December 2015

BC640
PNP Epitaxial Silicon Transistor

Features

- Switching and Amplifier Applications
- Complement to BC639

TO-92
1. Emitter
2. Collector
3. Base

Straight Lead Bulk Packing

Bent Lead Tape & Reel Ammo Packing

Ordering Information

Part Number	Top Mark	Package	Packing Method
BC640TA	BC640	TO-92 3L	Ammo

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CER}	Collector-Emitter Voltage at R_{BE} = 1 KΩ	-100	V
V_{CES}	Collector-Emitter Voltage	-100	V
V_{CEO}	Collector-Emitter Voltage	-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
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-65 to 150	°C

Thermal Characteristics[1]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	1	W
	Derate Above 25°C	8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	125	°C/W

Note:

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = -10 mA, I_B = 0	-80			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = -30 V, I_E = 0			-0.1	µA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = -5 V, I_C = 0			-10	µA
h_{FE1}	DC Current Gain	V_{CE} = -2 V, I_C = -5 mA	25			
h_{FE2}		V_{CE} = -2 V, I_C = -150 mA	40		160	
h_{FE3}		V_{CE} = -2 V, I_C = -500 mA	25			
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = -500 mA, I_B = -50 mA			-0.5	V
V_{BE}(on)	Base-Emitter On Voltage	V_{CE} = -2 V, I_C = -500 mA			-1	V
f_T	Current Gain Bandwidth Product	V_{CE} = -5 V, I_C = -10 mA, f = 50 MHz		100		MHz

