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**FAIRCHILD**  
 SEMICONDUCTOR®

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

• PW=5ms, Duty Cycle=10%

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

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

# Typical Characteristics

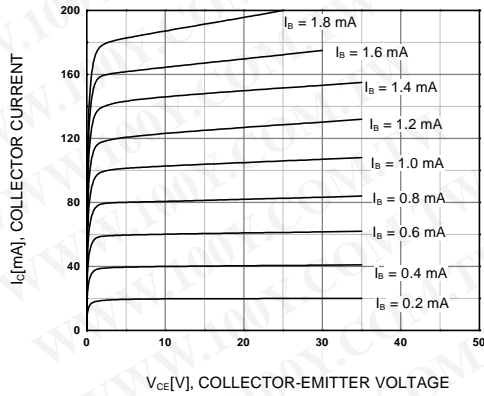


Figure 1. Static Characteristic

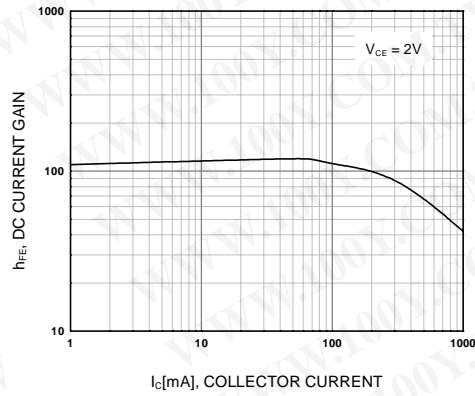


Figure 2. DC current Gain

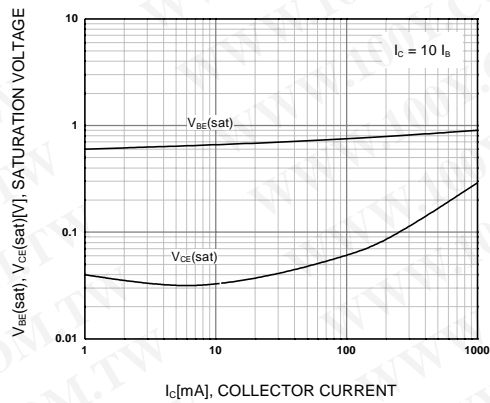


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

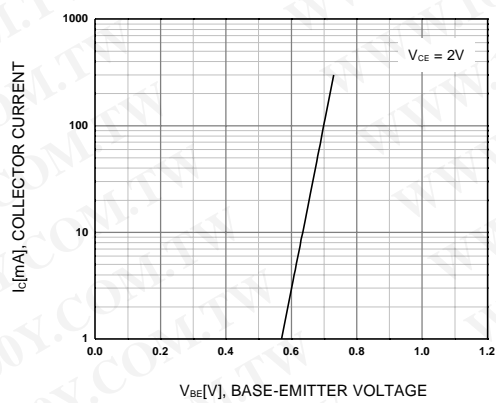


Figure 4. Base-Emitter On Voltage

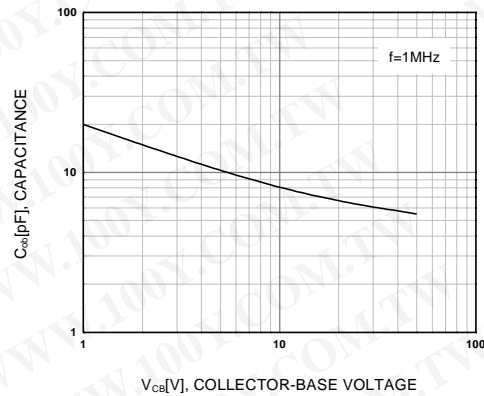
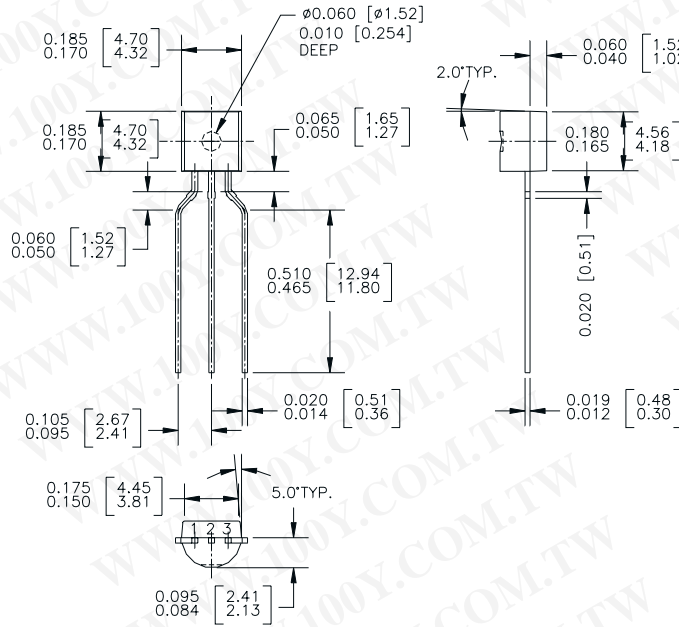


Figure 5. Collector Output Capacitance

# Package Dimensions

## TO-92

BC635/637/639



Dimensions in Millimeters

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