

NPN Epitaxial Silicon Transistor

SS8050

Features

- 2 W Output Amplifier of Portable Radios in Class B Push-Pull Operation
- Complementary to SS8550
- Collector Current: $I_C = 1.5$ A
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1.5	A
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 to 150	$^\circ\text{C}$

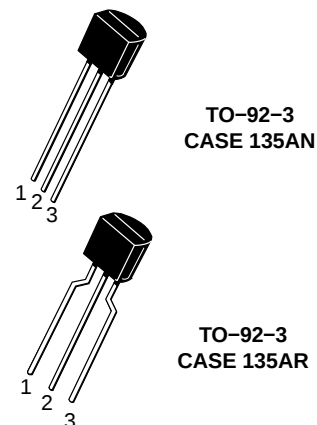
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Note 1)

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

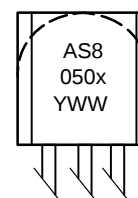
Parameter	Symbol	Value	Unit
Power Dissipation	P_D	1	W
Derate Above 25°C		8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	125	$^\circ\text{C}/\text{W}$

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.



1. Emitter
2. Base
3. Collector

MARKING DIAGRAM



S8050x = Specific Device Code
 Line 1: A = Assembly Location
 Line 2: x = B, C or D
 Line 3: Y = Year
 WW = Work Week

ORDERING INFORMATION

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

SS8050

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector–Base Breakdown Voltage	$I_C = 100\ \mu\text{A}$, $I_E = 0$	40			V
BV_{CEO}	Collector–Emitter Breakdown Voltage	$I_C = 2\ \text{mA}$, $I_B = 0$	25			V
BV_{EBO}	Emitter–Base Breakdown Voltage	$I_E = 100\ \mu\text{A}$, $I_C = 0$	6			V
I_{CBO}	Collector Cut–Off Current	$V_{CB} = 35\ \text{V}$, $I_E = 0$			100	nA
I_{EBO}	Emitter Cut–Off Current	$V_{EB} = 6\ \text{V}$, $I_C = 0$			100	nA
h_{FE1}	DC Current Gain	$V_{CE} = 1\ \text{V}$, $I_C = 5\ \text{mA}$	45			
h_{FE2}		$V_{CE} = 1\ \text{V}$, $I_C = 100\ \text{mA}$	85		300	
h_{FE3}		$V_{CE} = 1\ \text{V}$, $I_C = 800\ \text{mA}$	40			
$V_{CE(sat)}$	Collector–Emitter Saturation Voltage	$I_C = 800\ \text{mA}$, $I_B = 80\ \text{mA}$			0.5	V
$V_{BE(sat)}$	Base–Emitter Saturation Voltage	$I_C = 800\ \text{mA}$, $I_B = 80\ \text{mA}$			1.2	V
$V_{BE(on)}$	Base–Emitter On Voltage	$V_{CE} = 1\ \text{V}$, $I_C = 10\ \text{mA}$			1	V
C_{ob}	Output Capacitance	$V_{CB} = 10\ \text{V}$, $I_E = 0$, $f = 1\ \text{MHz}$		9.0		pF
f_T	Current Gain Bandwidth Product	$V_{CE} = 10\ \text{V}$, $I_C = 50\ \text{mA}$	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.

h_{FE} CLASSIFICATION

Classification	B	C	D
h_{FE2}	85 ~ 160	120 ~ 200	160 ~ 300

ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping
SS8050BBU	S8050B	TO–92–3, case 135AN (Pb–Free)	10,000 Units/ Bulk Box
SS8050CBU	S8050C	TO–92–3, case 135AN (Pb–Free)	10,000 Units/ Bulk Box
SS8050CTA	S8050C	TO–92–3, case 135AR (Pb–Free)	2,000 Units/ Fan–Fold
SS8050DBU	S8050D	TO–92–3, case 135AN (Pb–Free)	10,000 Units/ Bulk Box
SS8050DTA	S8050D	TO–92–3, case 135AR (Pb–Free)	2,000 Units/ Fan–Fold

