Datasheet

Item no. 1571684

V1_07272018_01_en

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

Datasheet

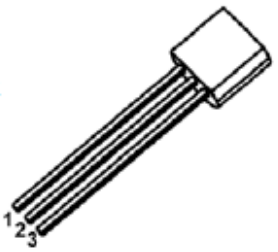
Item no. 1571684

V1_07272018_01_en

TO-92 Plastic-Encapsulate Transistors

TO – 92

1. COLLECTOR
2. BASE
3. EMITTER



BC547 TRANSISTOR (NPN)

FEATURES

- High Voltage
- Complement to BC556,BC557,BC558

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BC546	80	V
		BC547	50	
		BC548	30	
V_{CEO}	Collector-Emitter Voltage	BC546	65	V
		BC547	45	
		BC548	30	
V_{EBO}	Emitter-Base Voltage	BC546	6	V
		BC547	6	V
		BC548	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	℃/W
T_j	Junction Temperature		150	℃
T_{stg}	Storage Temperature		-55~+150	℃

Datasheet

Item no. 1571684

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter		Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BC546	$V_{(BR)CBO}$	I_C= 0.1mA,I_E=0	80			V
	BC547			50			
	BC548			30			
Collector-emitter breakdown voltage	BC546	$V_{(BR)CEO}$	I_C=1mA,I_B=0	65			V
	BC547			45			
	BC548			30			
Emitter-base breakdown voltage	BC546	$V_{(BR)EBO}$	I_E=10μA,I_C=0	6			V
	BC547			6			
	BC548			5			
Collector cut-off current	BC546	I_{CBO}	V_{CB}=70V,I_E=0			0.1	μA
	BC547		V_{CB}=50V,I_E=0			0.1	μA
	BC548		V_{CB}=30V,I_E=0			0.1	μA
Collector cut-off current	BC546	I_{CEO}	V_{CE}=60V,I_B=0			0.1	μA
	BC547		V_{CE}=45V,I_B=0			0.1	μA
	BC548		V_{CE}=30V,I_B=0			0.1	μA
Emitter cut-off current		I_{EBO}	V_{EB}=5V,I_C=0			0.1	μA
DC current gain		h_{FE}*	V_{CE}=5V, I_C=2mA	110		800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=100mA,I_B=5mA			0.3	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C=100mA,I_B=5mA			1.1	V
Base-emitter voltage		V_{BE}	V_{CE}=5V, I_C=2mA	0.58		0.7	V
			V_{CE}=5V, I_C=10mA			0.75	V
Collector output capacitance		C_{ob}	V_{CB}=10V,I_E=0, f=1MHz			4.5	pF
Transition frequency		f_T	V_{CE}=5V,I_C=10mA, f=100MHz	150			MHz

