

PNP Epitaxial Silicon Transistor

BC638

Features

- Switching and Amplifier Applications
- Complement to BC637
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

ABSOLUTE MAXIMUM RATINGS

(Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage at $R_{BE} = 1\text{ k}\Omega$	V_{CER}	-60	V
Collector-Emitter Voltage	V_{CES}	-60	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-1	A
Peak Collector Current	I_{CP}	-1.5	A
Base Current	I_B	-100	mA
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 to 150	$^\circ\text{C}$

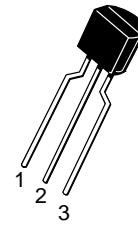
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Note 1)

(Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted)

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

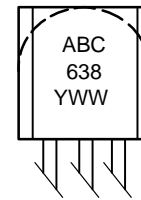
1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.



TO-92-3
CASE 135AR
Bent Lead

1. Emitter
2. Collector
3. Base

MARKING DIAGRAM



A = Assembly Code
BC638 = Device Code
YWW = Date Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

BC638

ELECTRICAL CHARACTERISTICS

(Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CEO}	Collector–Emitter Breakdown Voltage	$I_C = -10\text{ mA}, I_B = 0$	-60			V
I_{CBO}	Collector Cut–Off Current	$V_{CB} = -30\text{ V}, I_E = 0$			-0.1	μA
I_{EBO}	Emitter Cut–Off Current	$V_{EB} = -5\text{ V}, I_C = 0$			-10	μA
h_{FE1}	DC Current Gain	$V_{CE} = -2\text{ V}, I_C = -5\text{ mA}$	25			
h_{FE2}		$V_{CE} = -2\text{ V}, I_C = -150\text{ mA}$	40		160	
h_{FE3}		$V_{CE} = -2\text{ V}, I_C = -500\text{ mA}$	25			
$V_{CE(sat)}$	Collector–Emitter Saturation Voltage	$I_C = -500\text{ mA}, I_B = -50\text{ mA}$			-0.5	V
$V_{BE(on)}$	Base–Emitter On Voltage	$V_{CE} = -2\text{ V}, I_C = -500\text{ mA}$			-1	V
f_T	Current Gain Bandwidth Product	$V_{CE} = -5\text{ V}, I_C = -10\text{ mA}, f = 50\text{ MHz}$		100		MHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping
BC638TA	BC638	TO–92–3, case 135AR (Pb–Free)	2,000 Units / Fan Fold

