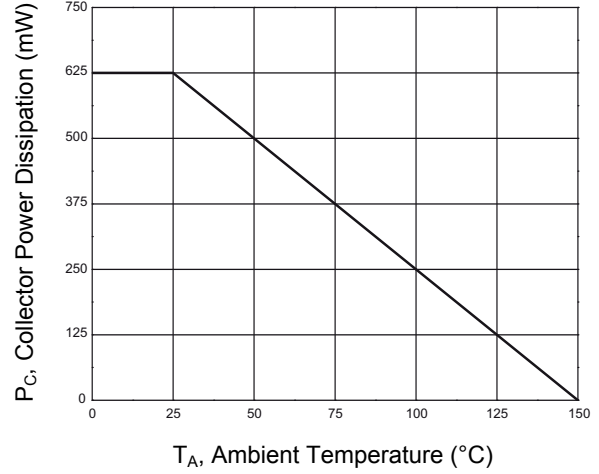


**Figure 6.  $C_{ob}/C_{ib} - V_{CB}/V_{EB}$**

**Typical Characteristic Curves**

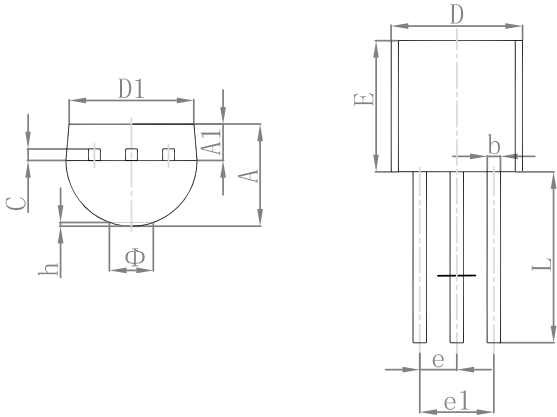


**Figure 7.  $f_T$  —  $I_C$**



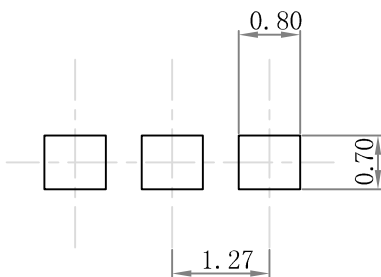
**Figure 8.  $P_C$  —  $T_A$**

**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