
100 pcs Assortment Transistor set

1) BC547	TO-92 Plastic-Encapsulate Transistors @ 28pcs
2) BC557	TO-92 Plastic-Encapsulate Transistors @ 28pcs
3) BC337	TO-92 Plastic-Encapsulate Transistors @ 12pcs
4) BC327	TO-92 Plastic-Encapsulate Transistors @ 12pcs
5) BC517	TO-92 Darlington Transistors @ 6pcs
6) BC516	TO-92 Darlington Transistors @ 6pcs
7) BD139	TO-126 Plastic-Encapsulate Transistors @ 4pcs
8) BD140	TO-126 Plastic-Encapsulate Transistors @ 4pcs

TO-92 Plastic-Encapsulate Transistors

BC547 TRANSISTOR (NPN)

FEATURES

- High Voltage
- Complement to BC556,BC557,BC558

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

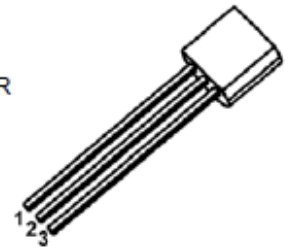
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	BC546	80
		BC547	50
		BC548	30
V_{CEO}	Collector-Emitter Voltage	BC546	65
		BC547	45
		BC548	30
V_{EBO}	Emitter-Base Voltage	BC546	6
		BC547	6
		BC548	5
I_C	Collector Current-Continuous	0.1	A
P_C	Collector Power Dissipation	625	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	200	$^{\circ}\text{C}/\text{W}$
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

TO - 92

1. COLLECTOR

2. BASE

3. EMITTER



Datasheet

Item no. 1571684

V1_07272018_01_en

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

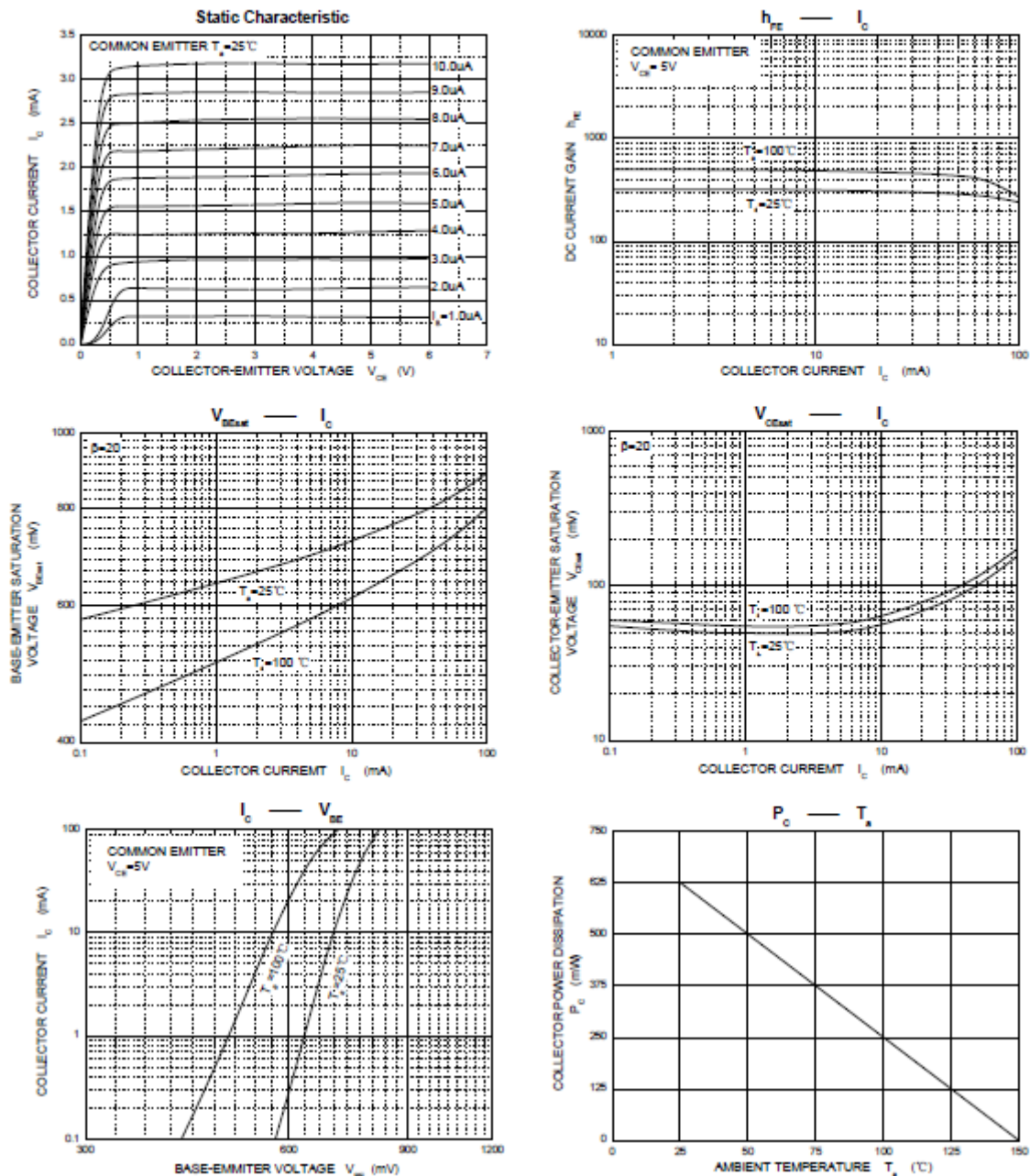
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BC546	$I_C = 0.1\text{mA}, I_E = 0$	80			V
	BC547		50			
	BC548		30			
Collector-emitter breakdown voltage	BC546	$I_C = 1\text{mA}, I_B = 0$	65			V
	BC547		45			
	BC548		30			
Emitter-base breakdown voltage	BC546	$I_E = 10\mu\text{A}, I_C = 0$	6			V
	BC547		6			
	BC548		5			
Collector cut-off current	BC546	$V_{CB} = 70\text{V}, I_E = 0$			0.1	μA
	BC547	$V_{CB} = 50\text{V}, I_E = 0$			0.1	μA
	BC548	$V_{CB} = 30\text{V}, I_E = 0$			0.1	μA
Collector cut-off current	BC546	$V_{CE} = 60\text{V}, I_B = 0$			0.1	μA
	BC547	$V_{CE} = 45\text{V}, I_B = 0$			0.1	μA
	BC548	$V_{CE} = 30\text{V}, I_B = 0$			0.1	μA
Emitter cut-off current		I_{EBO}			0.1	μA
DC current gain		h_{FE}	110		800	
Collector-emitter saturation voltage		$V_{CE(sat)}$			0.3	V
Base-emitter saturation voltage		$V_{BE(sat)}$			1.1	V
Base-emitter voltage	V_{BE}	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	0.58		0.7	V
		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$			0.75	V
Collector output capacitance		C_{ob}			4.5	pF
Transition frequency		f_T	150			MHz

