

# BC636/638/640

# **Switching and Amplifier Applications**

• Complement to BC635/637/639



## 1. Emitter 2. Collector 3. Base

# **PNP Epitaxial Silicon Transistor**

Absolute Maximum Ratings Ta=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CER</sub>	Collector-Emitter Voltage at R <sub>BF</sub> =1KΩ		
	: BC636	-45	V
	: BC638	-60	V
	: BC640	-100	V
V <sub>CES</sub>	Collector-Emitter Voltage		
	: BC636	-45	V
	: BC638	-60	V
	: BC640	-100	V
V <sub>CEO</sub>	Collector-Emitter Voltage		
	: BC636	-45	V
	: BC638	-60	V
	: BC640	-80	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current	-1	Α
I <sub>CP</sub>	Peak Collector Current	-1.5	Α
I <sub>B</sub>	Base Current	-100	mA
P <sub>C</sub>	Collector Power Dissipation	1	W
TJ	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature	-65 ~ 150	°C

## **Electrical Characteristics** $T_a$ =25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Units
BV <sub>CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = -10mA, I <sub>B</sub> =0				
	: BC636		-45			V
	: BC638		-60			V
	: BC640		-80			V
I <sub>CBO</sub>	Collector Cut-off Current	V <sub>CB</sub> = -30V, I <sub>E</sub> =0			-0.1	μΑ
I <sub>EBO</sub>	Emitter Cut-off Current	$V_{EB}$ = -5V, $I_{C}$ =0			-10	μΑ
h <sub>FE1</sub>	DC Current Gain : All	$V_{CE}$ = -2V, $I_{C}$ = -5mA	25			
$h_{FE2}$	: BC636	$V_{CE} = -2V, I_{C} = -150 \text{mA}$	40		250	
	: BC638/BC640		40		160	
$h_{FE3}$	: All	$V_{CE} = -2V, I_{C} = -500 \text{mA}$	25			
V <sub>CE</sub> (sat)	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA			-0.5	V
V <sub>BE</sub> (on)	Base-Emitter On Voltage	$V_{CE}$ = -2V, $I_{C}$ = -500mA			-1	V
f <sub>T</sub>	Current Gain Bandwidth Product	$V_{CE}$ = -5V, $I_{C}$ = -10mA, f=50MHz		100		MHz

# **Typical Characteristics**

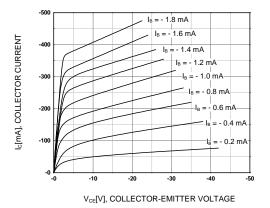


Figure 1. Static Characteristic

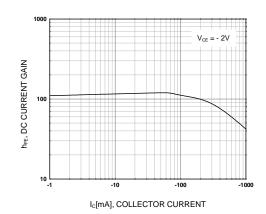


Figure 2. DC current Gain

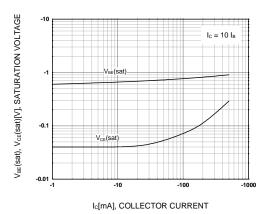


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

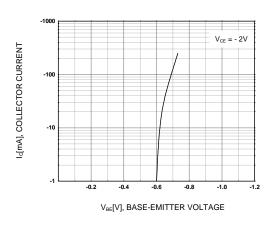


Figure 4. Base-Emitter On Voltage

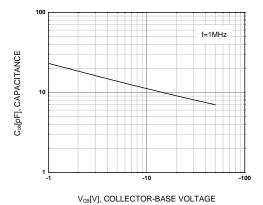
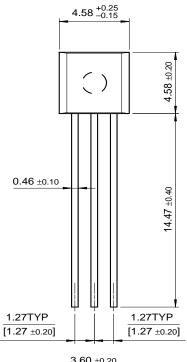
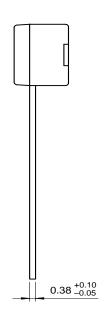


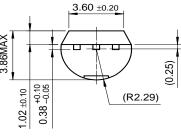
Figure 5. Collector Output Capacitance

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