

BC636, BC636-16, BC638, BC640, BC640-16

High Current Transistors

PNP Silicon



ON Semiconductor

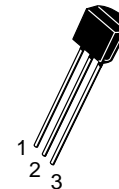
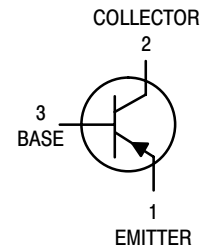
<http://onsemi.com>

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage BC636 BC638 BC640	V_{CEO}	-45 -60 -80	Vdc
Collector-Base Voltage BC636 BC638 BC640	V_{CBO}	-45 -60 -80	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current — Continuous	I_C	-0.5	Adc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	mW mW/°C
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ 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



CASE 29
TO-92
STYLE 14

ORDERING INFORMATION

Device	Package	Shipping
BC636	TO-92	5000 Units/Box
BC636ZL1	TO-92	2000/Ammo Pack
BC636-16ZL1	TO-92	2000/Ammo Pack
BC638	TO-92	5000 Units/Box
BC638ZL1	TO-92	2000/Ammo Pack
BC640	TO-92	5000 Units/Box
BC640ZL1	TO-92	2000/Ammo Pack
BC640-16	TO-92	5000 Units/Box

BC636, BC636–16, BC638, BC640, BC640–16

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (I _C = –10 mA _{dc} , I _B = 0)	V _{(BR)CEO}	–45	—	—	V _{dc}
BC636		–60	—	—	
BC638 BC640		–80	—	—	
Collector–Base Breakdown Voltage (I _C = –100 μA _{dc} , I _E = 0)	V _{(BR)CBO}	–45	—	—	V _{dc}
BC636		–60	—	—	
BC638 BC640		–80	—	—	
Emitter–Base Breakdown Voltage (I _E = –10 μA _{dc} , I _C = 0)	V _{(BR)EBO}	–5.0	—	—	V _{dc}
Collector Cutoff Current (V _{CB} = –30 V _{dc} , I _E = 0) (V _{CB} = –30 V _{dc} , I _E = 0, T _A = 125°C)	I _{CBO}	—	—	–100 –10	nA _{dc} μA _{dc}

ON CHARACTERISTICS (1)

DC Current Gain (I _C = –5.0 mA _{dc} , V _{CE} = –2.0 V _{dc}) (I _C = –150 mA _{dc} , V _{CE} = –2.0 V _{dc})	h _{FE}	25	—	—	—
BC636		40	—	250	—
BC636–16		100	—	250	—
BC638		40	—	160	—
BC640		40	—	160	—
(I _C = –500 mA, V _{CE} = –2.0 V)	BC640–16	100	—	250	—
		25	—	—	—
Collector–Emitter Saturation Voltage (I _C = –500 mA _{dc} , I _B = –50 mA _{dc})	V _{CE(sat)}	—	–0.25 –0.5	–0.5 —	V _{dc}
Base–Emitter On Voltage (I _C = –500 mA _{dc} , V _{CE} = –2.0 V _{dc})	V _{BE(on)}	—	—	–1.0	V _{dc}

DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product (I _C = –50 mA _{dc} , V _{CE} = –2.0 V _{dc} , f = 100 MHz)	f _T	—	150	—	MHz
Output Capacitance (V _{CB} = –10 V _{dc} , I _E = 0, f = 1.0 MHz)	C _{ob}	—	9.0	—	pF
Input Capacitance (V _{EB} = –0.5 V _{dc} , I _C = 0, f = 1.0 MHz)	C _{ib}	—	110	—	pF

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle 2.0%.