CLASSIFICATION of h_{FE}

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

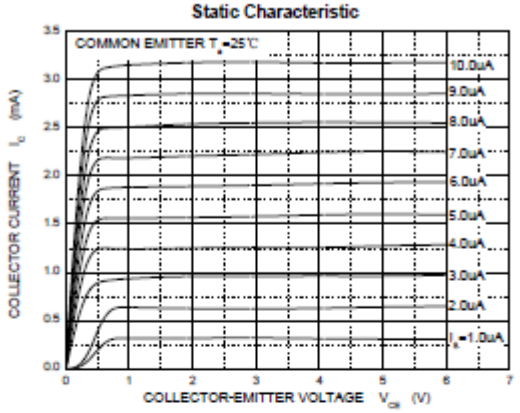
Datasheet

Item no. 1571684

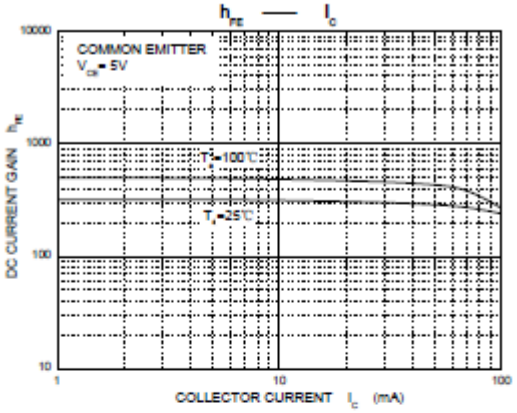
V1_07272018_01_en

Typical Characteristics BC547

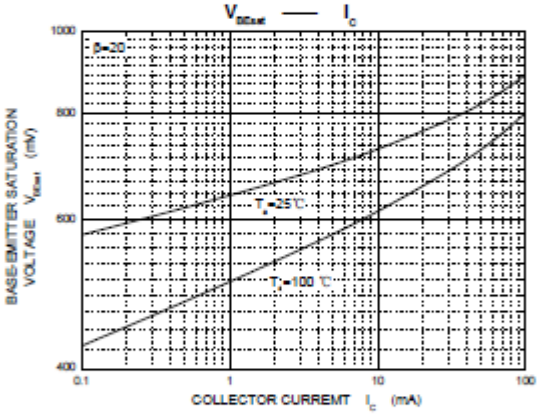
Static Characteristic



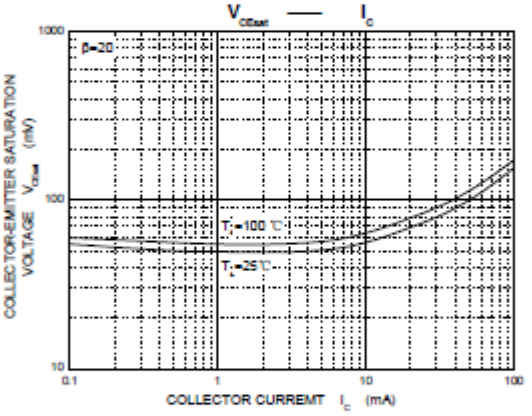
h_{FE} — I_C



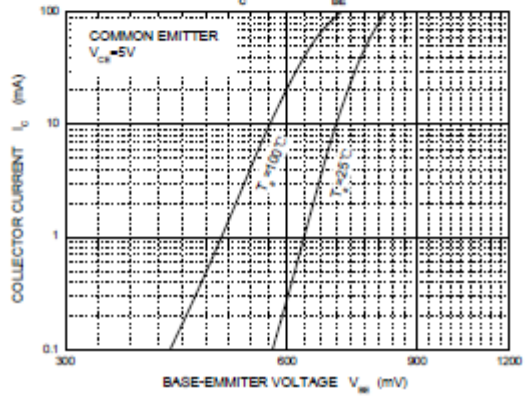
$V_{BE(sat)}$ — I_C



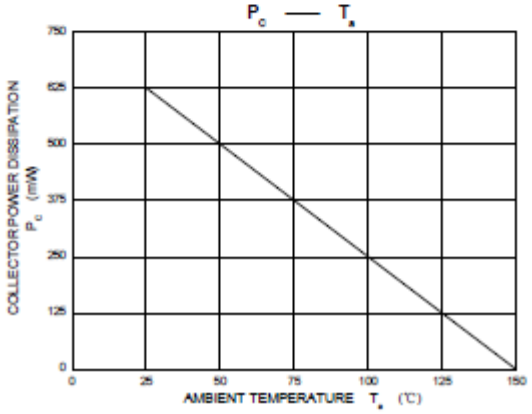
$V_{CE(sat)}$ — I_C



I_C — V_{BE}

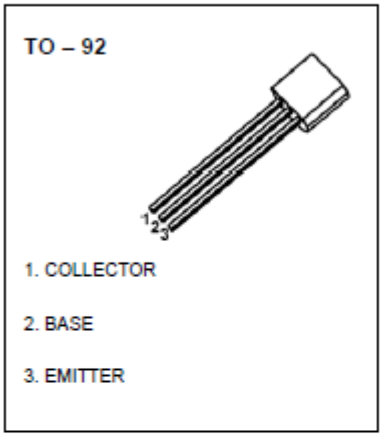


P_C — T_a



TO-92 Plastic-Encapsulate Transistors

BC557 TRANSISTOR (PNP)



FEATURES

- High Voltage
- Complement to BC546,BC547,BC548

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BC556	-80	V
		BC557	-50	
		BC558	-30	
V_{CEO}	Collector-Emitter Voltage	BC556	-65	V
		BC557	-45	
		BC558	-30	
V_{EBO}	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	℃/W
T_J	Junction Temperature		150	℃
T_{stg}	Storage Temperature		-55~+150	℃

Datasheet

Item no. 1571684

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

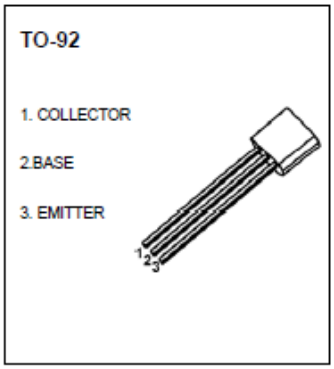
Parameter		Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BC556	$V_{(BR)CBO}$	I_C= -0.1mA,I_E=0	-80			V
	BC557			-50			
	BC558			-30			
Collector-emitter breakdown voltage	BC556	$V_{(BR)CEO}$	I_C=-2mA,I_B=0	-65			V
	BC557			-45			
	BC558			-30			
Emitter-base breakdown voltage		$V_{(BR)EBO}$	I_E=-100μA,I_C=0	-5			V
Collector cut-off current	BC556	I_{CBO}	V_{CB}=-70V,I_E=0			-0.1	μA
	BC557		V_{CB}=-45V,I_E=0			-0.1	μA
	BC558		V_{CB}=-25V,I_E=0			-0.1	μA
Collector cut-off current	BC556	I_{CEO}	V_{CE}=-60V,I_B=0			-0.1	μA
	BC557		V_{CE}=-40V,I_B=0			-0.1	μA
	BC558		V_{CE}=-25V,I_B=0			-0.1	μA
Emitter cut-off current		I_{EBO}	V_{EB}=-5V,I_C=0			-0.1	μA
DC current gain		h_{FE} *	V_{CE}=-5V, I_C=-2mA	120		800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=-10mA,I_B=-0.5mA			-0.3	V
			I_C=-100mA,I_B=-5mA			-0.65	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C=-10mA,I_B=-0.5mA			-0.8	V
			I_C=-100mA,I_B=-5mA			-1	V
Base-emitter voltage		V_{BE}	V_{CE}=-5V, I_C=-2mA	-0.55		-0.7	V
			V_{CE}=-5V, I_C=-10mA			-0.82	V
Collector output capacitance		C_{ob}	V_{CB}=-10V,I_E=0, f=1MHz			6	pF
Transition frequency	BC556	f_T	V_{CE}=-5V,I_C=-10mA, f=100MHz		150		MHz
	BC557				150		MHz
	BC558				150		MHz

CLASSIFICATION of h_{FE}

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

TO-92 Plastic-Encapsulate Transistors

BC337 TRANSISTOR (NPN)



FEATURES

- Power dissipation

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BC337	50	V
		BC338	30	
V_{CEO}	Collector-Emitter Voltage	BC337	45	V
		BC338	25	
V_{EBO}	Emitter-Base Voltage		5	V
I_C	Collector Current -Continuous		800	mA
P_D	Total Device Dissipation		625	mW
T_J	Junction Temperature		150	℃
T_{stg}	Storage Temperature		-55-150	℃

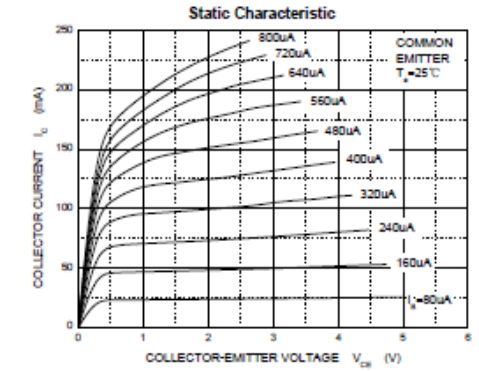
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

