

# NPN Epitaxial Silicon Transistor

## BC63916

### Features

- Switching and Amplifier Applications
- These are Pb-Free Devices

### ABSOLUTE MAXIMUM RATINGS (Note 1)

(Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.)

Symbol	Parameter	Value	Unit
$V_{CER}$	Collector-Emitter Voltage at $R_{BE} = 1\text{ k}\Omega$	100	V
$V_{CES}$	Collector-Emitter Voltage	100	V
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	1	A
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 to 150	$^\circ\text{C}$

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. Pulse Test: Pulse Width  $\leq 300\text{ }\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

### THERMAL CHARACTERISTICS (Note 2)

(Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.)

Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	830	mW
	Derate Above $T_A = 25^\circ\text{C}$	6.6	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	150	$^\circ\text{C/W}$

2. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

### ELECTRICAL CHARACTERISTICS (Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}, I_E = 0$	100	—	—	V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}, I_B = 0$	80	—	—	V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\text{ }\mu\text{A}, I_C = 0$	5.0	—	—	V
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 30\text{ V}, I_E = 0$	—	—	100	nA
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	10	$\mu\text{A}$
$h_{FE1}$	DC Current Gain	$V_{CE} = 2\text{ V}, I_C = 5\text{ mA}$	25	—	—	
$h_{FE2}$		$V_{CE} = 2\text{ V}, I_C = 150\text{ mA}$	100	—	250	
$h_{FE3}$		$V_{CE} = 2\text{ V}, I_C = 500\text{ mA}$	25	—	—	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 500\text{ mA}, I_B = 50\text{ mA}$	—	—	0.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 2\text{ V}, I_C = 500\text{ mA}$	—	—	1	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 50\text{ MHz}$	—	100	—	MHz

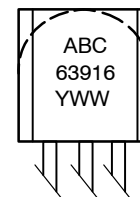
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



Bent Lead

TO-92-3  
CASE 135AR

### MARKING DIAGRAM



A = Assembly Location  
BC63916 = Specific Device Code  
Y = Year  
WW = Work Week

### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
BC63916-D74Z	TO-92-3 (Pb-Free)	2000 / FNFLD
BC63916-D2TZ	TO-92-3 (Pb-Free)	2000 / Tape & Reel