BC636, BC636-16, BC638, BC640, BC640-16

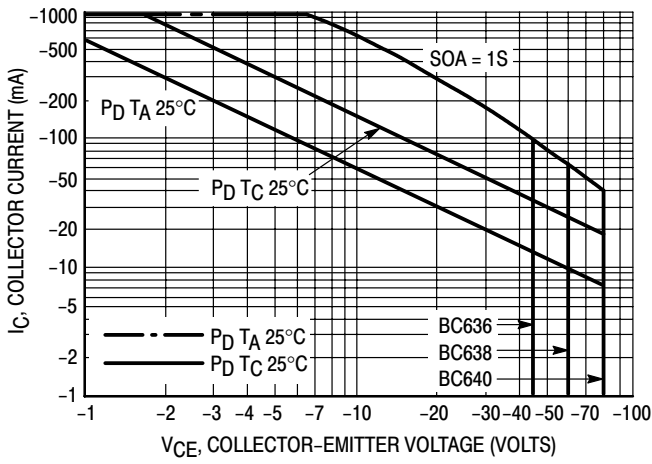


Figure 1. Active Region Safe Operating Area

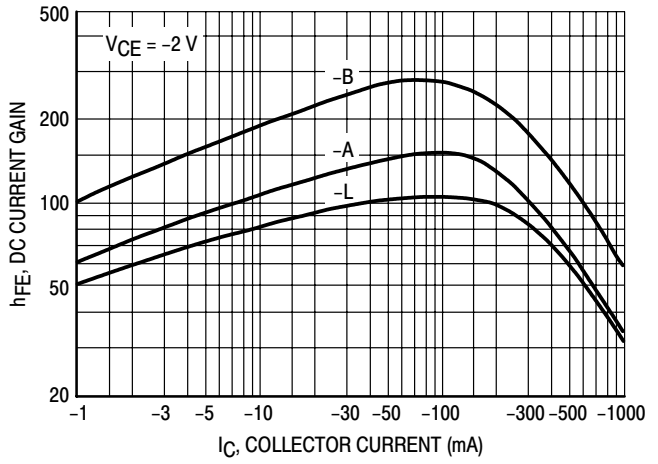


Figure 2. DC Current Gain

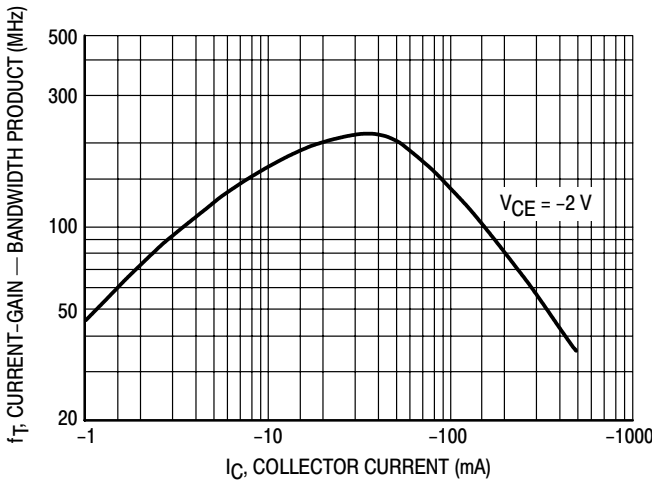


Figure 3. Current Gain Bandwidth Product

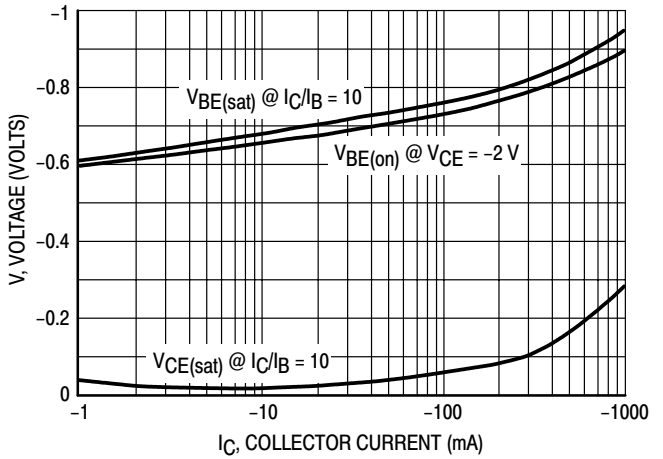


Figure 4. "Saturation" and "On" Voltages

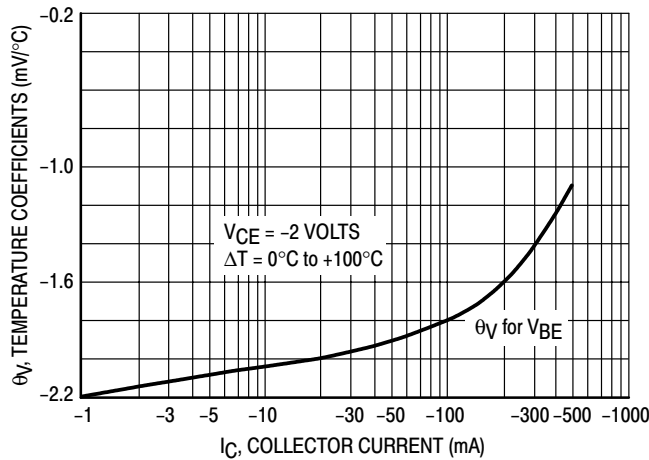
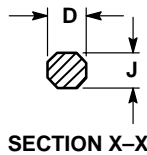
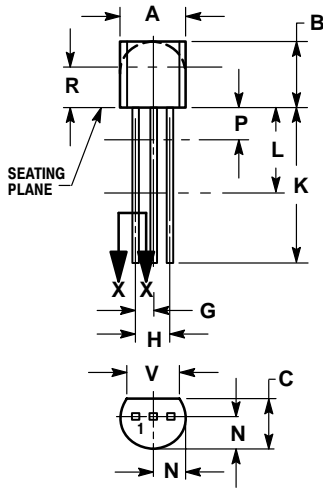


Figure 5. Temperature Coefficients

BC636, BC636-16, BC638, BC640, BC640-16

PACKAGE DIMENSIONS

TO-92
(TO-226)
CASE 29-11
ISSUE AL



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	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	0.021	0.407	0.533
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	---

STYLE 14:

1. EMITTER
2. COLLECTOR
3. BASE

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC 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. "Typical" parameters which may be provided in SCILLC 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. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC 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 SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 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: ONlit@hibbertco.com

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

JAPAN: ON Semiconductor, Japan Customer Focus Center
4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-0031
Phone: 81-3-5740-2700
Email: r14525@onsemi.com

ON Semiconductor Website: <http://onsemi.com>

For additional information, please contact your local Sales Representative.