CLASSIFICATION of h_{FE}

RANK	A	B	C
RANGE	110-220	200-450	420-800

Typical Characteristics

BC547



Datasheet

Item no. 1571684

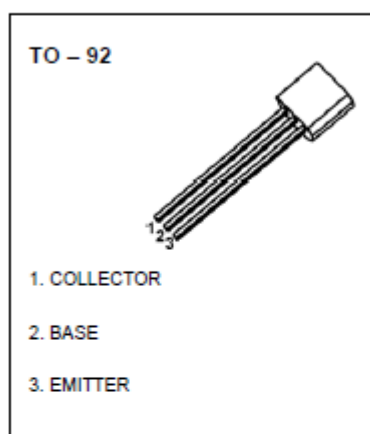
V1_07272018_01_en

TO-92 Plastic-Encapsulate Transistors

BC557 TRANSISTOR (PNP)

FEATURES

- High Voltage
- Complement to BC546,BC547,BC548



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

Symbol	Parameter	Value	Unit
V_{CB0}	Collector-Base Voltage	BC556	-80
		BC557	-50
		BC558	-30
V_{CE0}	Collector-Emitter Voltage	BC556	-65
		BC557	-45
		BC558	-30
V_{EB0}	Emitter-Base Voltage	-5	V
I_C	Collector Current-Continuous	-0.1	A
P_C	Collector Power Dissipation	625	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	200	$^{\circ}\text{C/W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

Datasheet

Item no. 1571684

V1_07272018_01_en

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BC556	$I_C = -0.1\text{mA}, I_E = 0$	-80			V
	BC557		-50			
	BC558		-30			
Collector-emitter breakdown voltage	BC556	$I_C = -2\text{mA}, I_B = 0$	-85			V
	BC557		-45			
	BC558		-30			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	BC556	$V_{CB} = -70\text{V}, I_E = 0$			-0.1	μA
	BC557	$V_{CB} = -45\text{V}, I_E = 0$			-0.1	μA
	BC558	$V_{CB} = -25\text{V}, I_E = 0$			-0.1	μA
Collector cut-off current	BC556	$V_{CE} = -80\text{V}, I_B = 0$			-0.1	μA
	BC557	$V_{CE} = -40\text{V}, I_B = 0$			-0.1	μA
	BC558	$V_{CE} = -25\text{V}, I_B = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0$			-0.1	μA
DC current gain	h_{FE}	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	120		800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$			-0.3	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$			-0.65	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$			-0.8	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$			-1	V
Base-emitter voltage	V_{BE}	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	-0.55		-0.7	V
		$V_{CE} = -5\text{V}, I_C = -10\text{mA}$			-0.82	V
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$			6	pF
Transition frequency	BC556	$V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$		150		MHz
	BC557			150		MHz
	BC558			150		MHz

CLASSIFICATION of h_{FE}

RANK	A	B	C
RANGE	120-220	180-460	420-800

Datasheet

Item no. 1571684

V1_07272018_01_en

TO-92 Plastic-Encapsulate Transistors

BC337 TRANSISTOR (NPN)

FEATURES

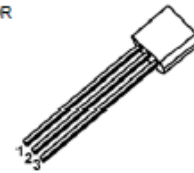
- Power dissipation

MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	BC337 50	V
		BC338 30	
V _{CE0}	Collector-Emitter Voltage	BC337 45	V
		BC338 25	
V _{EB0}	Emitter-Base Voltage	5	V
I _C	Collector Current -Continuous	800	mA
P _D	Total Device Dissipation	625	mW
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C

