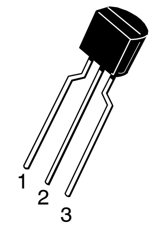
NPN Darlington Transistor

BC517



1. Collector
2. Base
3. Emitter

TO−92 3 4.825x4.76
LEADFORMER
CASE 135AR

Features

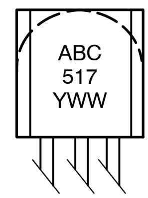
- This Device is Designed for Applications Requiring Extremely High Current Gain at Currents to 1.0 A
- Sourced from Process 05
- This is a Pb−Free Device

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted) (Note 1, 2)

Symbol	Parameter	Value	Unit
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	1.2	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.
1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady−state limits. **onsemi** should be consulted on applications involving pulsed or low−duty cycle operations.

MARKING DIAGRAM



BC517	= Specific Device Code
A	= Assembly Site
Y	= Year of Production
WW	= Work Week Number

ORDERING INFORMATION

Device	Package	Shipping
BC517−D74Z	TO−92−3 LF	2000 Units / Fan−Fold

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Note 3)

Symbol	Parameter	**Max** (Note 3)	Unit
P_D	Total Device Dissipation, T_A = 25°C	625	mW
	Derate Above 25°C	5.0	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

3. PCB size: FR−4 76 x 114 x 1.57 mm^3 (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CEO}	Collector−Emitter Breakdown Voltage	I_C = 2.0 mA, I_B = 0	30	−	−	V
V_{CBO}	Collector−Base Breakdown Voltage	I_C = 10 μA, I_E = 0	40	−	−	V
V_{EBO}	Emitter−Base Breakdown Voltage	I_E = 100 nA, I_C = 0	10	−	−	V
I_{CBO}	Base Cut−Off Current	V_{CB} = 30 V, I_E = 0	−	−	100	nA
h_{FE}	DC Current Gain	V_{CE} = 2 V, I_C = 20 mA	30,000	−	−	
$V_{CE}(sat)$	Collector−Emitter Saturation Voltage	I_C = 100 mA, I_B = 0.1 mA	−	−	1	V
$V_{BE}(on)$	Base−Emitter On Voltage	I_C = 10 mA, V_{CE} = 5.0 V	−	−	1.4	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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TYPICAL PERFORMANCE CHARACTERISTICS