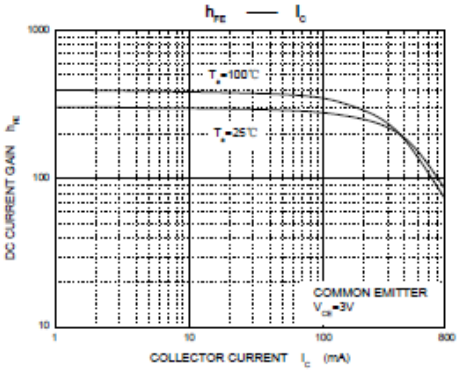
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V_{CBO}	I_C= 100uA, I_E=0				
BC337			50			V
BC338			30			V
Collector-emitter breakdown voltage	V_{CEO}	I_C= 10mA , I_B=0				
BC337			45			V
BC338			25			V
Emitter-base breakdown voltage	V_{EBO}	I_E= 10uA, I_C=0	5			V
Collector cut-off current BC337	I_{CBO}	V_{CB}= 45V, I_E=0			0.1	uA
BC338		V_{CB}= 25V, I_E=0			0.1	
Collector cut-off current BC337	I_{CEO}	V_{CE}= 40V, I_B=0			0.2	uA
BC338		V_{CE}= 20V, I_B=0			0.2	
Emitter cut-off current	I_{EBO}	V_{EB}= 4 V, I_C=0			0.1	uA
BC337/BC338	$h_{FE(1)}$	V_{CE}=1V, I_C= 100mA				
BC337-16/BC338-16			100		630	
BC337-25/BC338-25			100		250	
BC337-40/BC338-40			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	Cob	V_{CB}=10V,I_E=0 f=1MHZ		15		pF

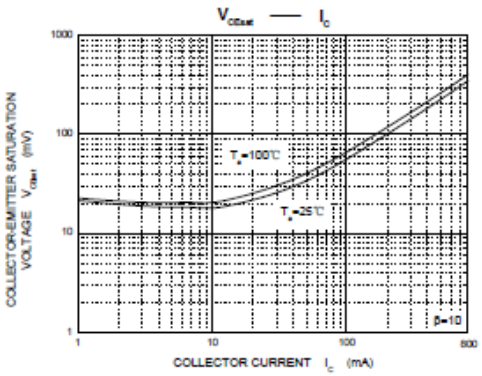
Datasheet

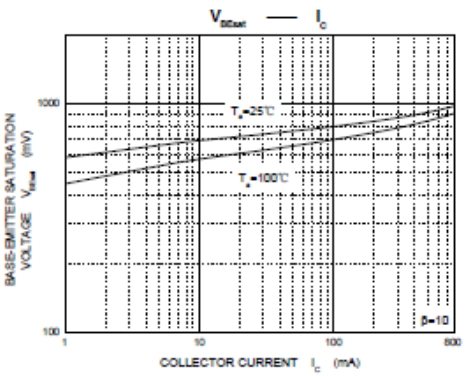
Item no. 1571684

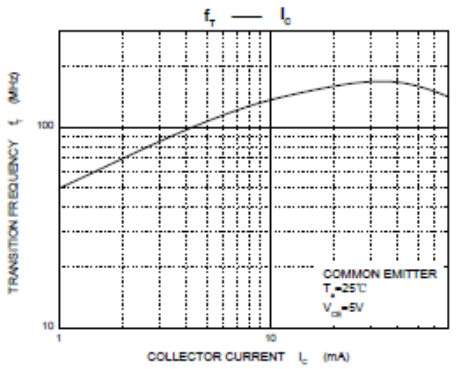
V1_07272018_01_en

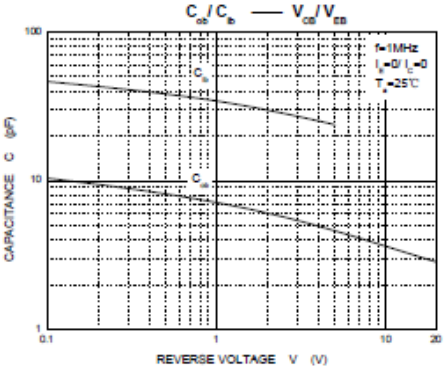


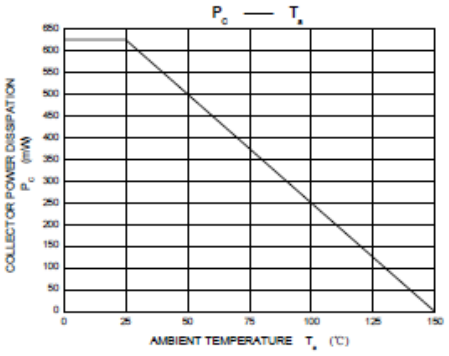






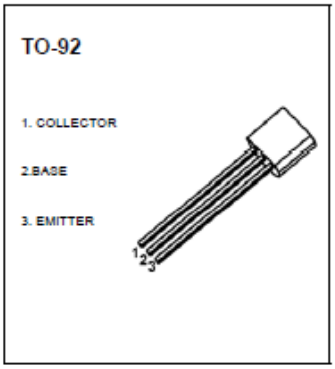






TO-92 Plastic-Encapsulate Transistors

BC327 TRANSISTOR (PNP)



FEATURES

- Power dissipation

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BC327 BC328	-50 -30	V
V_{CEO}	Collector-Emitter Voltage	BC327 BC328	-45 -25	V
V_{EBO}	Emitter-Base Voltage		-5	V
I_C	Collector Current -Continuous		-800	mA
P_C	Collector Power Dissipation		625	mW
T_J	Junction Temperature		150	℃
T_{stg}	Storage Temperature		-55-150	℃