TO-92

- COLLECTOR
- BASE
- EMITTER



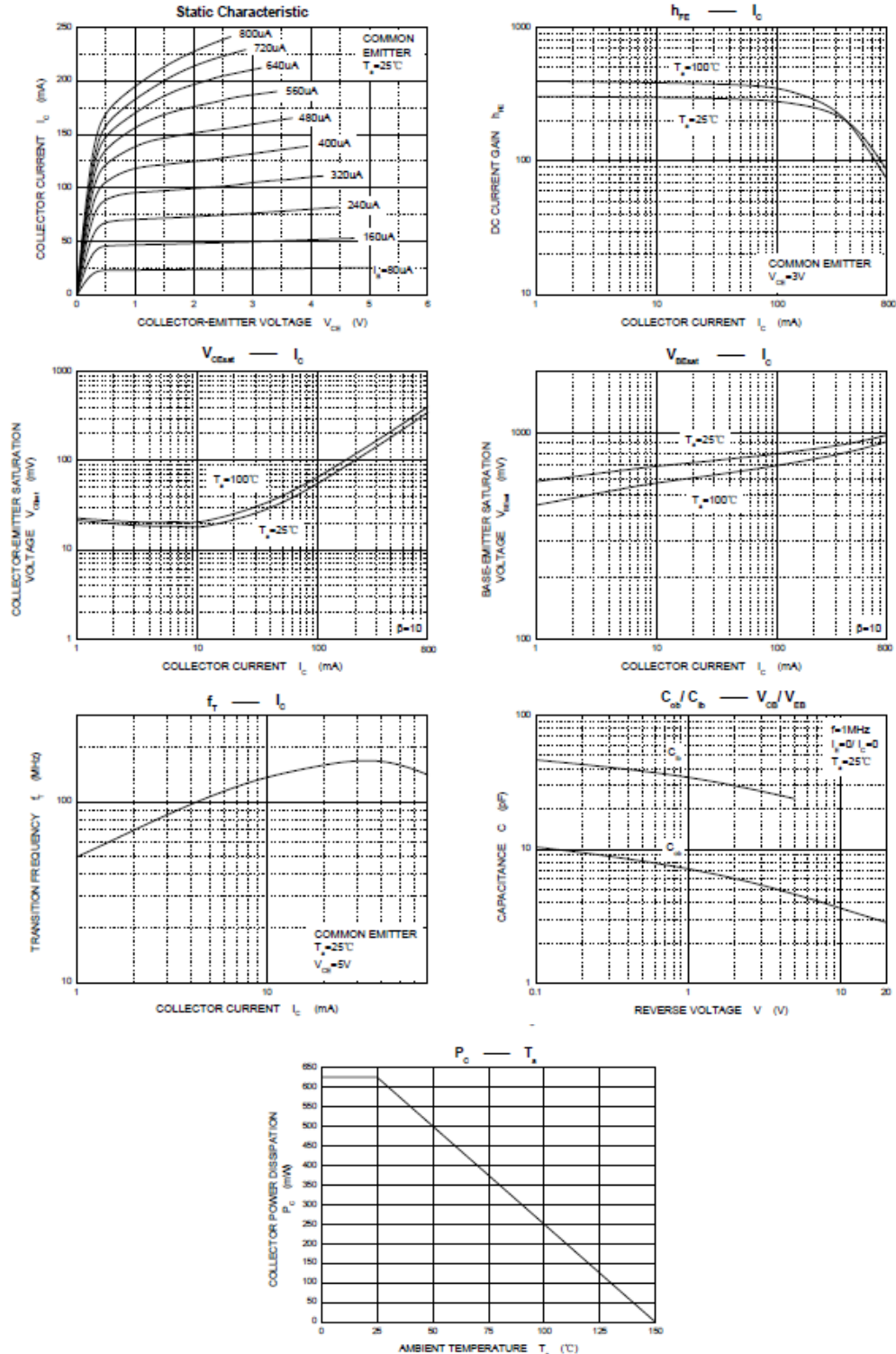
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V _{CB0}	I _C = 100µA, I _E = 0	50			V
			30			V
Collector-emitter breakdown voltage	V _{CE0}	I _C = 10mA, I _B = 0	45			V
			25			V
Emitter-base breakdown voltage	V _{EB0}	I _E = 10µA, I _C = 0	5			V
Collector cut-off current	I _{CB0}	V _{CE} = 45V, I _E = 0			0.1	µA
		V _{CE} = 25V, I _E = 0			0.1	µA
Collector cut-off current	I _{CE0}	V _{CE} = 40V, I _B = 0			0.2	µA
		V _{CE} = 20V, I _B = 0			0.2	µA
Emitter cut-off current	I _{EB0}	V _{EB} = 4 V, I _C = 0			0.1	µA
BC337/BC338	h _{FE(1)}	V _{CE} = 1V, I _C = 100mA	100		630	
			100		250	
			160		400	
			250		630	
DC current gain	h _{FE(2)}	V _{CE} = 1V, I _C = 300mA	60			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = 500mA, I _B = 50mA			0.7	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C = 500mA, I _B = 50mA			1.2	V
Base-emitter voltage	V _{BE}	V _{CE} = 1V, I _C = 300mA			1.2	V
Transition frequency	f _T	V _{CE} = 5V, I _C = 10mA f = 100MHz	210			MHz
Collector Output Capacitance	C _{ob}	V _{CE} = 10V, I _E = 0 f = 1MHz		15		pF

Datasheet

Item no. 1571684

V1_07272018_01_en



Datasheet

Item no. 1571684

V1_07272018_01_en

TO-92 Plastic-Encapsulate Transistors

BC327 TRANSISTOR (PNP)

FEATURES

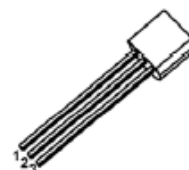
- Power dissipation

MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	BC327 -50 BC328 -30	V
V _{CE0}	Collector-Emitter Voltage	BC327 -45 BC328 -25	V
V _{EB0}	Emitter-Base Voltage	-5	V
I _C	Collector Current -Continuous	-800	mA
P _C	Collector Power Dissipation	625	mW
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C

TO-92

- COLLECTOR
- BASE
- EMITTER



ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{CB0}	I _C = -100µA, I _E = 0	-50 -30			V
Collector-emitter breakdown voltage	V _{CE0}	I _C = -10mA, I _B = 0	-45 -25			V
Emitter-base breakdown voltage	V _{EB0}	I _E = -10µA, I _C = 0	-5			V
Collector cut-off current	I _{CB0}	V _{CB} = -45 V, I _E = 0 V _{CB} = -25 V, I _E = 0			-0.1 -0.1	µA
Collector cut-off current	I _{CE0}	V _{CE} = -40 V, I _B = 0 V _{CE} = -20 V, I _B = 0			-0.2 -0.2	µA
Emitter cut-off current	I _{EB0}	V _{EB} = -4 V, I _C = 0			-0.1	µA
DC current gain	h _{FE(1)}	V _{CE} = -1 V, I _C = -100mA	100		630	
	h _{FE(2)}	V _{CE} = -1 V, I _C = -300mA	40			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = -500mA, I _B = -50mA			-0.7	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C = -500mA, I _B = -50mA			-1.2	V
Base-emitter voltage	V _{BE}	V _{CE} = -1 V, I _C = -300mA			-1.2	V
Transition frequency	f _T	V _{CE} = -5V, I _C = -10mA f = 100MHz	260			MHz
Collector Output Capacitance	C _{ob}	V _{CB} = -10V, I _E = 0 f = 1MHz		12		pF

