



ON Semiconductor®

BC63916 NPN Epitaxial Silicon Transistor

Features

- Switching and Amplifier Applications



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

Symbol	Parameter	Value	Unit
V_{CER}	Collector-Emitter Voltage at $R_{\text{BE}} = 1 \text{ k}\Omega$	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
$T_{\text{J}}, T_{\text{STG}}$	Operating and Storage Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Note:

1. Pulse test: pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2.0\%$.

Thermal Characteristics⁽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	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 100\ \mu\text{A}$, $I_E = 0$	100			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 10\ \text{mA}$, $I_B = 0$	80			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 10\ \mu\text{A}$, $I_C = 0$	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	μA
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

Typical Performance Characteristics

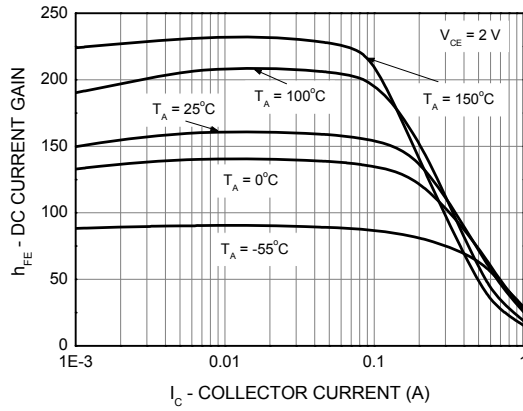


Figure 1. DC Current Gain

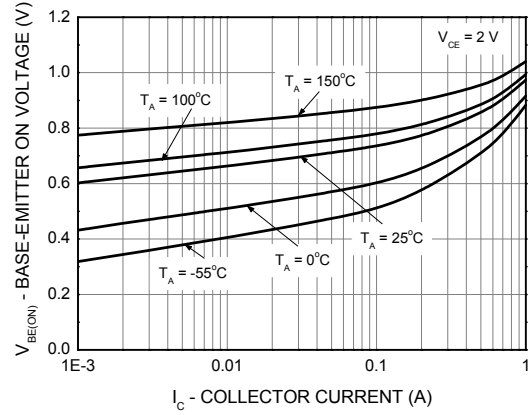


Figure 2. Base-Emitter On Voltage

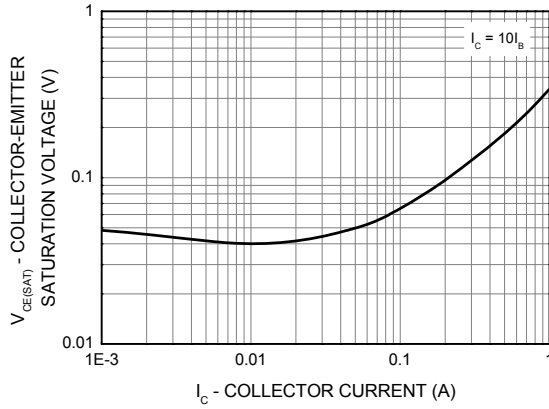


Figure 3. Collector-Emitter Saturation Voltage

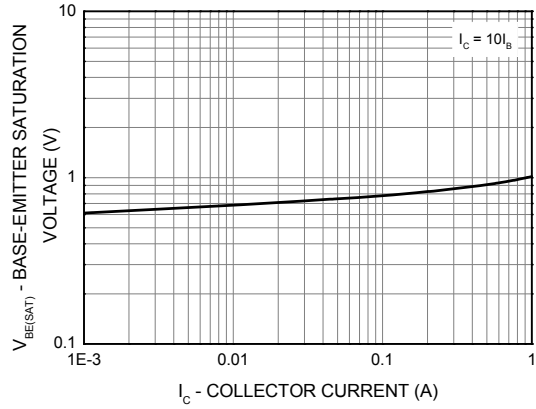
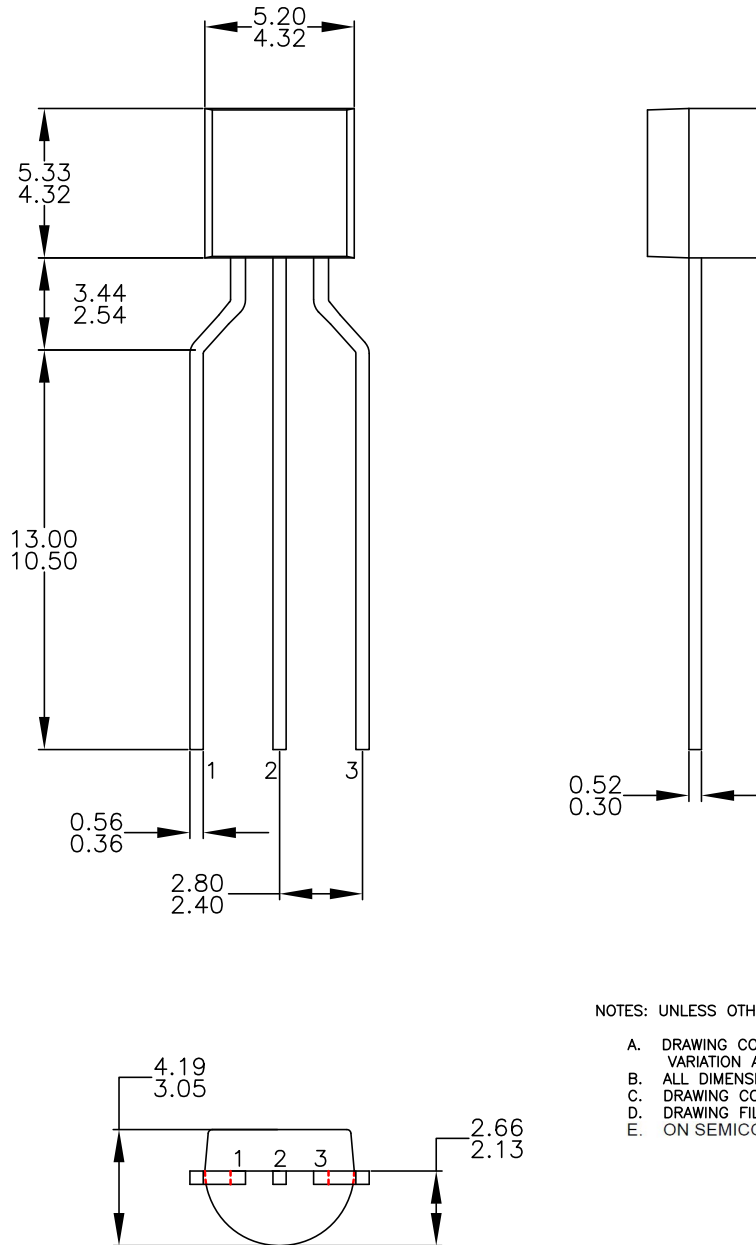


Figure 4. Base-Emitter Saturation Voltage

Physical Dimensions



NOTES: UNLESS OTHERWISE SPECIFIED

- A. DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DRAWING CONFORMS TO ASME Y14.5M-2009.
- D. DRAWING FILENAME: MKT-ZA03FREV3.
- E. ON SEMICONDUCTOR

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

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada

Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910

Japan Customer Focus Center
Phone: 81-3-5817-1050

ON Semiconductor Website: www.onsemi.com

Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local
Sales Representative

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[ON Semiconductor:](#)

[BC63916](#) [BC63916-D27Z](#) [BC63916-D74Z](#)