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage BC327 BC328	V_{CBO}	I_C= -100uA, I_E=0	 -50 -30			V
Collector-emitter breakdown voltage BC327 BC328	V_{CEO}	I_C= -10mA , I_B=0	 -45 -25			V
Emitter-base breakdown voltage	V_{EBO}	I_E= -10uA, I_C=0	-5			V
Collector cut-off current BC327 BC328	I_{CBO}	V_{CB}= -45 V , I_E=0 V_{CB}= -25V , I_E=0			-0.1 -0.1	uA
Collector cut-off current BC327 BC328	I_{CEO}	V_{CE}= -40 V , I_B=0 V_{CE}= -20 V , I_B=0			-0.2 -0.2	uA
Emitter cut-off current	I_{EBO}	V_{EB}= -4 V , I_C=0			-0.1	uA
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	Cob	V_{CB}=-10V,I_E=0 f=1MHZ		12		pF

CLASSIFICATION OF h_{FE}

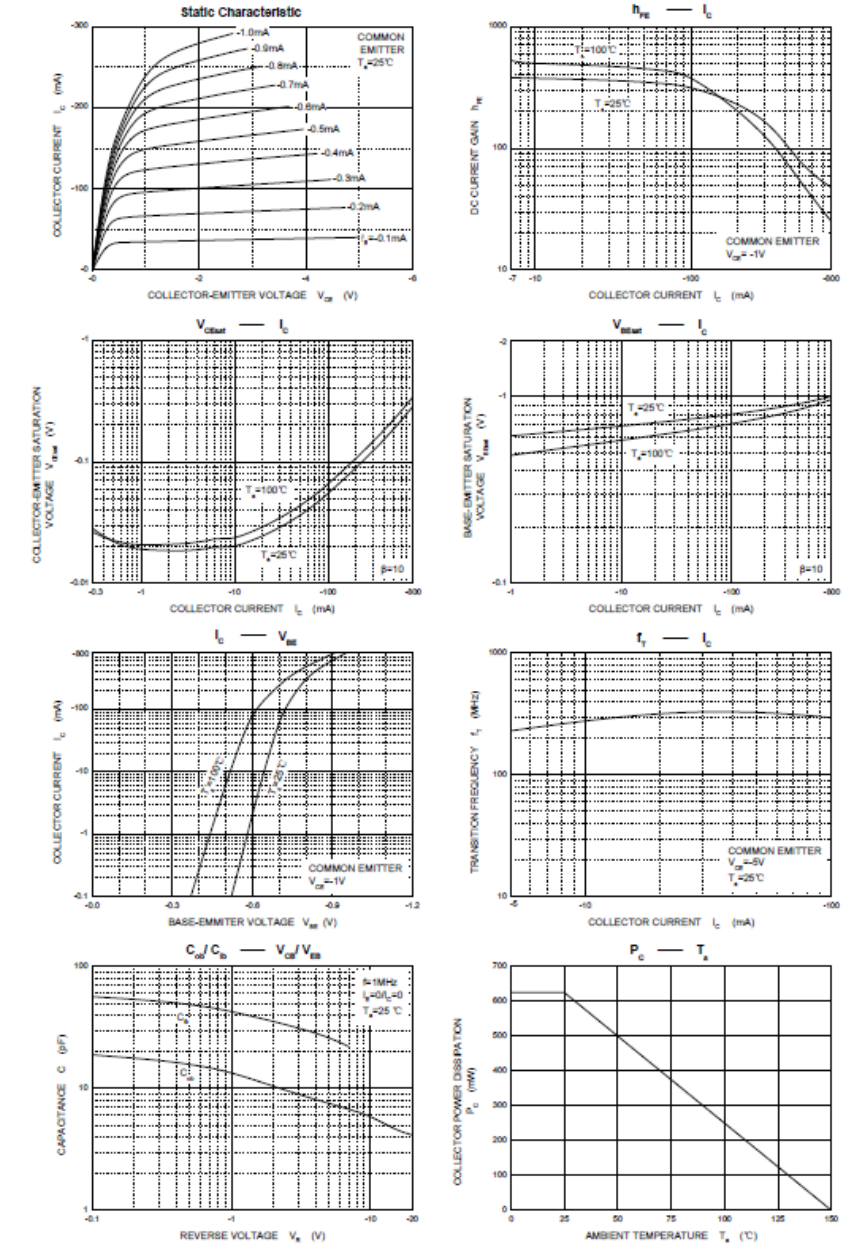
Rank	16	25	40
Range	100-250	160-400	250-630

Datasheet

Item no. 1571684

V1_07272018_01_en

Typical Characterisitics BC327



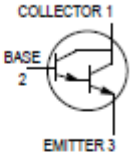
Datasheet

Item no. 1571684

V1_07272018_01_en

Darlington Transistors
NPN Silicon

BC517



CASE 29–04, STYLE 17
TO–92 (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°C Derate above 25°C	P_D	625 12	mW mW/°C
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

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

BC517

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

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

1. Pulse Test: Pulse Width ≤ 2.0%.
2. $f_T = |h_{fe}| \cdot f_{test}$

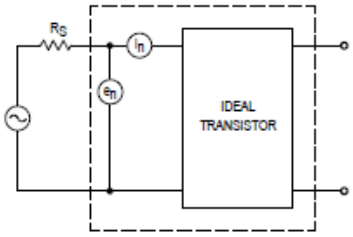


Figure 1. Transistor Noise Model

BC517

NOISE CHARACTERISTICS
(V_{CE} = 5.0 Vdc, T_A = 25°C)