CLASSIFICATION OF h_{FE}

Rank	16	25	40
Range	100-250	160-400	250-630

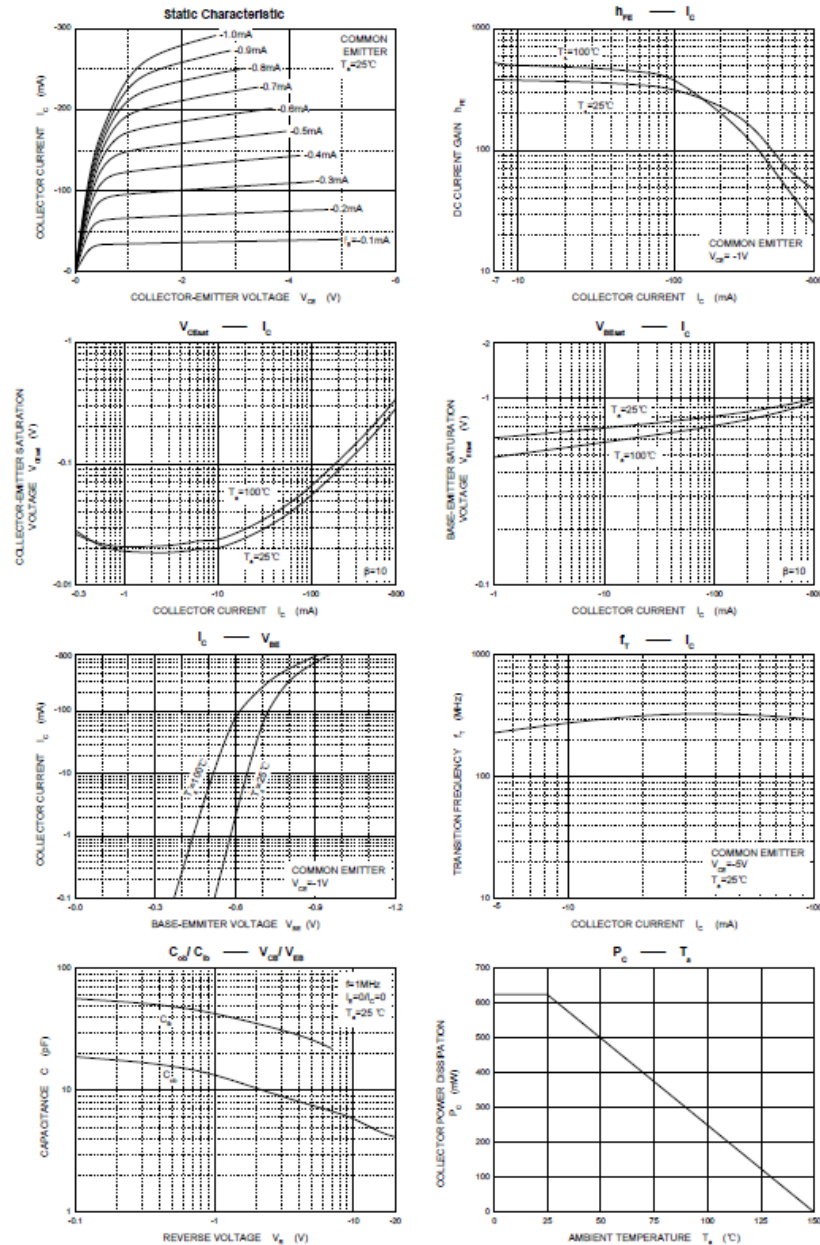
Datasheet

Item no. 1571684

V1_07272018_01_en

Typical Characteristics

BC327

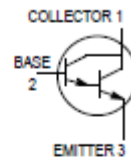


Datasheet

Item no. 1571684

V1_07272018_01_en

Darlington Transistors NPN Silicon


BC517

CASE 29-04, STYLE 17
TO-18 (TO-226AA)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CES}	30	Vdc
Collector–Base Voltage	V_{CB}	40	Vdc
Emitter–Base Voltage	V_{EB}	10	Vdc
Collector Current — Continuous	I_C	1.0	Adc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 12	mW mW/ $^\circ\text{C}$
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage ($I_C = 2.0\text{ mA}$, $V_{BE} = 0$)	$V_{(BR)CES}$	30	—	—	Vdc
Collector–Base Breakdown Voltage ($I_C = 10\text{ }\mu\text{A}$, $I_E = 0$)	$V_{(BR)CBO}$	40	—	—	Vdc
Emitter–Base Breakdown Voltage ($I_E = 100\text{ nA}$, $I_C = 0$)	$V_{(BR)EBO}$	10	—	—	Vdc
Collector Cutoff Current ($V_{CE} = 30\text{ Vdc}$)	I_{CES}	—	—	500	nAdc
Collector Cutoff Current ($V_{CB} = 30\text{ Vdc}$, $I_E = 0$)	I_{CBO}	—	—	100	nAdc
Emitter Cutoff Current ($V_{EB} = 10\text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	—	100	nAdc

Datasheet

Item no. 1571684

V1_07272018_01_en

BC517

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

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS⁽¹⁾					
DC Current Gain ($I_C = 20\text{ mAdc}$, $V_{CE} = 2.0\text{ Vdc}$)	h_{FE}	30,000	—	—	—
Collector-Emitter Saturation Voltage ($I_C = 100\text{ mAdc}$, $I_B = 0.1\text{ mAdc}$)	$V_{CE(sat)}$	—	—	1.0	Vdc
Base-Emitter On Voltage ($I_C = 10\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$)	$V_{BE(on)}$	—	—	1.4	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product ⁽²⁾ ($I_C = 10\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$, $f = 100\text{ MHz}$)	f_T	—	200	—	MHz

1. Pulse Test: Pulse Width $\leq 2.0\%$.

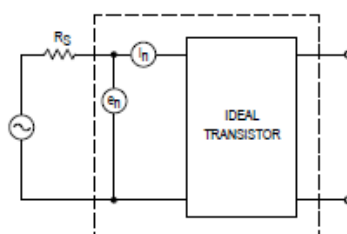
2. $f_T = |h_{fe}| \cdot f_{test}$


Figure 1. Transistor Noise Model

BC517

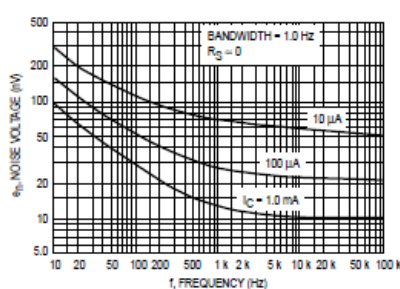
NOISE CHARACTERISTICS
($V_{CE} = 5.0\text{ Vdc}$, $T_A = 25^\circ\text{C}$)


