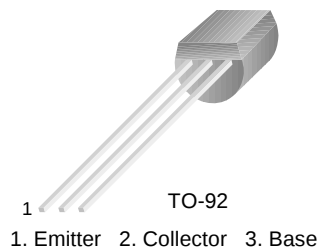


BC635/637/639

Switching and Amplifier Applications

- Complement to BC636/638/640



NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CER}	Collector-Emitter Voltage at $R_{\text{BE}}=1\text{K}\Omega$		
	: BC635	45	V
	: BC637	60	V
	: BC639	100	V
V_{CES}	Collector-Emitter Voltage		
	: BC635	45	V
	: BC637	60	V
	: BC639	100	V
V_{CEO}	Collector-Emitter Voltage		
	: BC635	45	V
	: BC637	60	V
	: BC639	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_{C}	Collector Current	1	A
I_{CP}	Peak Collector Current	1.5	A
I_{B}	Base Current	100	mA
P_{C}	Collector Power Dissipation	1	W
T_{J}	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-65 ~ 150	$^\circ\text{C}$

• $PW=5\text{ms}$, Duty Cycle=10%

Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_{\text{C}}=10\text{mA}$, $I_{\text{B}}=0$				
	: BC635		45			V
	: BC637		60			V
	: BC639		80			V
I_{CBO}	Collector Cut-off Current	$V_{\text{CB}}=30\text{V}$, $I_{\text{E}}=0$			0.1	μA
I_{EBO}	Emitter Cut-off Current	$V_{\text{EB}}=5\text{V}$, $I_{\text{C}}=0$			0.1	μA
h_{FE1}	DC Current Gain	$V_{\text{CE}}=2\text{V}$, $I_{\text{C}}=5\text{mA}$	25			
h_{FE2}		$V_{\text{CE}}=2\text{V}$, $I_{\text{C}}=150\text{mA}$	40		250	
		: BC637/BC639	40		160	
h_{FE3}		$V_{\text{CE}}=2\text{V}$, $I_{\text{C}}=500\text{mA}$	25			
$V_{\text{CE(sat)}}$	Collector-Emitter Saturation Voltage	$I_{\text{C}}=500\text{mA}$, $I_{\text{B}}=50\text{mA}$			0.5	V
$V_{\text{BE(on)}}$	Base-Emitter On Voltage	$V_{\text{CE}}=2\text{V}$, $I_{\text{C}}=500\text{mA}$			1	V
f_{T}	Current Gain Bandwidth Product	$V_{\text{CE}}=5\text{V}$, $I_{\text{C}}=10\text{mA}$, $f=50\text{MHz}$		100		MHz