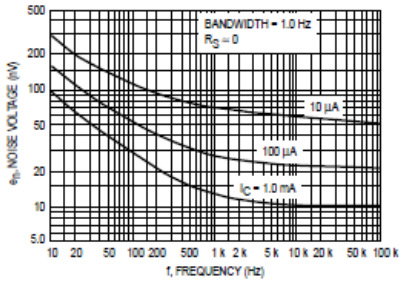


Figure 2. Noise Voltage

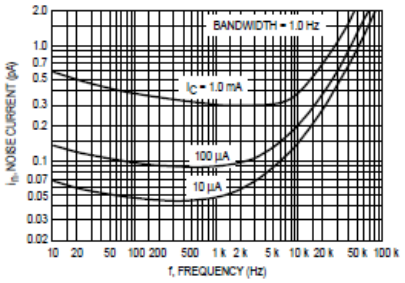


Figure 3. Noise Current

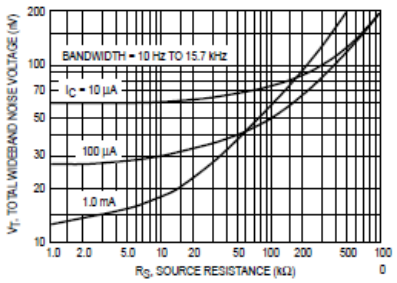


Figure 4. Total Wideband Noise Voltage

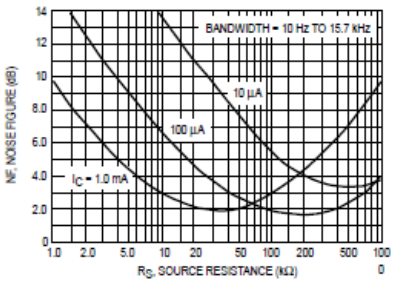


Figure 5. Wideband Noise Figure

BC517

SMALL–SIGNAL CHARACTERISTICS

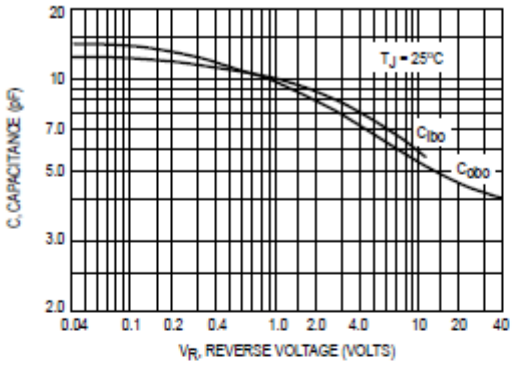


Figure 6. Capacitance

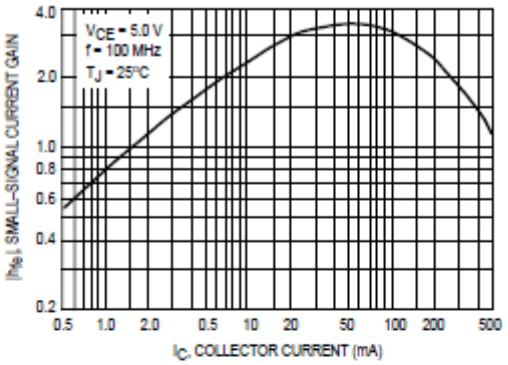


Figure 7. High Frequency Current Gain

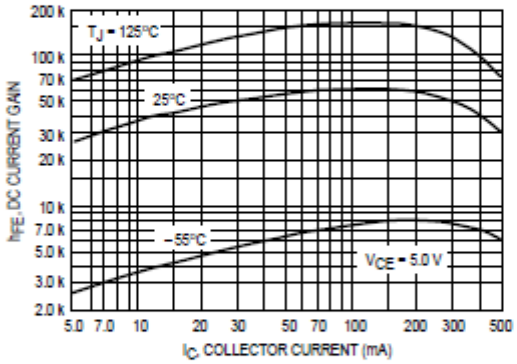


Figure 8. DC Current Gain

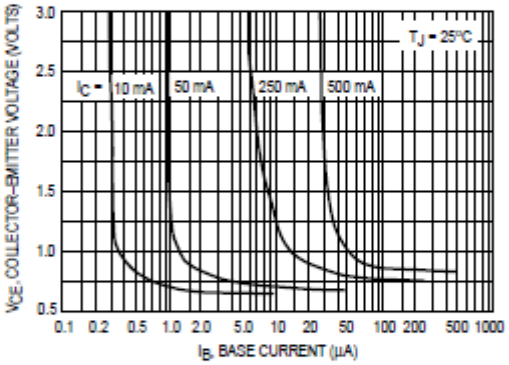


Figure 9. Collector Saturation Region

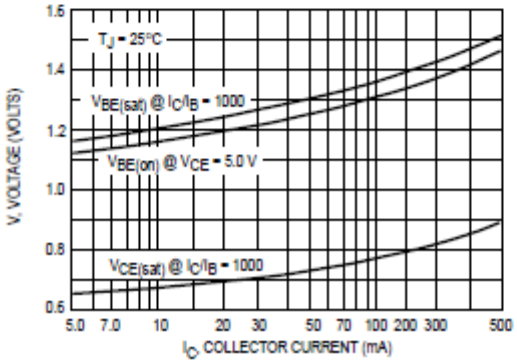


Figure 10. "On" Voltages

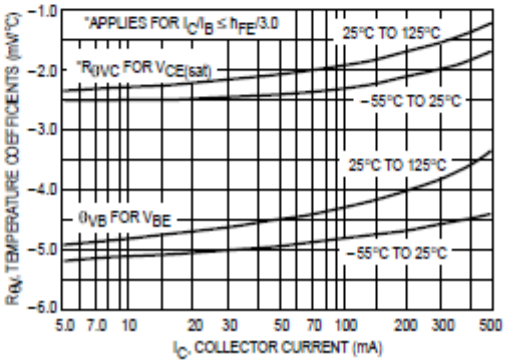


Figure 11. Temperature Coefficients

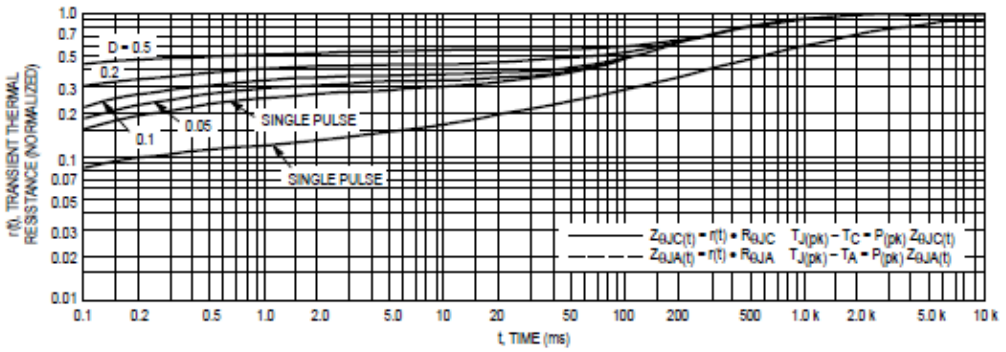


Figure 12. Thermal Response

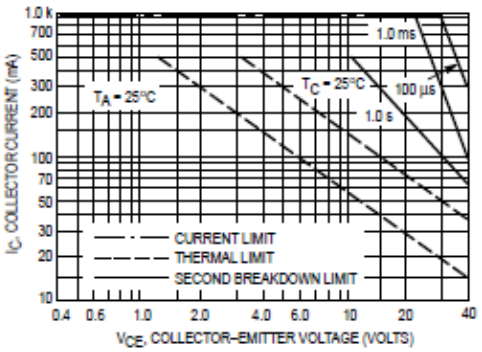
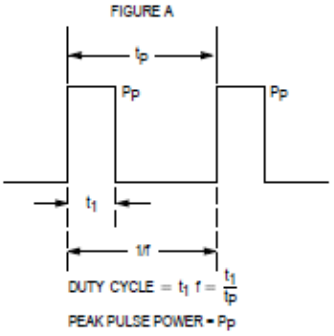
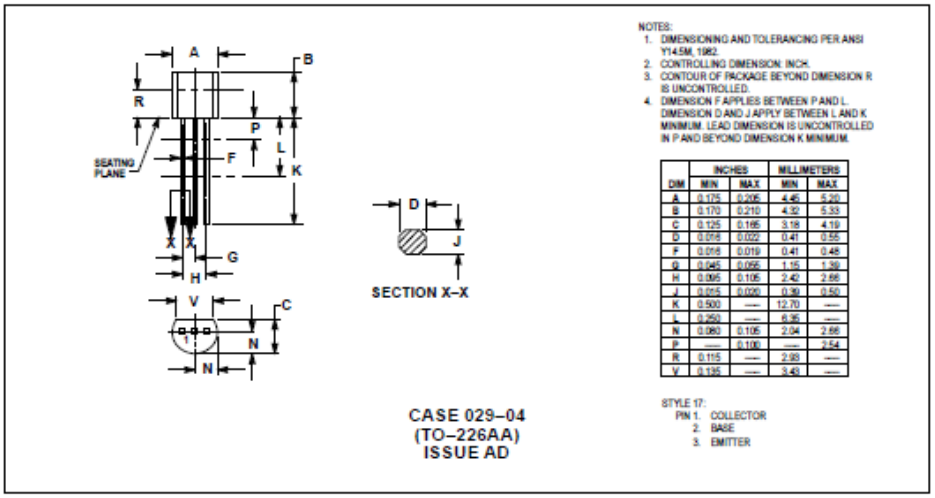


Figure 13. Active Region Safe Operating Area



Design Note: Use of Transient Thermal Resistance Data

PACKAGE DIMENSIONS



DIM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	—	12.70	—
L	0.250	—	6.35	—
N	0.080	0.105	2.04	2.66
P	—	0.100	—	2.54
R	0.115	—	2.93	—
V	0.135	—	3.43	—