Figure 2. Noise Voltage

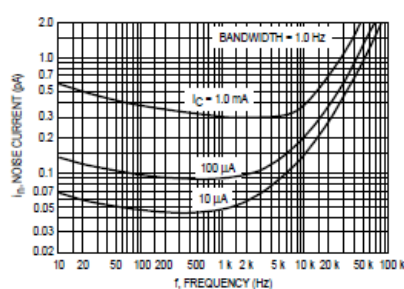


Figure 3. Noise Current

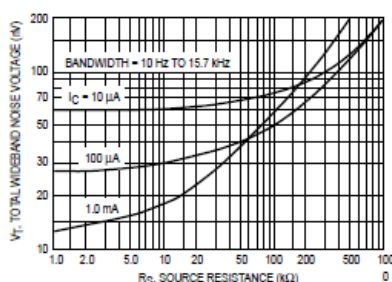


Figure 4. Total Wideband Noise Voltage

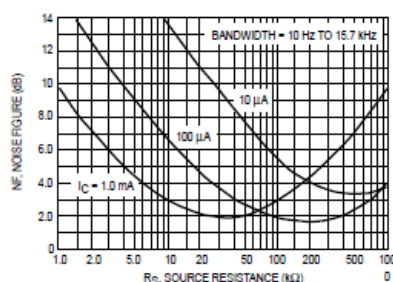


Figure 5. Wideband Noise Figure

BC517

SMALL-SIGNAL CHARACTERISTICS

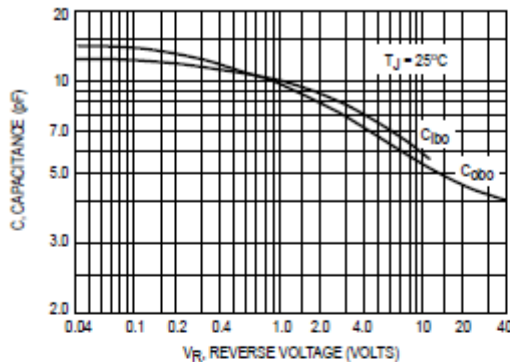


Figure 6. Capacitance

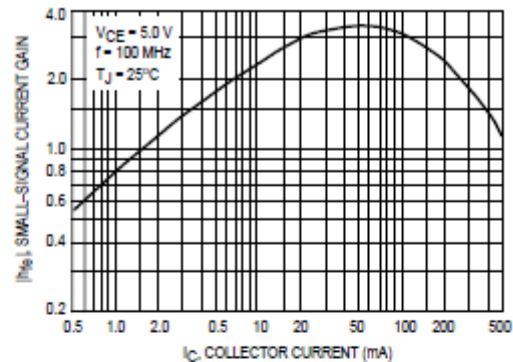


Figure 7. High Frequency Current Gain

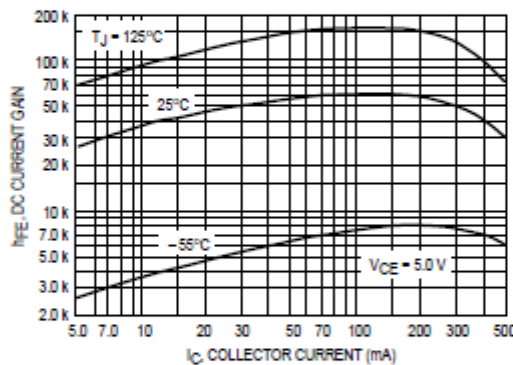


Figure 8. DC Current Gain

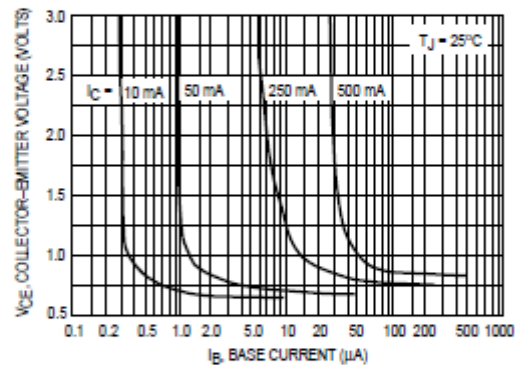


Figure 9. Collector Saturation Region

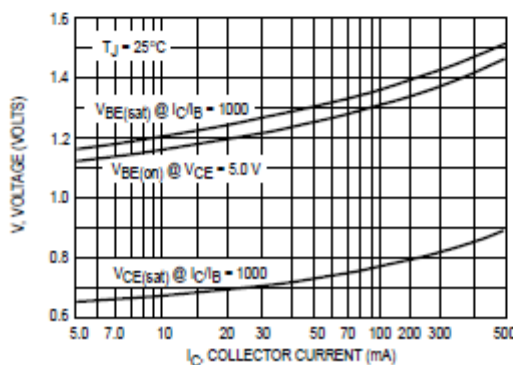


Figure 10. "On" Voltages

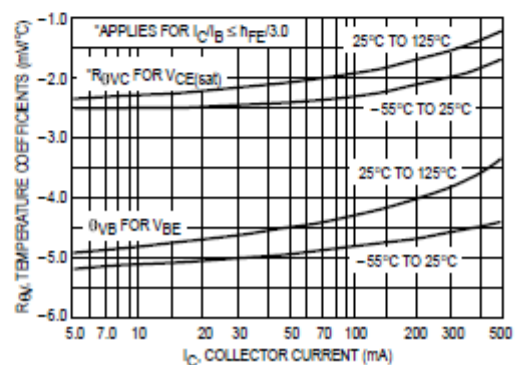


Figure 11. Temperature Coefficients

Datasheet

Item no. 1571684

V1_07272018_01_en

BC517

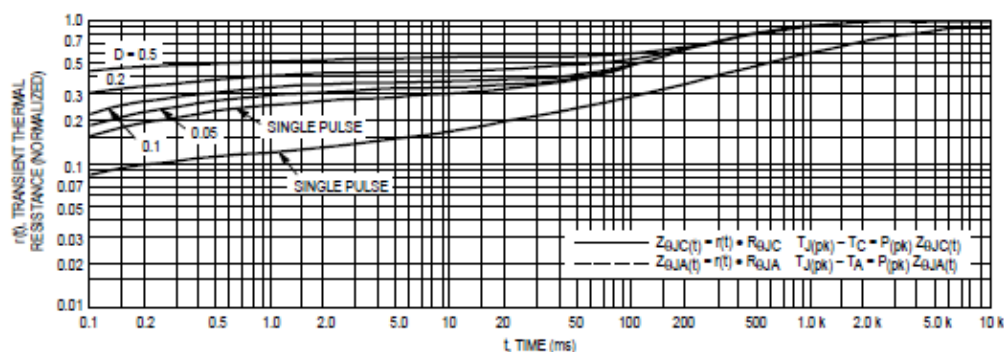


Figure 12. Thermal Response

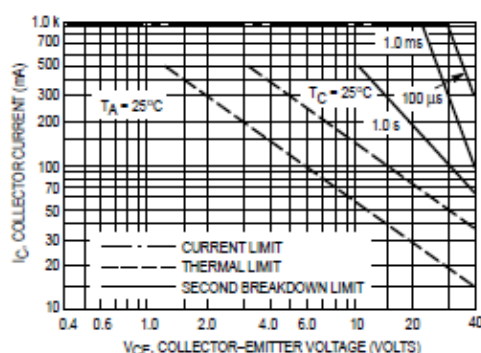
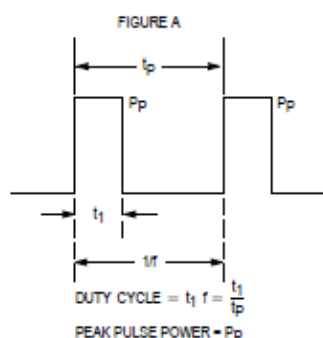
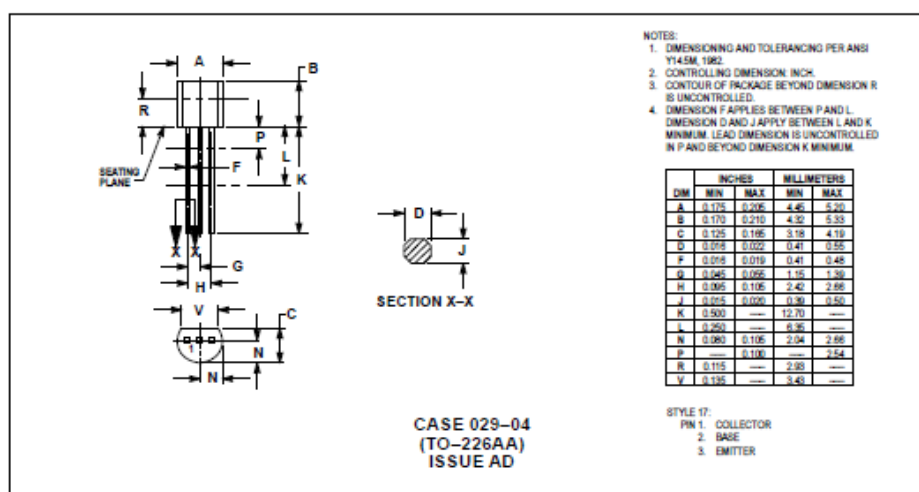


Figure 13. Active Region Safe Operating Area



Design Note: Use of Transient Thermal Resistance Data

PACKAGE DIMENSIONS



Datasheet

Item no. 1571684

V1_07272018_01_en

BC516

PNP Darlington Transistor

- This device is designed for applications requiring extremely high current gain at currents to 1mA.
- Sourced from process 61.



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

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	30	V
V_{CBO}	Collector-Base Voltage	40	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current - Continuous	1	A
P_D	Total Power Dissipation $T_A = 25^\circ\text{C}$	625	mW
T_J, T_{STG}	Operating and Storage Junction Temperature Range	$-55 \sim +150$	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 2\text{mA}, I_E = 0$	30			V
V_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	40			V
V_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}, I_C = 0$	10			V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 30\text{V}, I_E = 0$			100	nA
β_{FE}	DC Current Gain	$I_C = 20\text{mA}, V_{CE} = 2\text{V}$	30,000			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{mA}, I_E = 0.1\text{mA}$			1	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 10\text{mA}, V_{CE} = 5\text{V}$			1.4	V
