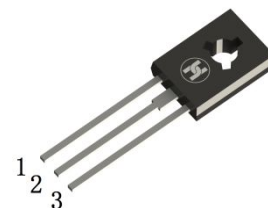


BIPOLAR TRANSISTOR (NPN)

FEATURES

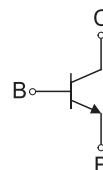
- Transceiver Driver Applications



1.EMITTER 2.COLLECTOR 3.BASE

TO-126

Equivalent Circuit



MECHANICAL DATA

- Case: TO-126
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.5 grams (approximate)

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Collector Power Dissipation	P_C	0.75	W
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	167	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}^*$	75			V	$I_C=10\mu\text{A}, I_E=0$
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	45			V	$I_C=1\text{mA}, I_B=0$
Emitter-base breakdown voltage	$V_{(BR)EBO}$	5			V	$I_E=10\mu\text{A}, I_C=0$
Collector cut-off current	I_{CBO}			1	μA	$V_{CB}=40\text{V}, I_E=0$
Emitter cut-off current	I_{EBO}			1	μA	$V_{EB}=4\text{V}, I_C=0$
DC current gain	h_{FE}^*	60		320		$V_{CE}=5\text{V}, I_C=0.5\text{A}$
Collector-emitter saturation voltage	$V_{CE(sat)}^*$			0.6	V	$I_C=500\text{mA}, I_B=50\text{mA}$
Base-emitter saturation voltage	$V_{BE(sat)}^*$			1.2	V	$I_C=500\text{mA}, I_B=50\text{mA}$
Transition frequency	f_T		180		MHz	$V_{CE}=10\text{V}, I_C=50\text{mA}$

*pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.

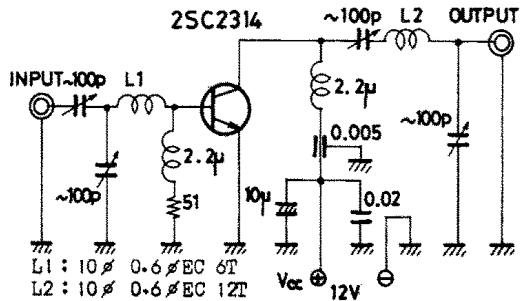
CLASSIFICATION OF h_{FE}

Rank	D	E	F
Range	60-120	100-200	160-320

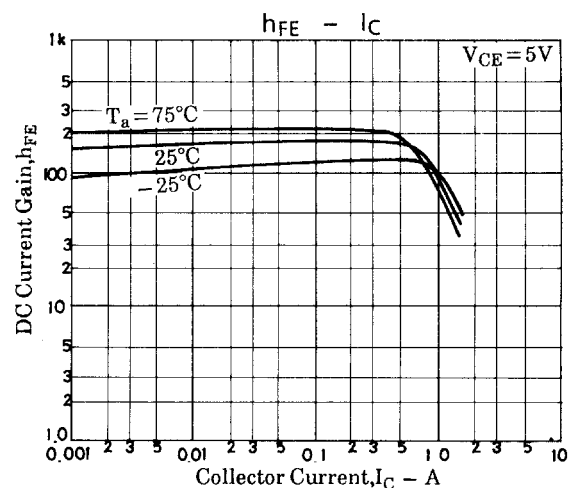
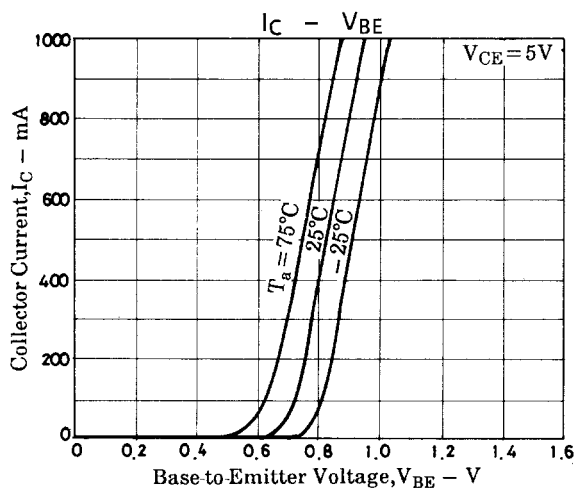
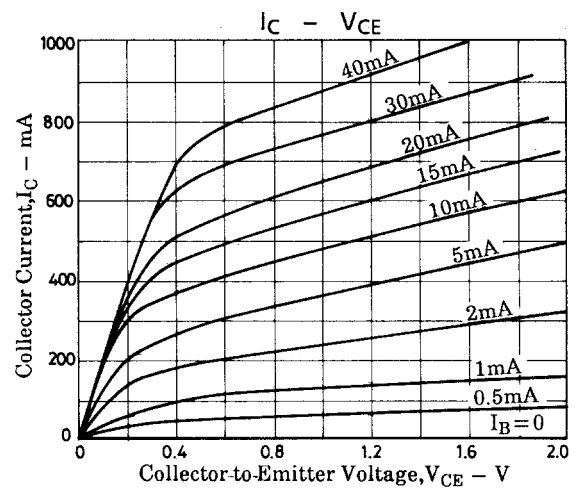
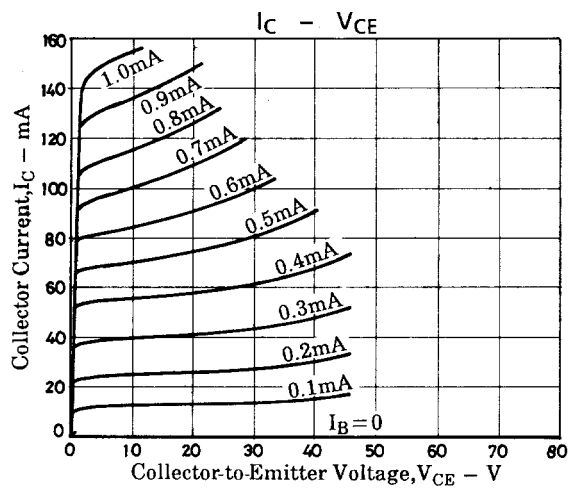
BIPOLAR TRANSISTOR (NPN)