BC516

PNP Darlington Transistor

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

TO-92

1. Collector 2. Base 3. Emitter

Absolute Maximum Ratings T_A=25°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°C	625	mW
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ +150	°C

Electrical Characteristics T_A=25°C unless otherwise noted

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

NOTES:
1. Pulse Test Pulse Width ≤ 2%
2. $f_T = |h_{fe}| \cdot f_{test}$

Thermal Characteristics T_A=25°C unless otherwise noted

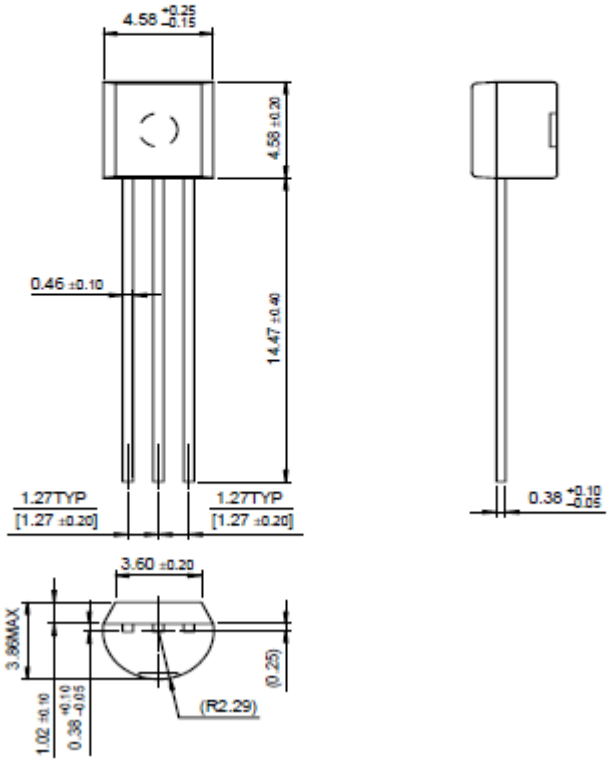
Symbol	Parameter	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W

Datasheet

Item no. 1571684

Package Dimensions

TO-92



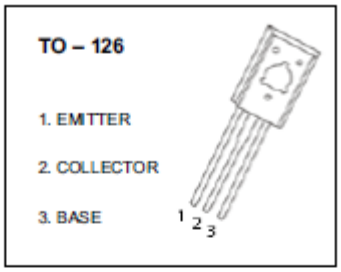
Datasheet

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℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BD135	45	V
		BD137	60	
		BD139	80	
V_{CEO}	Collector-Emitter Voltage	BD135	45	V
		BD137	60	
		BD139	80	
V_{EBO}	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	℃/W
T_J	Junction Temperature		150	℃
T_{stg}	Storage Temperature		-55~+150	℃

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

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

*Pulse test: pulse width ≤350μs, duty cycle≤ 2.0%.