Typical Performance Characteristics

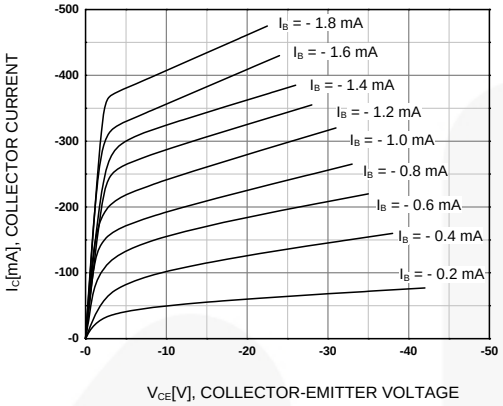

Figure 1. Static Characteristic

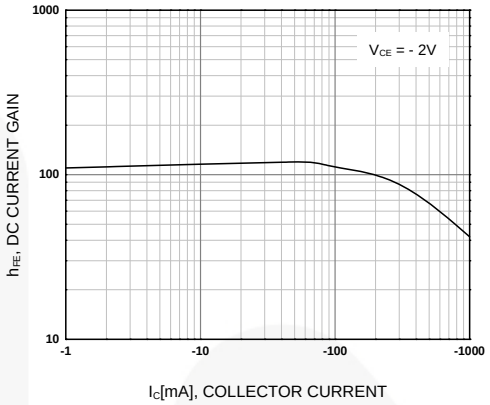

Figure 2. DC Current Gain

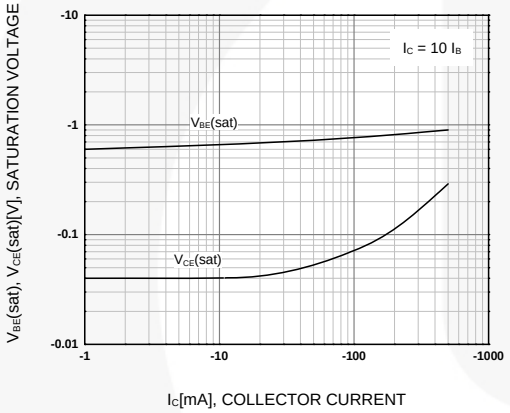

Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

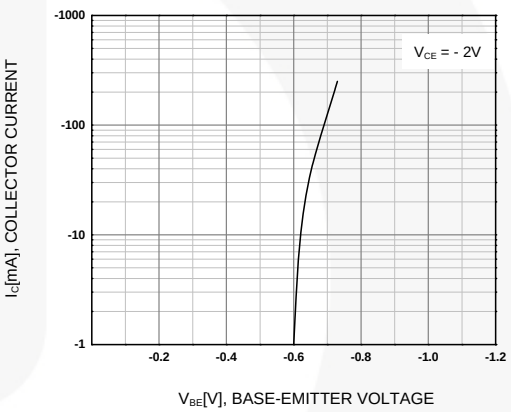

Figure 4. Base-Emitter On Voltage

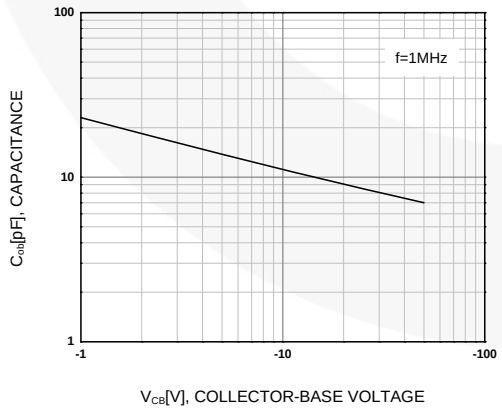

Figure 5. Collector Output Capacitance

Physical Dimensions

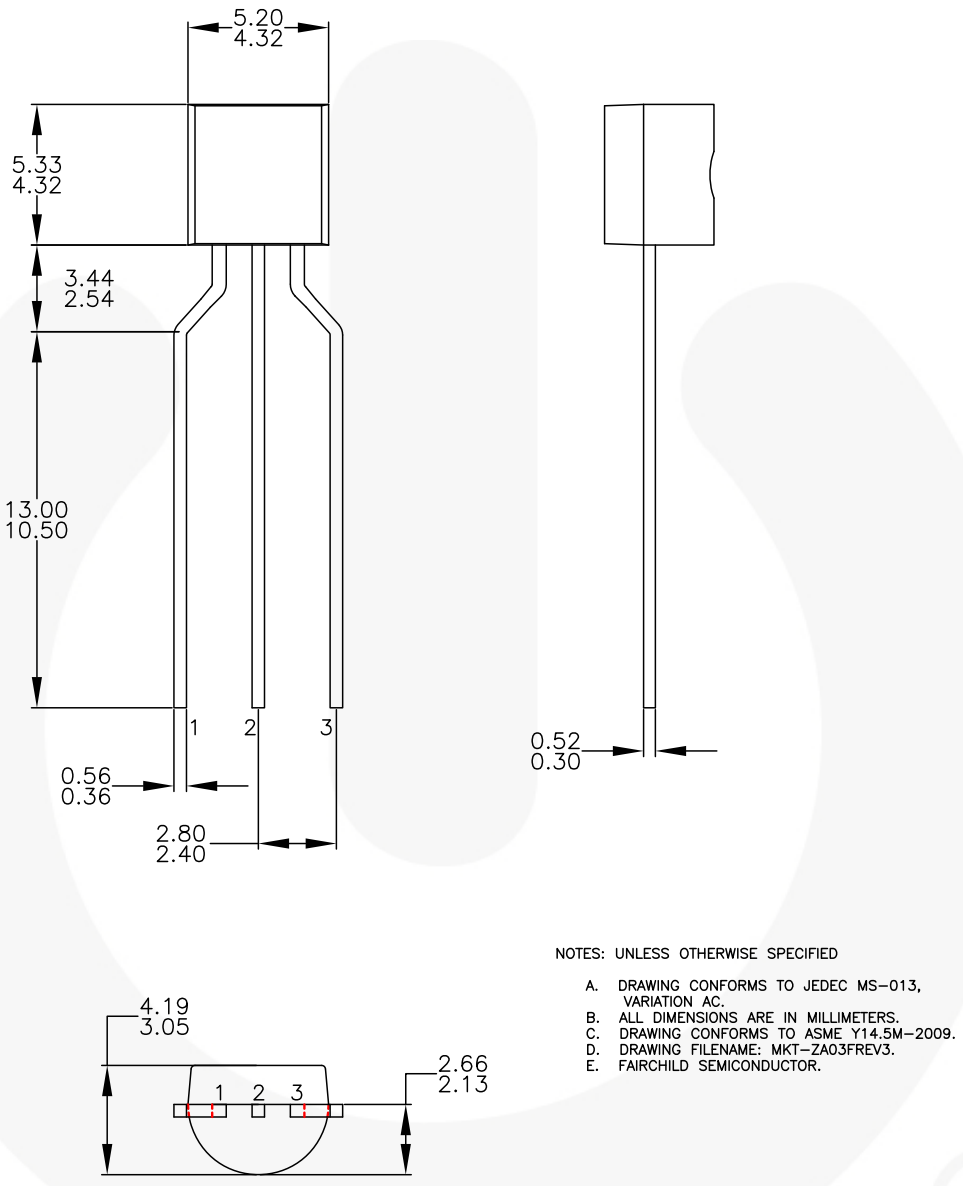

Figure 6. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo Type

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