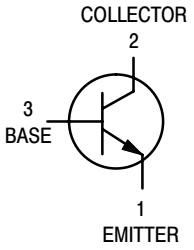
BC635, BC637, BC639, BC639-16

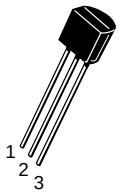
High Current Transistors

NPN Silicon

ON Semiconductor

http://onsemi.com





TO–92 (TO–226AA)
CASE 29
STYLE 14

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage BC635 BC637 BC639	V_{CEO}	 45 60 80	Vdc
Collector-Base Voltage BC635 BC637 BC639	V_{CBO}	 45 60 80	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current — Continuous	I_C	1.0	Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	 625 5.0	 mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	 800 12	 mW 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

ORDERING INFORMATION

Device	Package	Shipping
BC635RL1	TO–92	2000/Tape & Reel
BC635ZL1	TO–92	2000/Ammo Pack
BC637	TO–92	5000 Units/Box
BC639	TO–92	5000 Units/Box
BC639RL1	TO–92	2000/Tape & Reel
BC639ZL1	TO–92	2000/Ammo Pack
BC639–16ZL1	TO–92	2000/Ammo Pack

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

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage (1)		$V_{(BR)CEO}$				Vdc
(I_C = 10 μAdc, I_B = 0)	BC635		45	—	—	
	BC637		60	—	—	
	BC639		80	—	—	
Collector–Emitter Zero–Gate Breakdown Voltage (1)		$V_{(BR)CES}$				Vdc
(I_C = 100 μAdc, I_B = 0)	BC639–16		120	—	—	
Collector–Base Breakdown Voltage		$V_{(BR)CBO}$				Vdc
(I_C = 100 μAdc, I_E = 0)	BC635		45	—	—	
	BC637		60	—	—	
	BC639		80	—	—	
Emitter–Base Breakdown Voltage		$V_{(BR)EBO}$	5.0	—	—	Vdc
(I_E = 10 μAdc, I_C = 0)						
Collector Cutoff Current		I_{CBO}				
(V_{CB} = 30 Vdc, I_E = 0)			—	—	100	nAdc
(V_{CB} = 30 Vdc, I_E = 0, T_A = 125°C)			—	—	10	μAdc
ON CHARACTERISTICS (1)						
DC Current Gain		h_{FE}				—
(I_C = 5.0 mAdc, V_{CE} = 2.0 Vdc)			25	—	—	
(I_C = 150 mAdc, V_{CE} = 2.0 Vdc)	BC635		40	—	250	
	BC637		40	—	160	
	BC639		40	—	160	
	BC639–16ZLT1		100	—	250	
(I_C = 500 mA, V_{CE} = 2.0 V)			25	—	—	
Collector–Emitter Saturation Voltage		$V_{CE(sat)}$	—	—	0.5	Vdc
(I_C = 500 mAdc, I_B = 50 mAdc)						
Base–Emitter On Voltage		$V_{BE(on)}$	—	—	1.0	Vdc
(I_C = 500 mAdc, V_{CE} = 2.0 Vdc)						
DYNAMIC CHARACTERISTICS						
Current–Gain — Bandwidth Product		f_T	—	200	—	MHz
(I_C = 50 mAdc, V_{CE} = 2.0 Vdc, f = 100 MHz)						
Output Capacitance		C_{ob}	—	7.0	—	pF
(V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)						
Input Capacitance		C_{ib}	—	50	—	pF
(V_{EB} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)						