CLASSIFICATION OF $h_{FE(1)}$

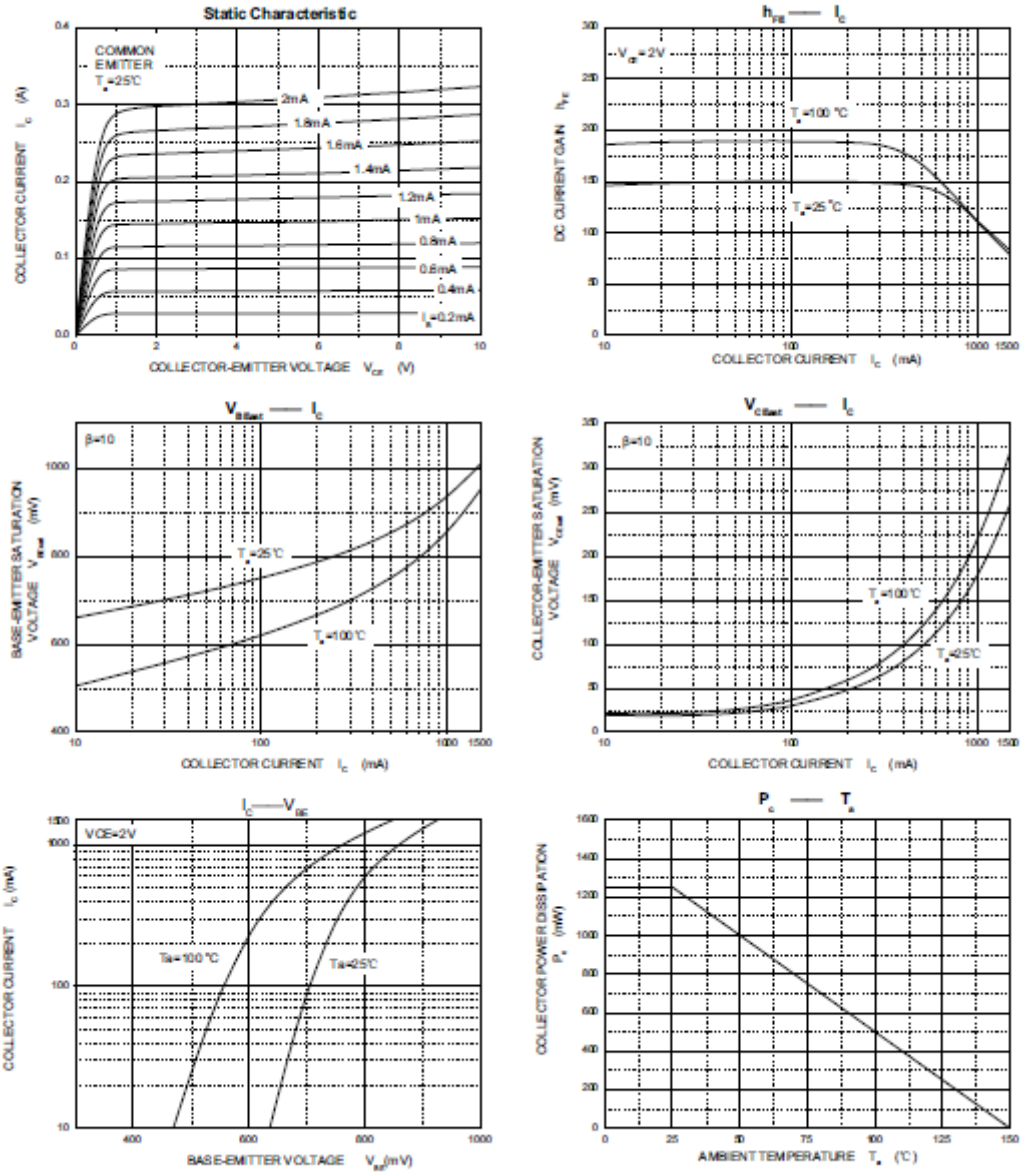
RANK	6	10	16
RANGE	40-100	63-160	100-250

Datasheet

Item no. 1571684

V1_07272018_01_en

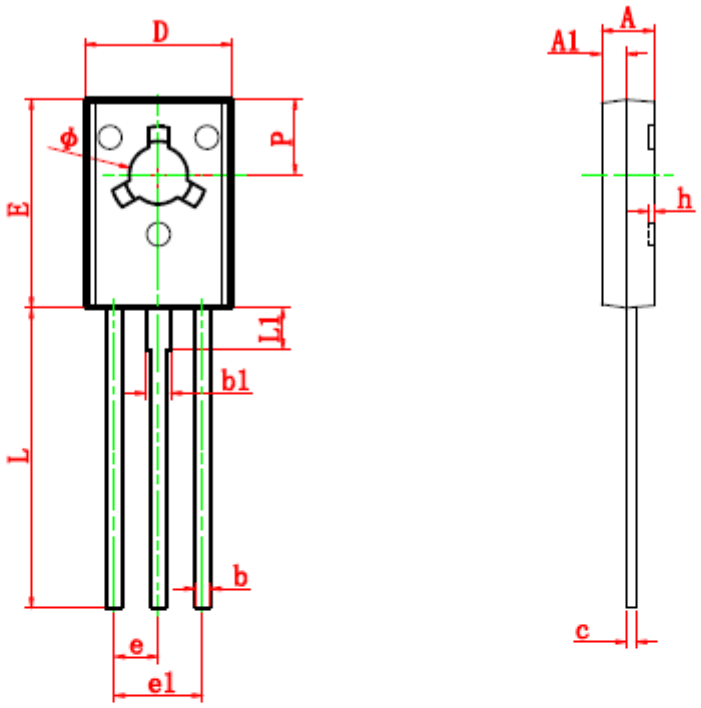
Typical Characteristics



Datasheet

Item no. 1571684

TO-126 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

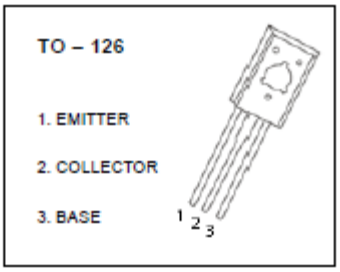
Datasheet

Item no. 1571684

V1_07272018_01_en

TO-126 Plastic-Encapsulate Transistors

BD140 TRANSISTOR (PNP)



