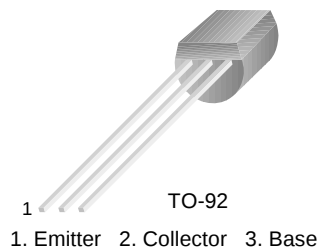


BC635/637/639

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	
		: BC635	40		160	
		: BC637/BC639	40			
h_{FE3}	: All	$V_{\text{CE}}=2\text{V}$, $I_{\text{C}}=500\text{mA}$	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

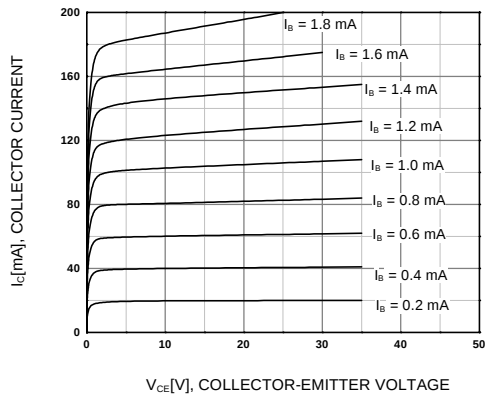


Figure 1. Static Characteristic

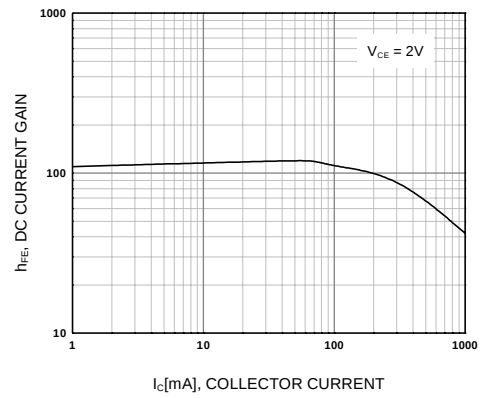


Figure 2. DC current Gain

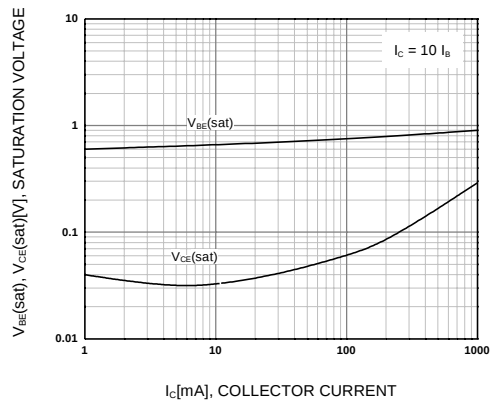


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

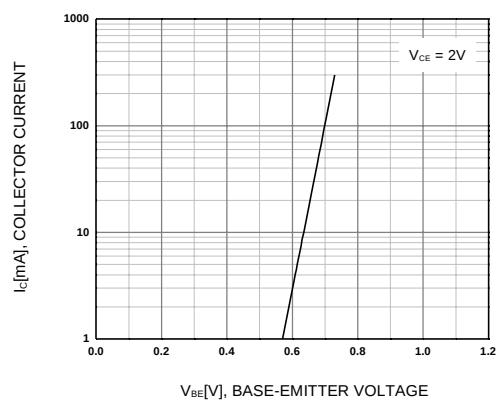


Figure 4. Base-Emitter On Voltage

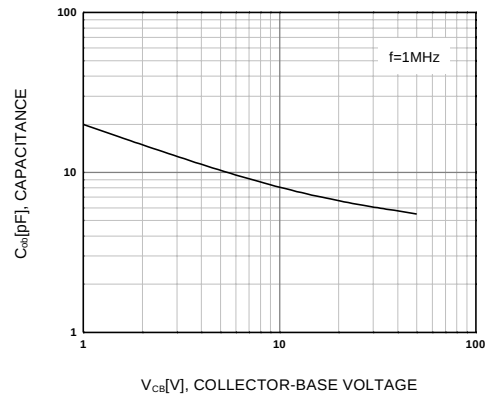


Figure 5. Collector Output Capacitance

BC635/637/639

Technical drawing of a 12.94 inch long, 0.51 inch diameter stainless steel rod with three longitudinal slots. The drawing includes three views: a front view, a side view, and a cross-sectional view. Dimensions are provided in inches and millimeters. Key features include a 0.060 inch deep hole at the top, a 5.0 inch typical width for the slots, and a 0.020 inch gap between the slots. The rod is made of 304 stainless steel.

Front View Dimensions:

- Top hole diameter: $\varnothing 0.060$ [1.52]
- Top hole depth: 0.010 [0.254] DEEP
- Top hole offset from top: 0.185 [4.70] / 0.170 [4.32]
- Top hole offset from center: 0.065 [1.65] / 0.050 [1.27]
- Slot width: 0.510 [12.94] / 0.465 [11.80]
- Slot gap: 0.020 [0.51] / 0.014 [0.36]
- Bottom hole diameter: 0.105 [2.67] / 0.095 [2.41]
- Bottom hole offset from bottom: 0.060 [1.52] / 0.050 [1.27]
- Bottom hole offset from center: 0.185 [4.70] / 0.170 [4.32]

Side View Dimensions:

- Top hole offset from side: 0.060 [1.52] / 0.040 [1.02]
- Slot width: 0.180 [4.56] / 0.165 [4.18]
- Slot gap: 0.020 [0.51]
- Bottom hole offset from side: 0.019 [0.48] / 0.012 [0.30]

Cross-sectional View Dimensions:

- Slot width: 0.175 [4.45] / 0.150 [3.81]
- Slot gap: 5.0" TYP.
- Bottom hole offset from center: 0.095 [2.41] / 0.084 [2.13]

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