Typical Characteristics

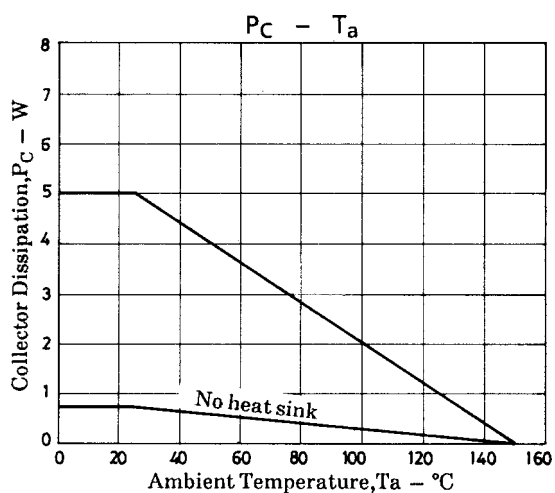
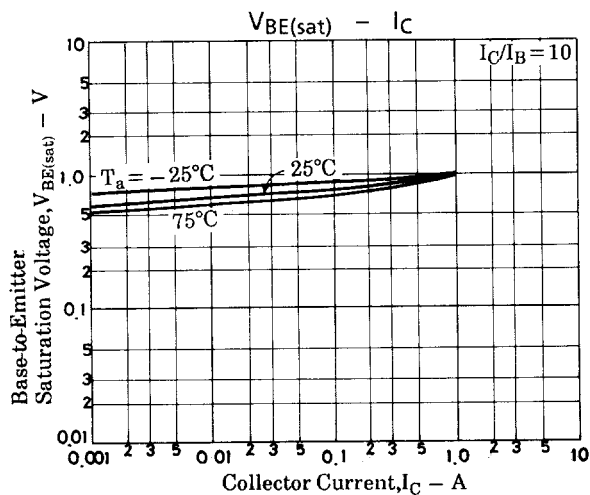
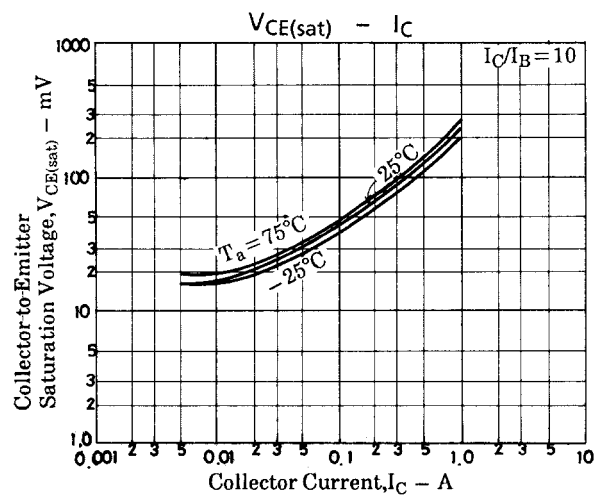
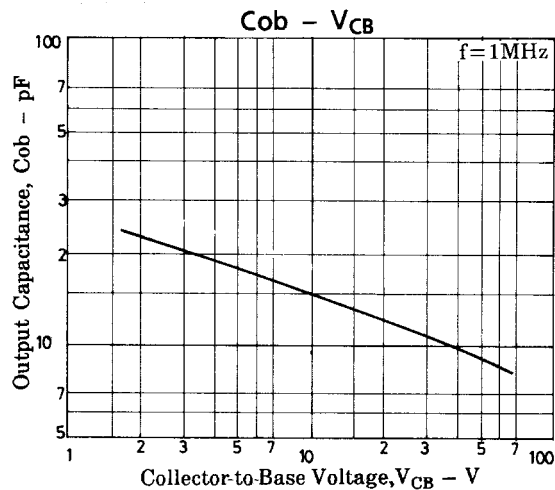
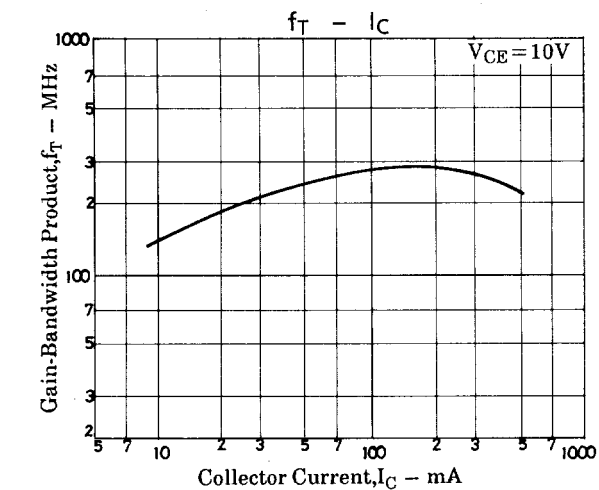
Collector Efficiency Test Circuit