FEATURES

- High Current
- Complement To BD139

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-80	V
V_{CEO}	Collector-Emitter Voltage	-80	V
V_{EBO}	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	℃/W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55~+150	℃

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

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

*Pulse test: pulse width ≤350μs, duty cycle≤ 2.0%.

CLASSIFICATION OF $h_{FE(1)}$

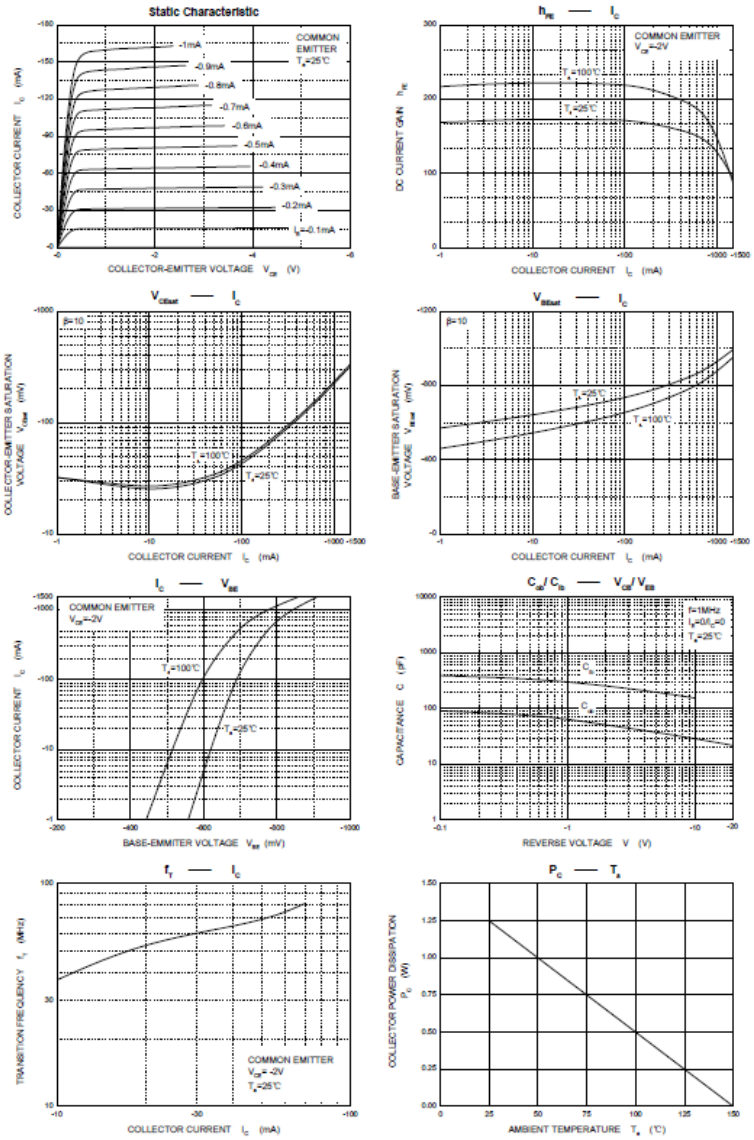
RANK	6	10	16
RANGE	40-100	63-160	100-250

Datasheet

Item no. 1571684

V1_07272018_01_en

Typical Characteristics

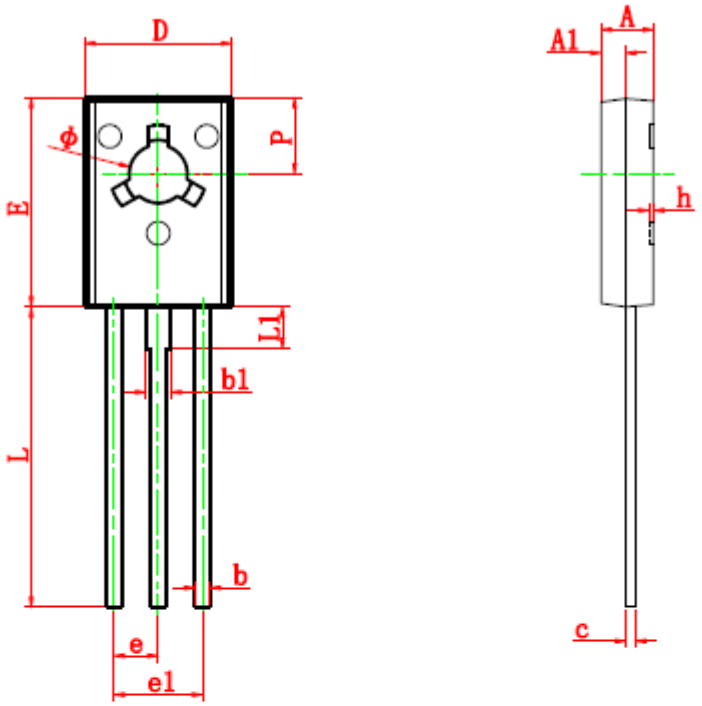


Datasheet

Item no. 1571684

V1_07272018_01_en

TO-126 Package Outline Dimensions



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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