TYPICAL PERFORMANCE CHARACTERISTICS

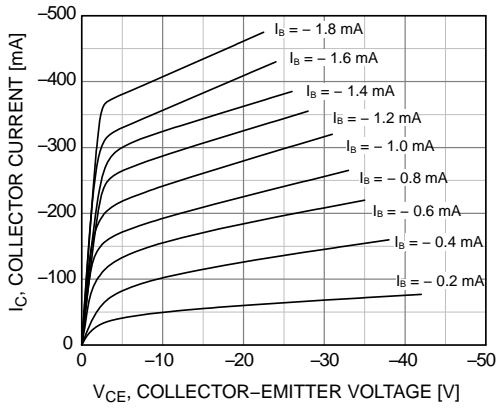


Figure 1. Static Characteristic

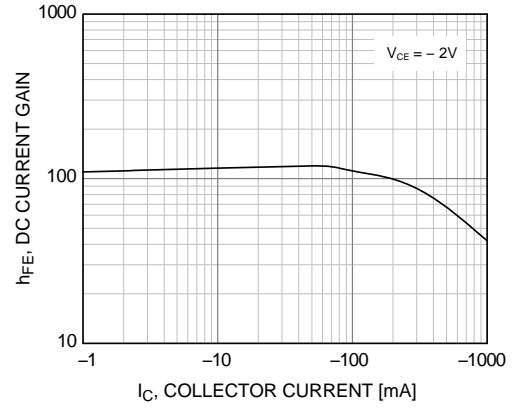


Figure 2. DC Current Gain

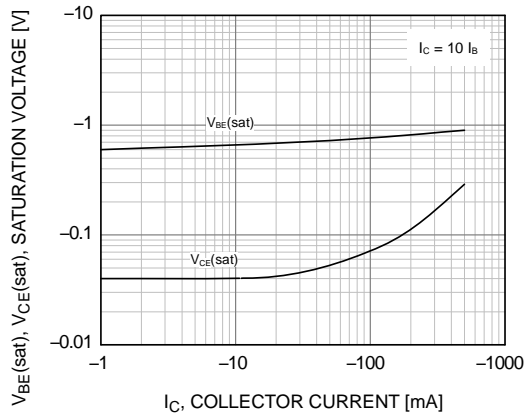


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

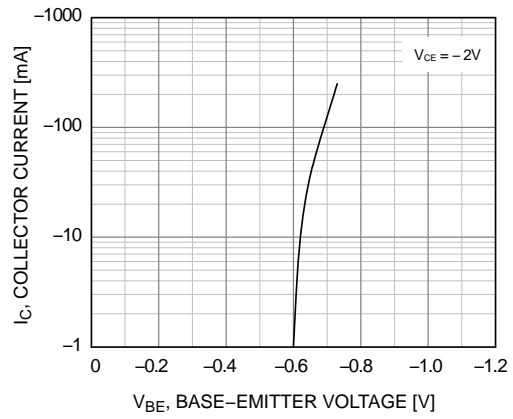


Figure 4. Base-Emitter On Voltage

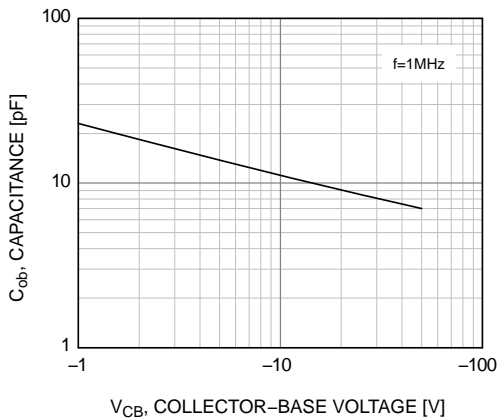
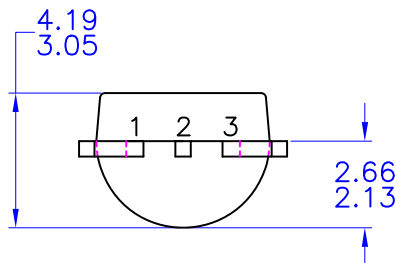
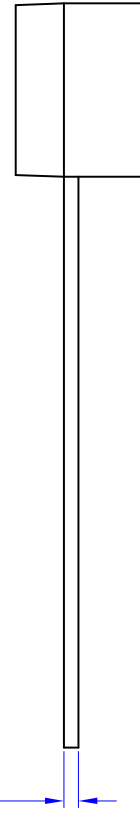
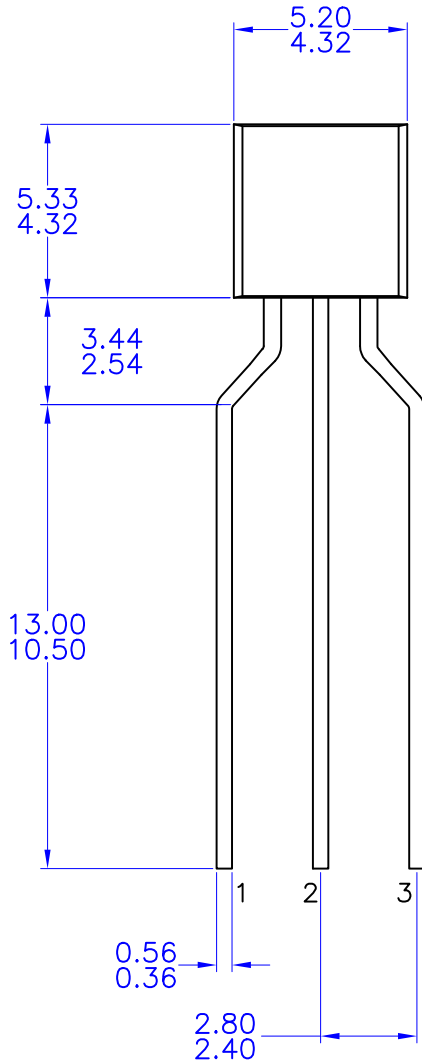


Figure 5. Collector Output Capacitance

TO-92 3 4.83x4.76 LEADFORMED
CASE 135AR
ISSUE O

DATE 30 SEP 2016



NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-1994

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