

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

High Current Transistors

PNP Silicon

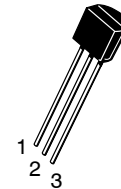
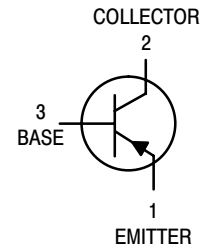


ON Semiconductor

<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/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$



CASE 29
TO-92
STYLE 14

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

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

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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		-80	—	—	
BC640					
Collector–Base Breakdown Voltage (I _C = -100 μA _{dc} , I _E = 0)	V _{(BR)CBO}	-45	—	—	V _{dc}
BC636		-60	—	—	
BC638		-80	—	—	
BC640					
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	nA _{dc}
		—	—	-10	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	
BC640-16		100	—	250	
(I _C = -500 mA, V _{CE} = -2.0 V)		25	—	—	
Collector–Emitter Saturation Voltage (I _C = -500 mA _{dc} , I _B = -50 mA _{dc})	V _{CE(sat)}	—	-0.25	-0.5	V _{dc}
		—	-0.5	—	
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%.

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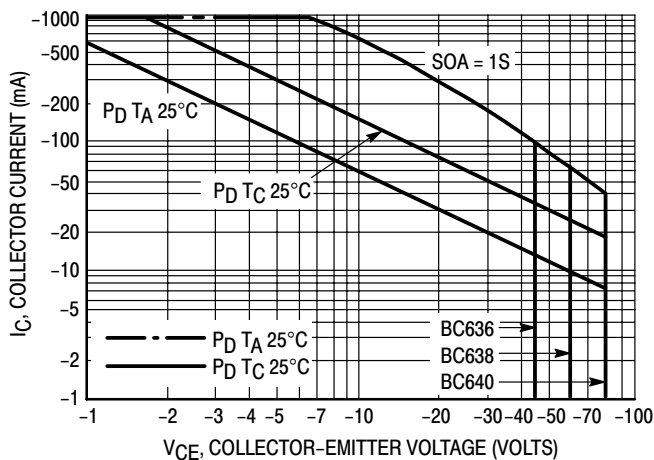


Figure 1. Active Region Safe Operating Area

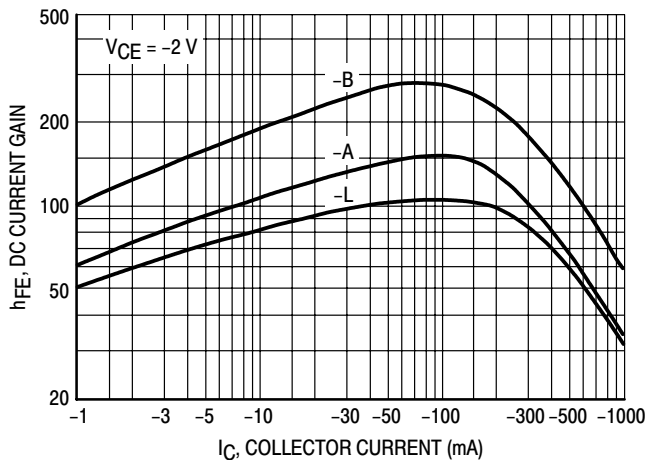


Figure 2. DC Current Gain

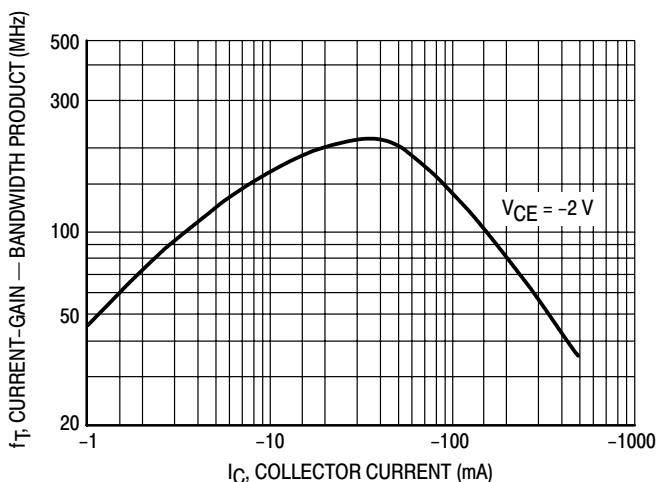


Figure 3. Current Gain Bandwidth Product

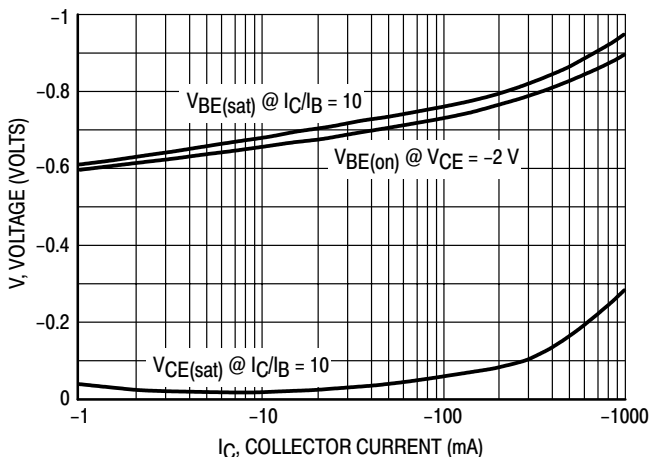


Figure 4. "Saturation" and "On" Voltages

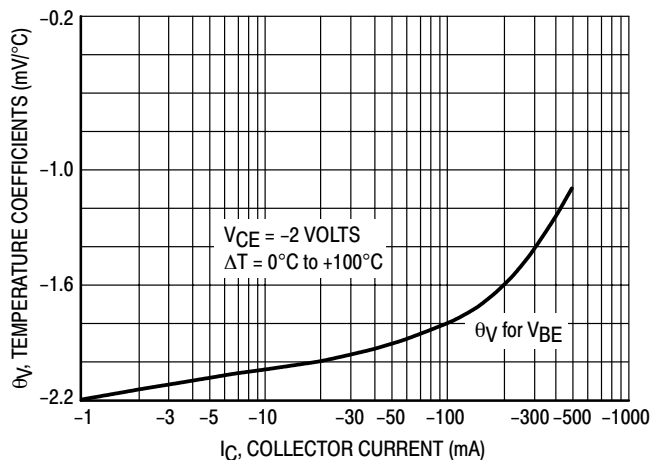


Figure 5. Temperature Coefficients