Typical Characteristics

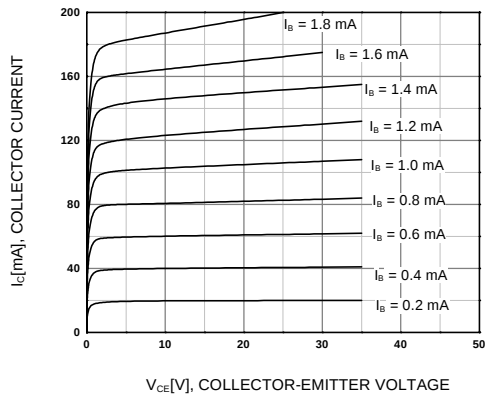


Figure 1. Static Characteristic

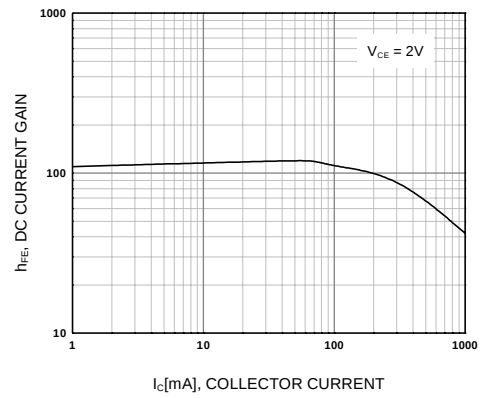


Figure 2. DC current Gain

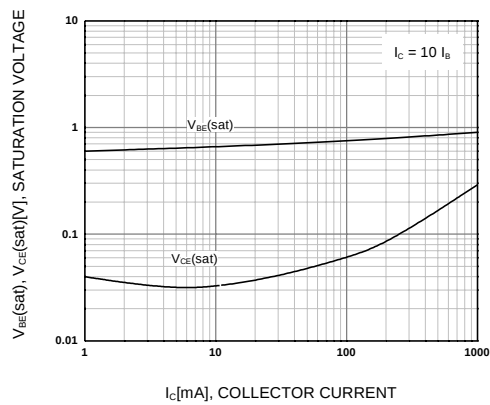


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

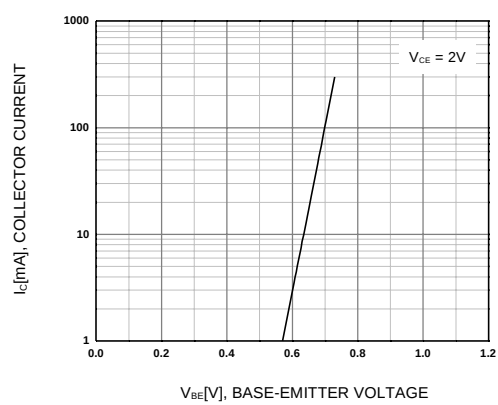


Figure 4. Base-Emitter On Voltage

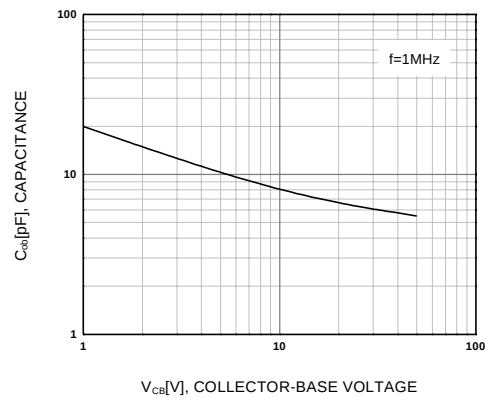


Figure 5. Collector Output Capacitance

BC635/637/639

The technical drawing illustrates a three-hole vertical plate from three perspectives: front, side, and bottom views.

- Front View:** Shows three vertical holes. The top hole has a diameter of $\varnothing 0.060$ [1.52] and a depth of 0.010 [0.254]. The distance between the centers of the top two holes is 0.185 [4.70], and the distance between the center of the top hole and the center of the middle hole is 0.170 [4.32]. The distance between the centers of the middle and bottom holes is 0.060 [1.52]. The total height of the plate is 0.510 [12.94]. The thickness of the plate is 0.020 [0.51]. The distance from the bottom edge to the center of the bottom hole is 0.105 [2.67]. The distance from the bottom edge to the center of the middle hole is 0.095 [2.41]. The distance from the bottom edge to the center of the top hole is 0.185 [4.70]. The distance from the bottom edge to the center of the top hole is also 0.170 [4.32]. The distance from the bottom edge to the center of the top hole is also 0.170 [4.32].
- Side View:** Shows the profile of the plate. The total width is 0.060 [1.52]. The distance from the left edge to the center of the top hole is 0.060 [1.52]. The distance from the left edge to the center of the middle hole is 0.180 [4.56]. The distance from the left edge to the center of the bottom hole is 0.165 [4.18]. The distance from the left edge to the center of the bottom hole is also 0.165 [4.18]. The distance from the left edge to the center of the bottom hole is also 0.165 [4.18].
- Bottom View:** Shows the three holes from below. The distance between the centers of the top two holes is 0.175 [4.45]. The distance between the center of the top hole and the center of the middle hole is 0.150 [3.81]. The distance between the centers of the middle and bottom holes is 0.095 [2.41]. The distance from the bottom edge to the center of the bottom hole is 0.095 [2.41]. The distance from the bottom edge to the center of the middle hole is 0.084 [2.13]. The distance from the bottom edge to the center of the top hole is 0.175 [4.45]. The distance from the bottom edge to the center of the top hole is also 0.150 [3.81]. The distance from the bottom edge to the center of the top hole is also 0.150 [3.81].

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