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

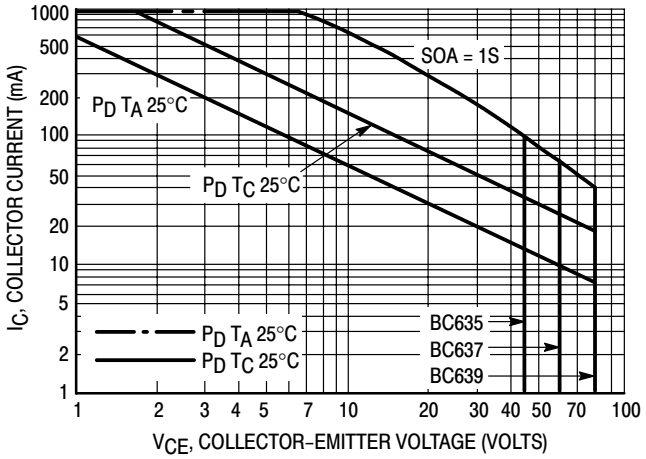


Figure 1. Active Region Safe Operating Area

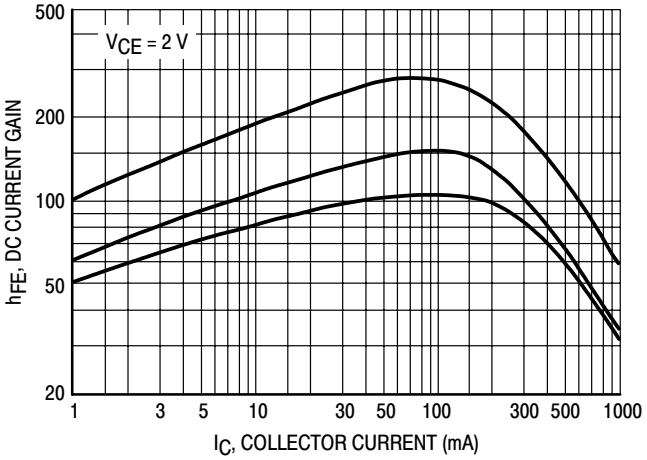


Figure 2. DC Current Gain

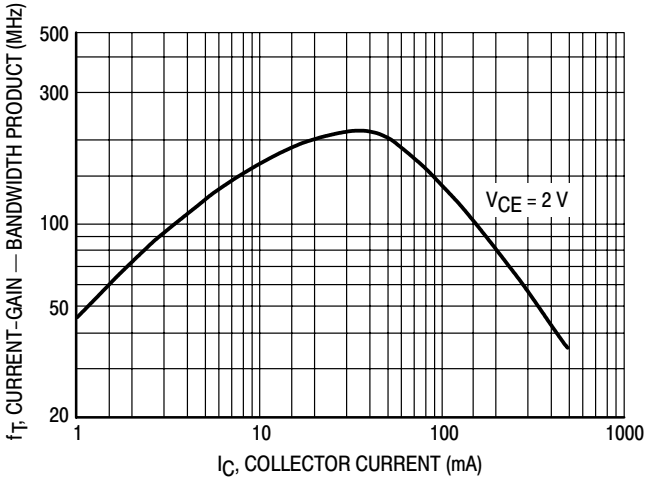


Figure 3. Current−Gain — Bandwidth Product

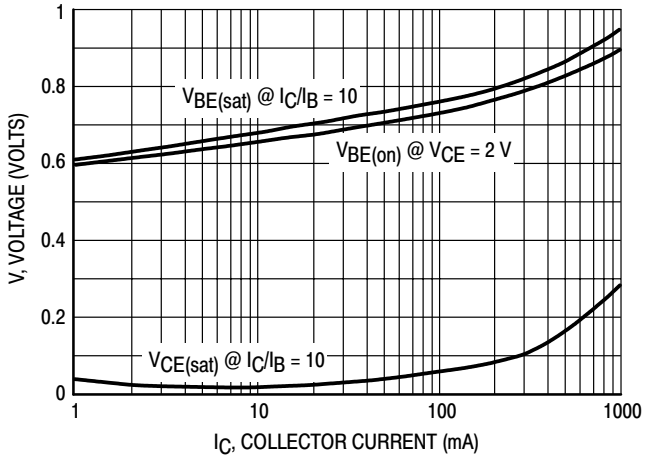


Figure 4. “Saturation” and “On” Voltages

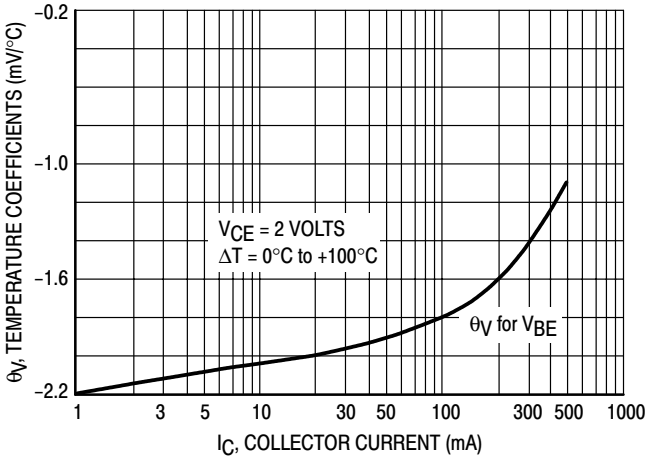
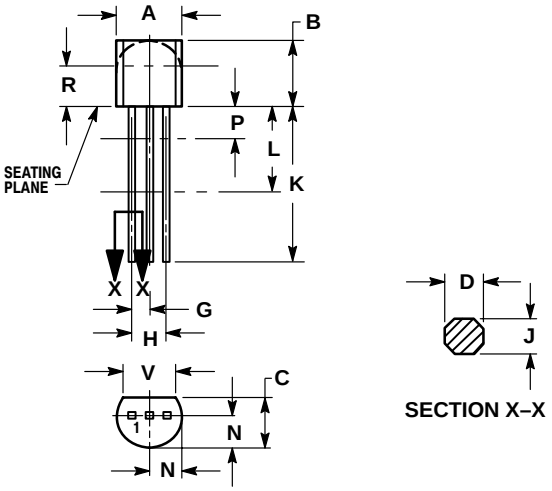


Figure 5. Temperature Coefficients

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.

	INCHES		MILLIMETERS	
DIM	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:
PIN 1. EMITTER
2. COLLECTOR
3. BASE

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:
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