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November 2015

BC63916
NPN Epitaxial Silicon Transistor

Features

- Switching and Amplifier Applications

Straight Lead
Bulk Packing

Bent Lead
Tape & Reel
Ammo Packing

TO-92
1. Emitter
2. Collector
3. Base

Ordering Information

Part Number	Top Mark	Package	Packing Method
BC63916_D74Z	BC639-16	TO-92 3L	Ammo
BC63916_D27Z	BC639-16	TO-92 3L	Tape and Reel

Absolute Maximum Ratings(1)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CER}	Collector-Emitter Voltage at R_{BE} = 1 kΩ	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	°C

Note:

1. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2.0%.

Thermal Characteristics[2]

Values are at T_A = 25°C unless otherwise noted.

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

Note:

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°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100 μA, I_E = 0	100			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	80			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10 μA, I_C = 0	5.0			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 30 V, I_E = 0			100	nA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 5 V, I_C = 0			10	μA
$h_{FE}1$	DC Current Gain	V_{CE} = 2 V, I_C = 5 mA	25			
$h_{FE}2$		V_{CE} = 2 V, I_C = 150 mA	100		250	
$h_{FE}3$		V_{CE} = 2 V, I_C = 500 mA	25			
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 500 mA, I_B = 50 mA			0.5	V
V_{BE}(on)	Base-Emitter On Voltage	V_{CE} = 2 V, I_C = 500 mA			1	V
f_T	Current Gain Bandwidth Product	V_{CE} = 5 V, I_C = 10 mA, f = 50 MHz		100		MHz