f_T	Current Gain Bandwidth Product (2)	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 100\text{MHz}$		200		MHz

NOTES:

1. Pulse Test Pulse Width $\leq 2\%$
2. $f_T = (h_{fe}) / f_{test}$

Thermal Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	$^\circ\text{C/W}$

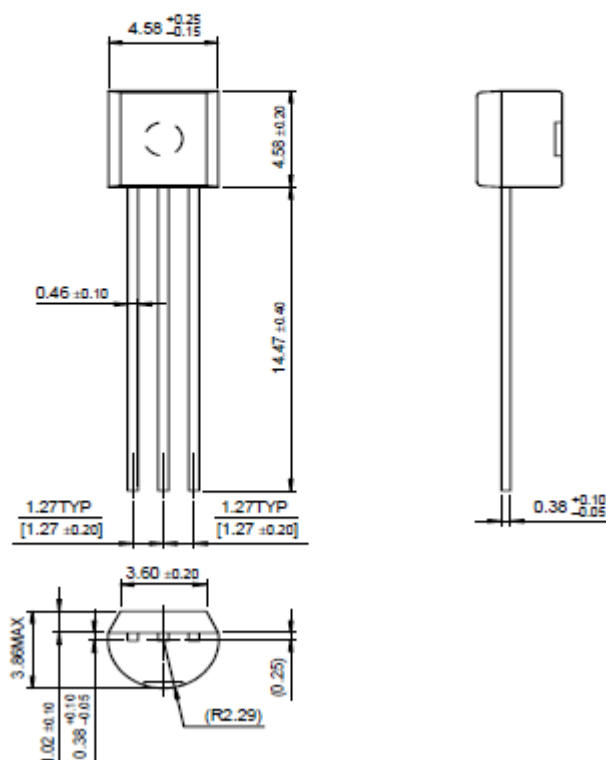
Datasheet

Item no. 1571684

V1_07272018_01_en

Package Dimensions

TO-92



Datasheet

Item no. 1571684

V1_07272018_01_en

TO-126 Plastic-Encapsulate Transistors

BD135/137/139 TRANSISTOR (NPN)

FEATURES

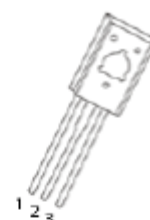
- High Current
- Complement To BD136, BD138 And BD140

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

Symbol	Parameter	Value	Unit
V_{CB0}	Collector-Base Voltage	BD135	45
		BD137	60
		BD139	80
V_{CE0}	Collector-Emitter Voltage	BD135	45
		BD137	60
		BD139	80
V_{EB0}	Emitter-Base Voltage	5	V
I_C	Collector Current	1.5	A
P_C	Collector Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	100	$^{\circ}\text{C/W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55--+150	$^{\circ}\text{C}$

TO - 126

1. EMITTER
2. COLLECTOR
3. BASE



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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C = 0.1\text{mA}, I_E = 0$				
BD135			45			V
BD137			60			
BD139			80			
Collector-emitter sustaining voltage	$V_{CE0(SUS)}$	$I_C = 0.03\text{A}, I_B = 0$				
BD135			45			V
BD137			60			
BD139			80			
Emitter-base breakdown voltage	$V_{(BR)EB0}$	$I_E = 0.1\text{mA}, I_C = 0$	5			V
Collector cut-off current	I_{CB0}	$V_{CB} = 30\text{V}, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = 5\text{V}, I_C = 0$			10	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 2\text{V}, I_C = 150\text{mA}$	40		250	
	$h_{FE(2)}$	$V_{CE} = 2\text{V}, I_C = 5\text{mA}$	25			
	$h_{FE(3)}$	$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	25			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$			0.5	V
Base-emitter voltage	V_{BE}	$V_{CE} = 2\text{V}, I_C = 500\text{mA}$			1	V

*Pulse test: pulse width $\leq 350\mu\text{s}$, duty cycle $\leq 2.0\%$.