TYPICAL PERFORMANCE CHARACTERISTICS

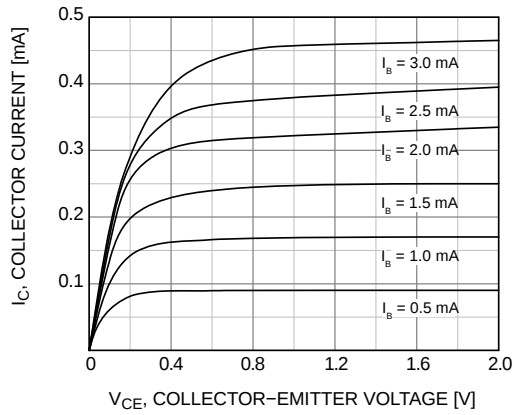


Figure 1. Static Characteristic

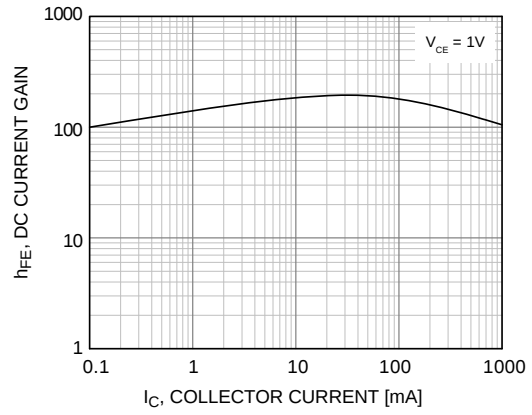


Figure 2. DC Current Gain

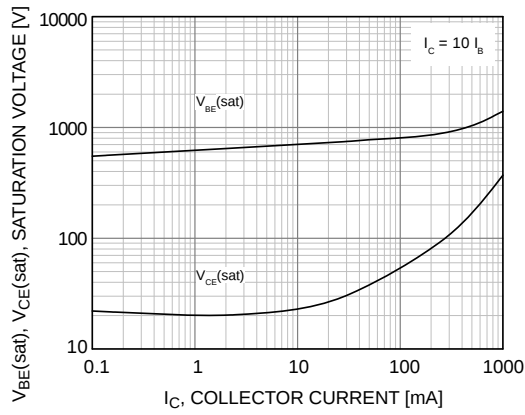


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

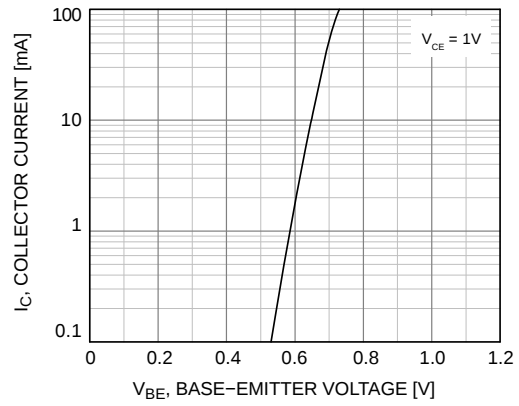