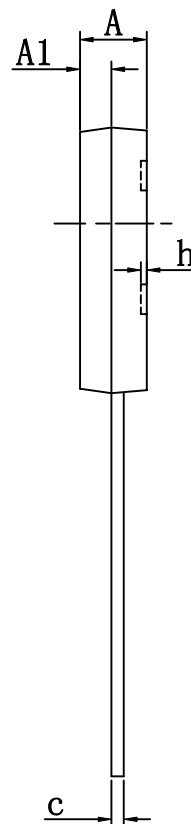
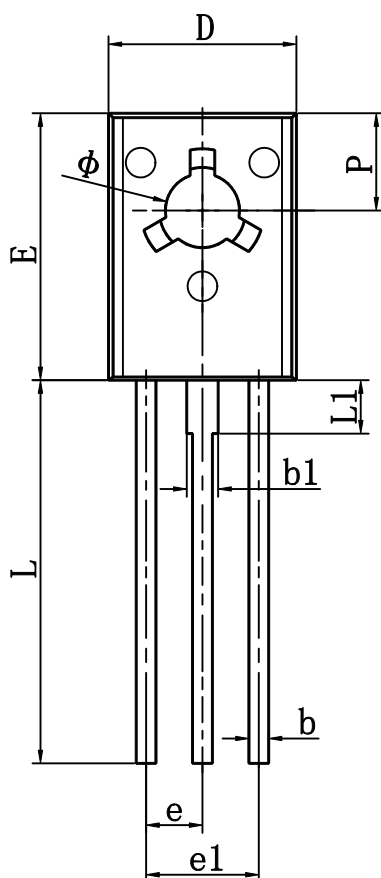


Unit (resistance : Ω , capacitance : F)



BIPOLAR TRANSISTOR (NPN)



BIPOLAR TRANSISTOR (NPN)
TO-18 Package Outline Dimensions


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.500	2.900	0.098	0.114
A1	1.100	1.500	0.043	0.059
b	0.660	0.860	0.026	0.034
b1	1.170	1.370	0.046	0.054
c	0.450	0.600	0.018	0.024
D	7.400	7.800	0.291	0.307
E	10.600	11.000	0.417	0.433
e	2.290 TYP		0.090 TYP	
e1	4.480	4.680	0.176	0.184
h	0.000	0.300	0.000	0.012
L	15.300	15.700	0.602	0.618
L1	2.100	2.300	0.083	0.091
P	3.900	4.100	0.154	0.161
Φ	3.000	3.200	0.118	0.126