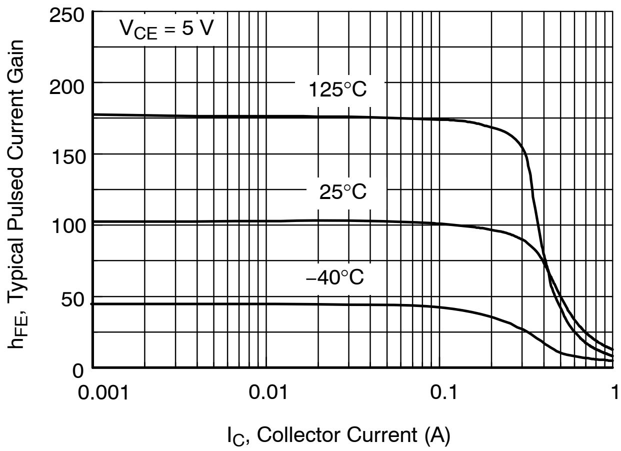

Figure 1. Typical Pulsed Current Gain vs. Collector Current

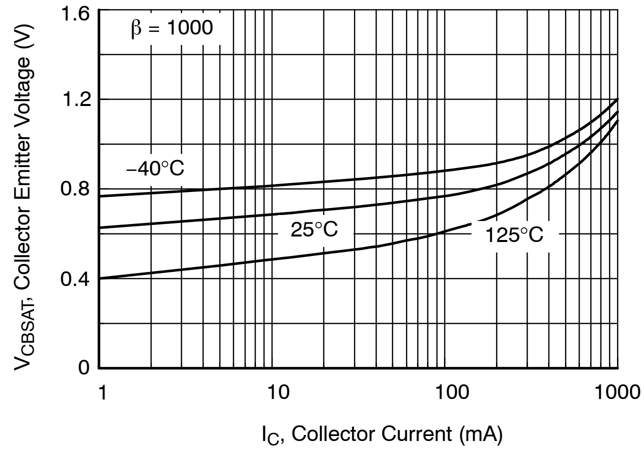

Figure 2. Collector− Emitter Saturation Voltage vs. Collector Current

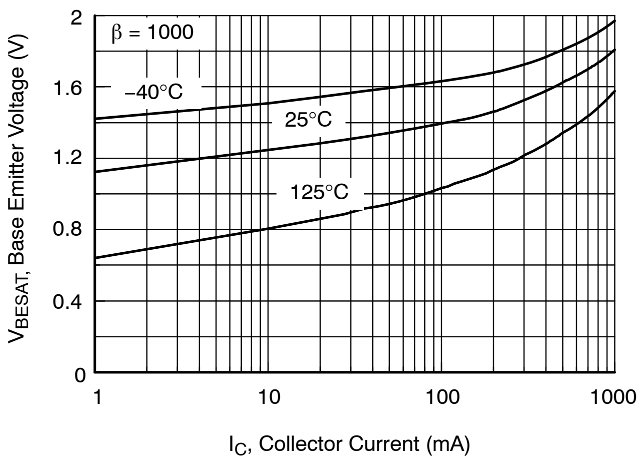

Figure 3. Base−Emitter Saturation Voltage vs. Collector Current

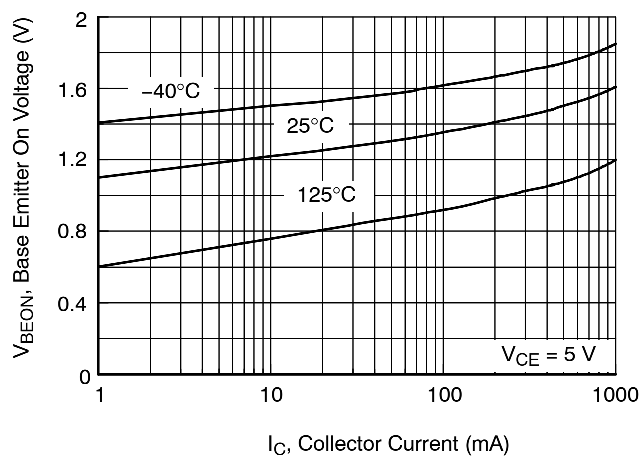

Figure 4. Base−Emitter On Voltage vs. Collector Current

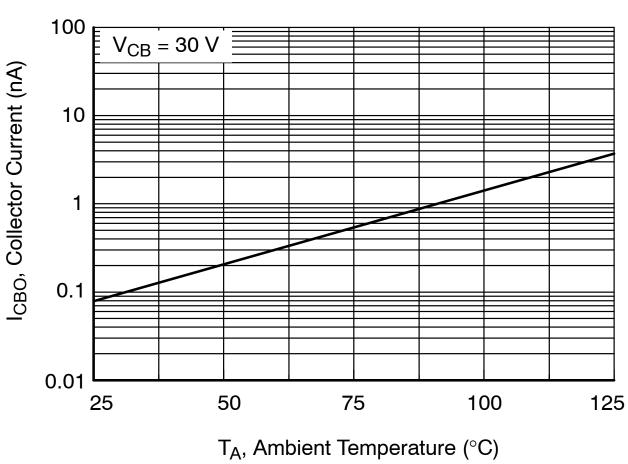

Figure 5. Collector Cut−Off Current vs. Ambient Temperature

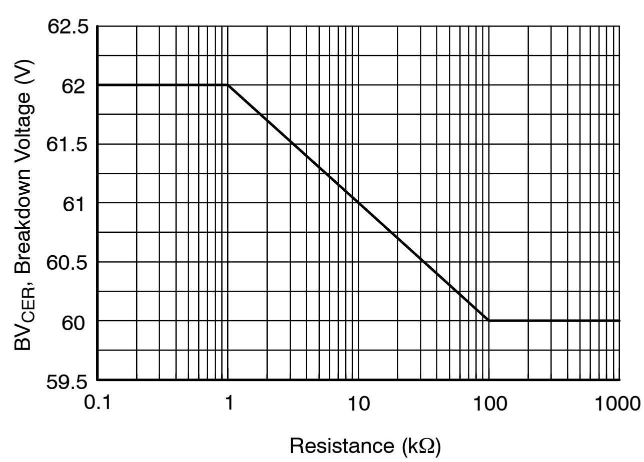

Figure 6. Collector−Emitter Breakdown Voltage with Resistance Between Emitter−Base