CLASSIFICATION OF $h_{FE(1)}$

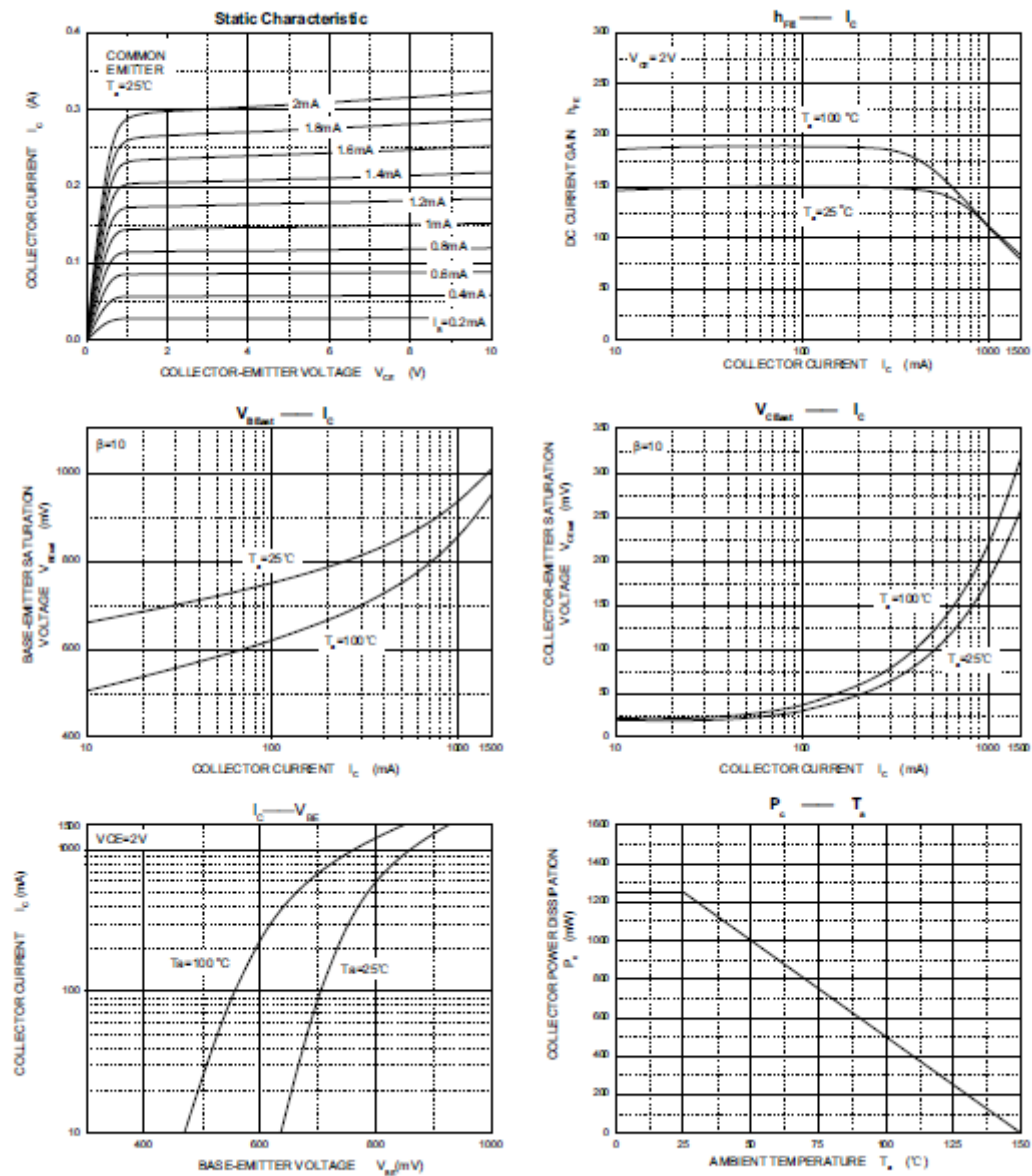
RANK	6	10	16
RANGE	40-100	63-160	100-250

Datasheet

Item no. 1571684

V1_07272018_01_en

Typical Characteristics

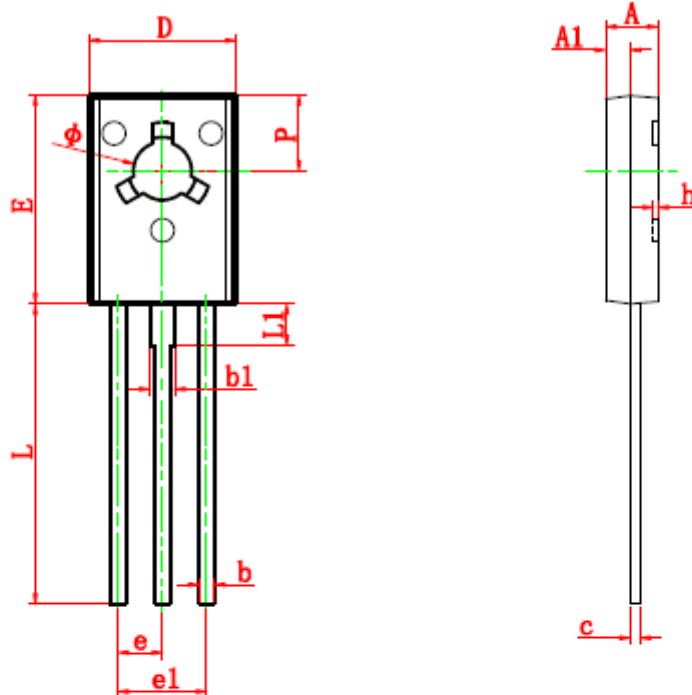


Datasheet

Item no. 1571684

V1_07272018_01_en

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

Datasheet

Item no. 1571684

V1_07272018_01_en

TO-18 Plastic-Encapsulate Transistors

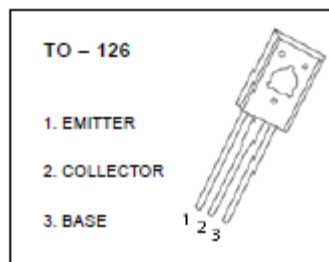
BD140 TRANSISTOR (PNP)