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

## TYPICAL PERFORMANCE CHARACTERISTICS

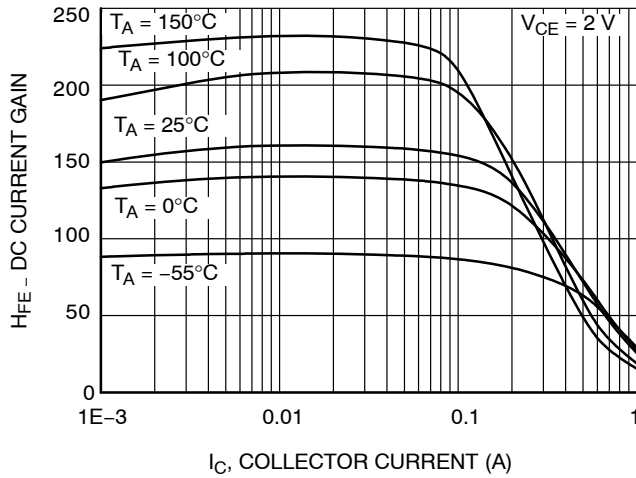


Figure 1. DC Current Gain

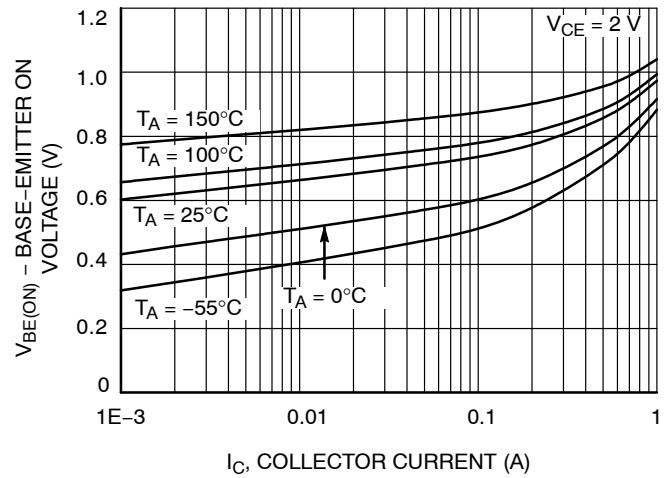


Figure 2. Base-Emitter On Voltage

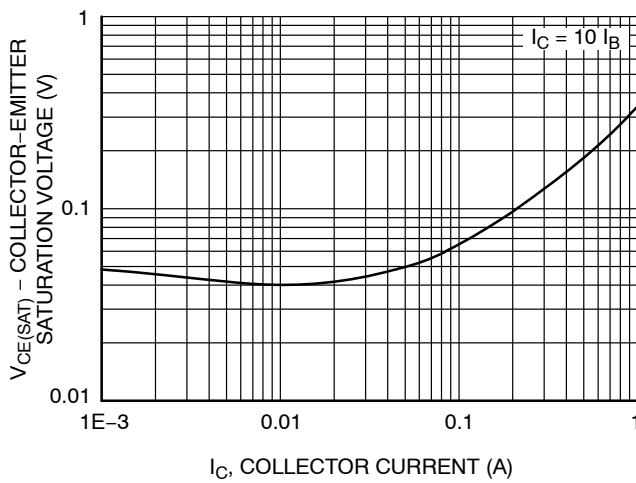


Figure 3. Collector-Emitter Saturation Voltage

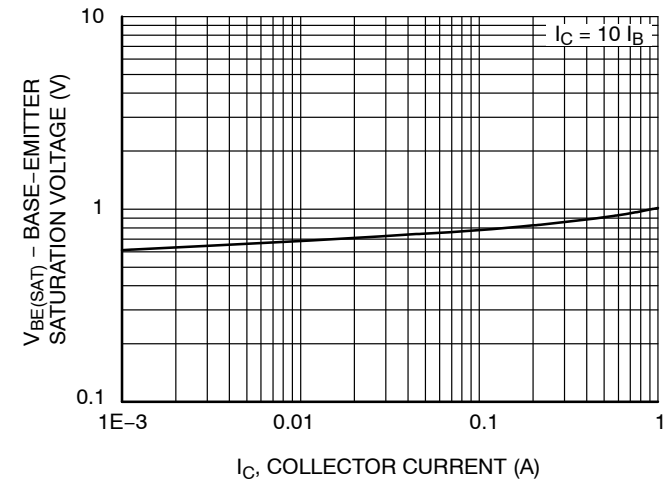
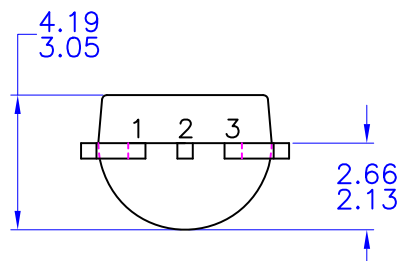
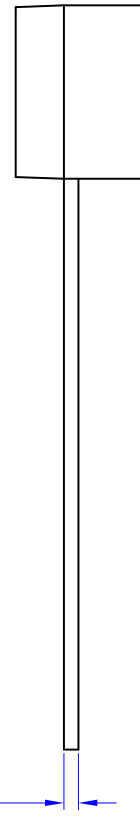
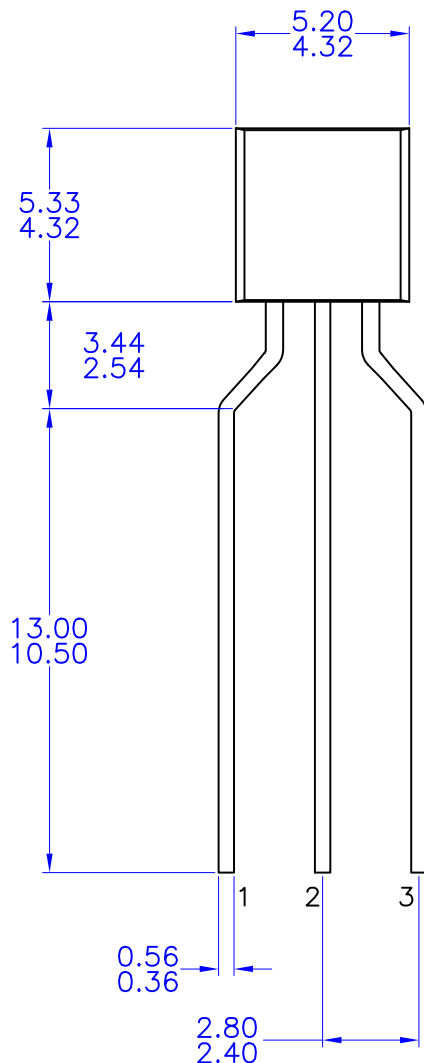


Figure 4. Base-Emitter Saturation Voltage

**TO-92 3 4.83x4.76 LEADFORMED**  
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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