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

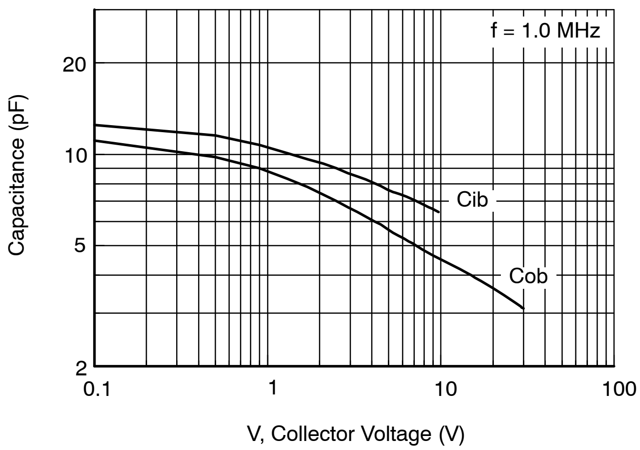

Figure 7. Input and Output Capacitance vs. Reverse Voltage

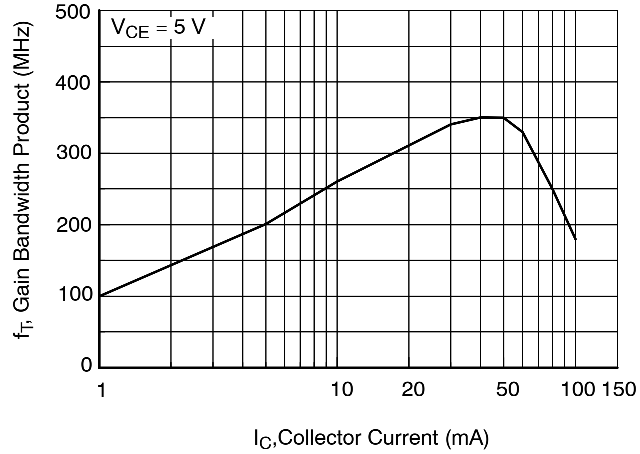

Figure 8. Gain Bandwidth Product vs. Collector Current

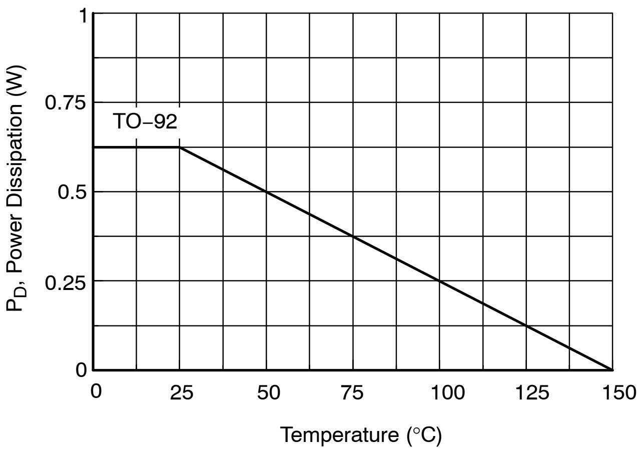

Figure 9. Power Dissipation vs. Ambient Temperature

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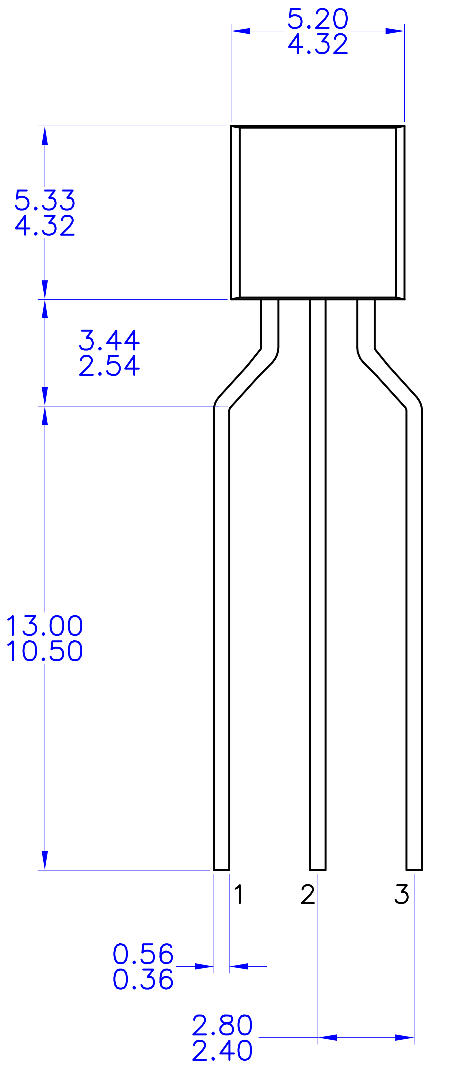
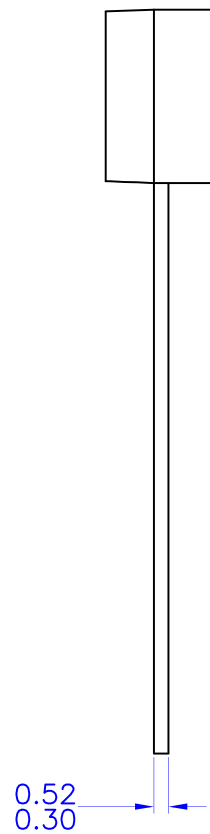
CASE 135AR
ISSUE O

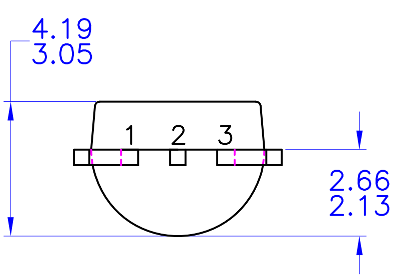
DATE 30 SEP 2016





NOTES: UNLESS OTHERWISE SPECIFIED

A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DRAWING CONFORMS TO ASME Y14.5M-1994



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