Typical Performance Characteristics

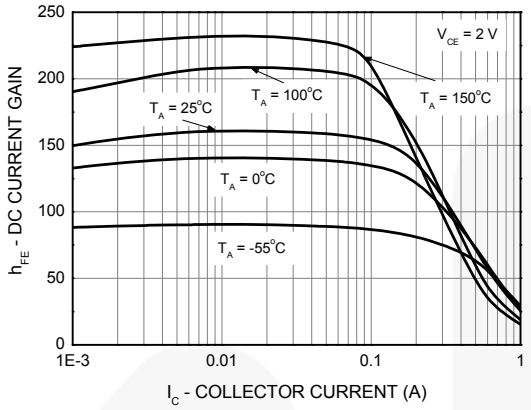

Figure 1. DC Current Gain

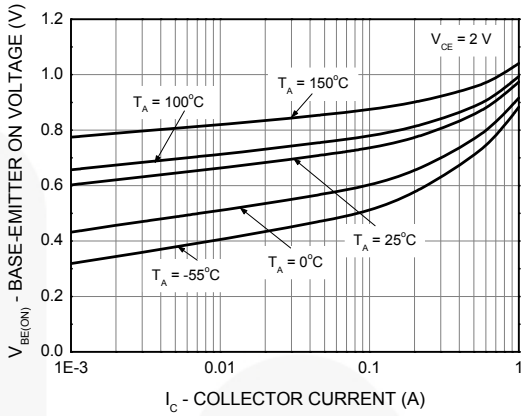

Figure 2. Base-Emitter On Voltage

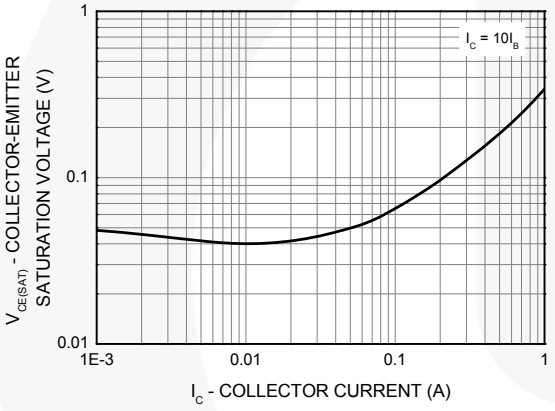

Figure 3. Collector-Emitter Saturation Voltage

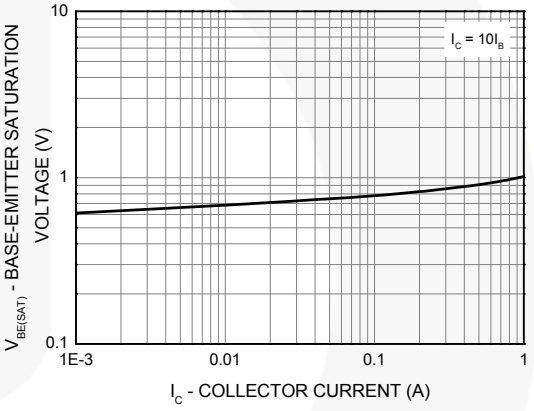

Figure 4. Base-Emitter Saturation Voltage

Physical Dimensions

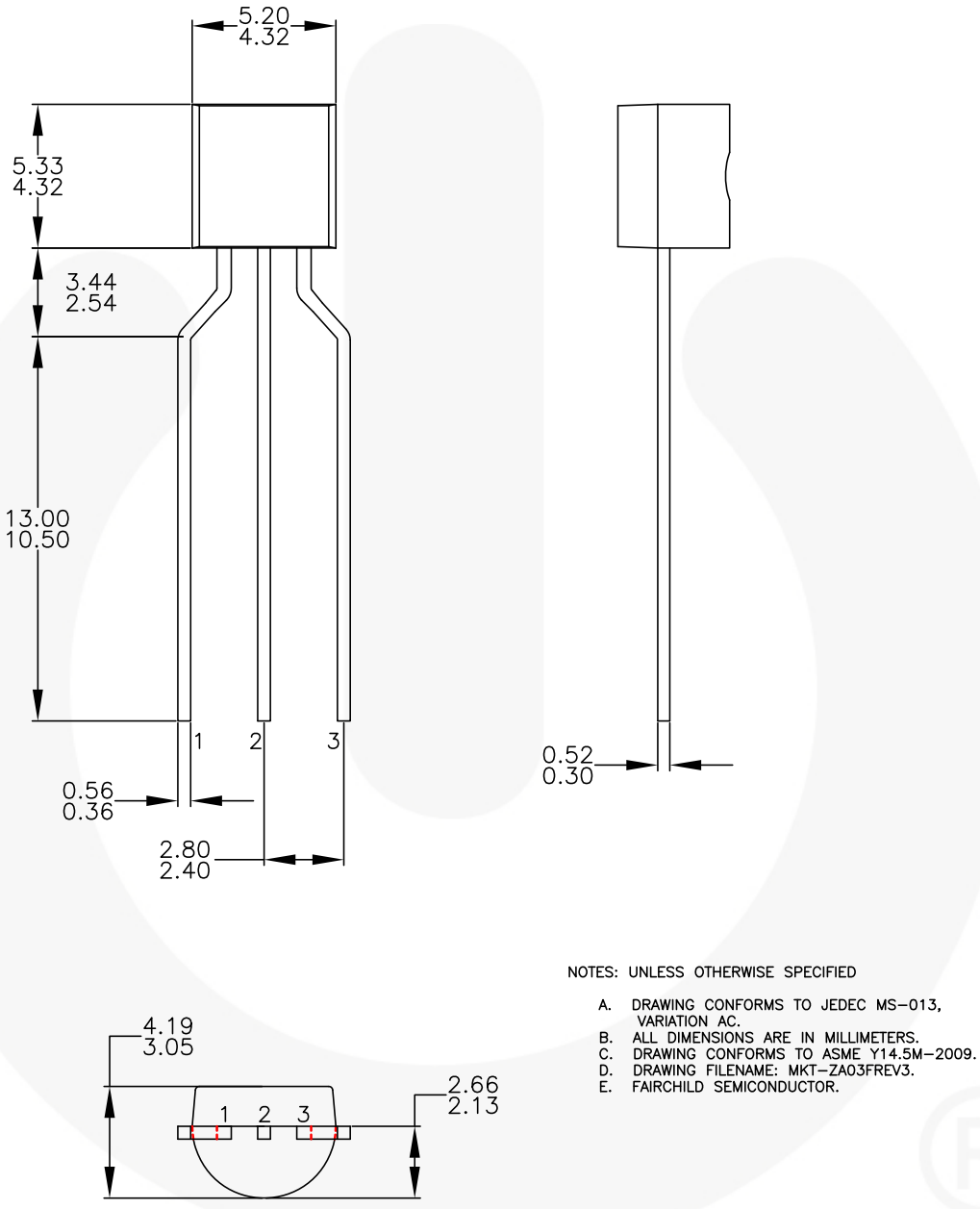

Figure 5. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form

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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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