FEATURES

- High Current
- Complement To BD139

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

Symbol	Parameter	Value	Unit
V_{CB0}	Collector-Base Voltage	-80	V
V_{CE0}	Collector-Emitter Voltage	-80	V
V_{EB0}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-1.5	A
P_C	Collector Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	100	$^{\circ}\text{C/W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$



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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -0.1\text{mA}, I_E = 0$	-80			V
Collector-emitter sustaining voltage	$V_{CE(sus)}$	$I_C = -0.03\text{A}, I_E = 0$	-80			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -0.1\text{mA}, I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -30\text{V}, I_E = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0$			-10	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = -2\text{V}, I_C = -150\text{mA}$	40		250	
	$h_{FE(2)}$	$V_{CE} = -2\text{V}, I_C = -5\text{mA}$	25			
	$h_{FE(3)}$	$V_{CE} = -2\text{V}, I_C = -500\text{mA}$	25			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_E = -50\text{mA}$			-0.5	V
Base-emitter voltage	V_{BE}	$V_{CE} = -2\text{V}, I_C = -500\text{mA}$			-1	V

*Pulse test: pulse width $\leq 350\mu\text{s}$, duty cycles 2.0%.

CLASSIFICATION OF $h_{FE(1)}$

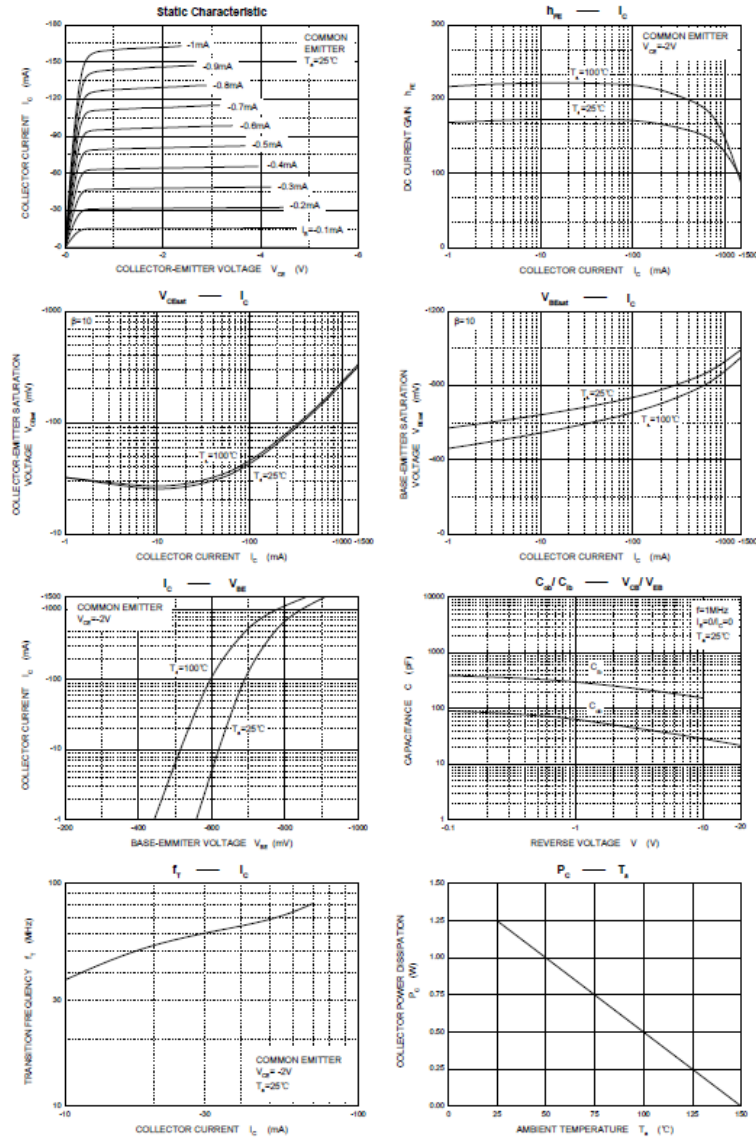
RANK	6	10	16
RANGE	40-100	63-160	100-250

Datasheet

Item no. 1571684

V1_07272018_01_en

Typical Characteristics

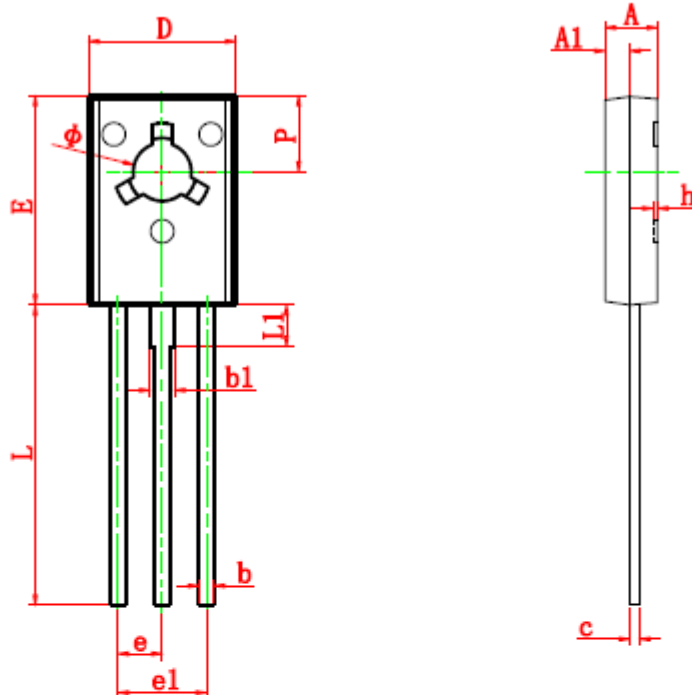


Datasheet

Item no. 1571684

V1_07272018_01_en

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