Figure 4. Base-Emitter On Voltage

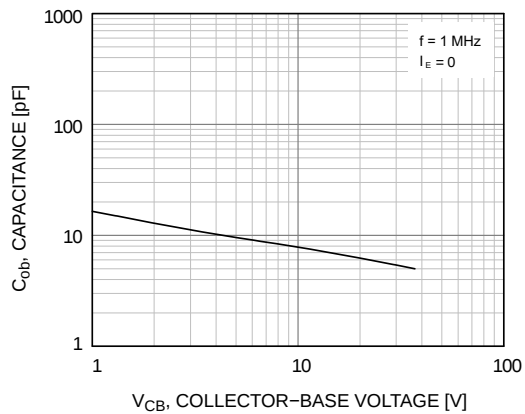


Figure 5. Collector Output Capacitance

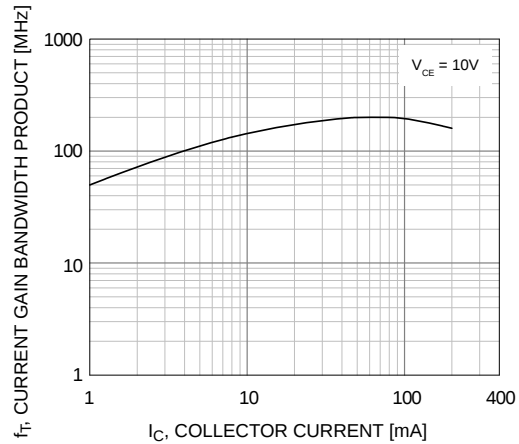


Figure 6. Current Gain Bandwidth Product

MECHANICAL CASE OUTLINE

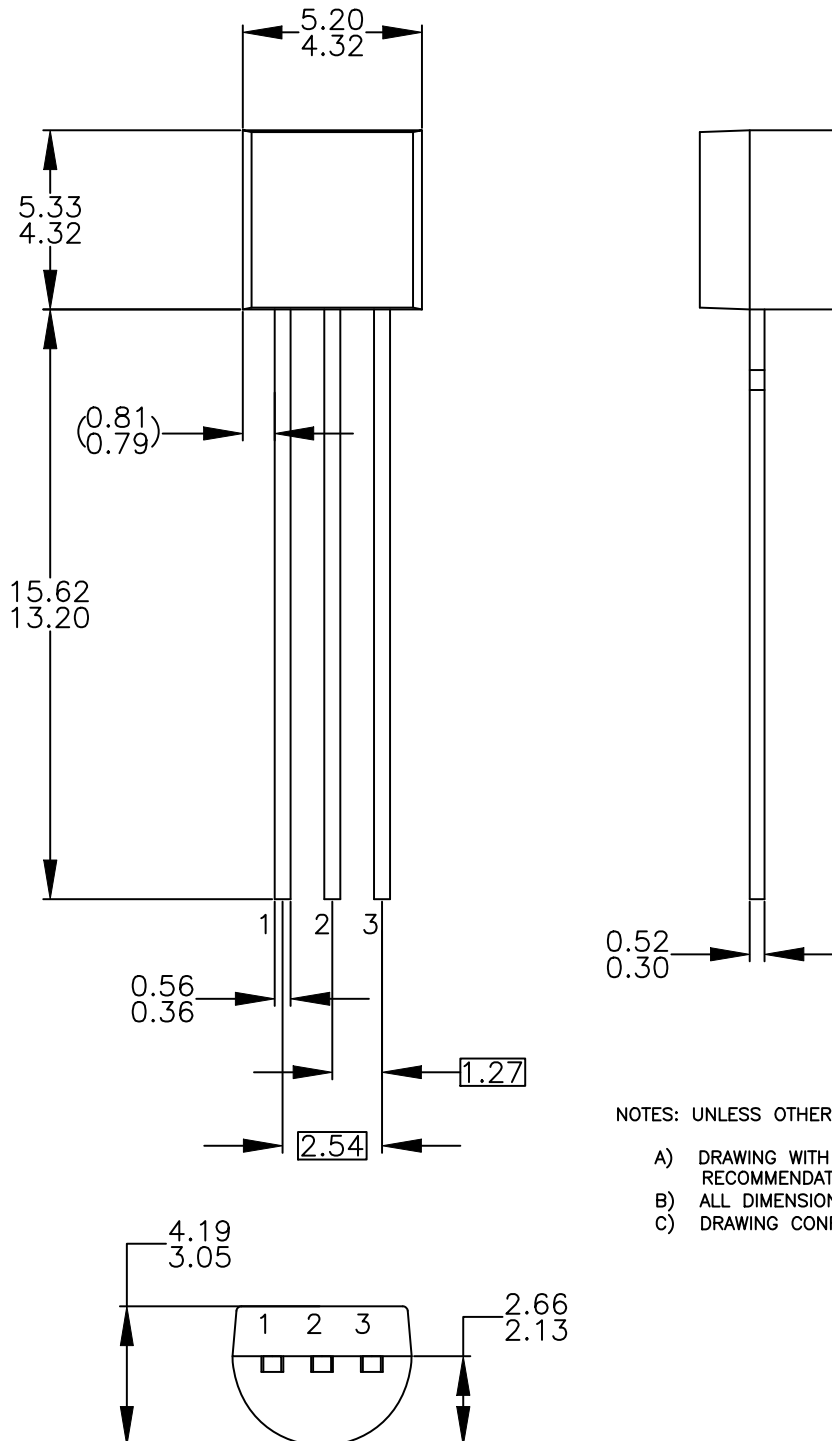
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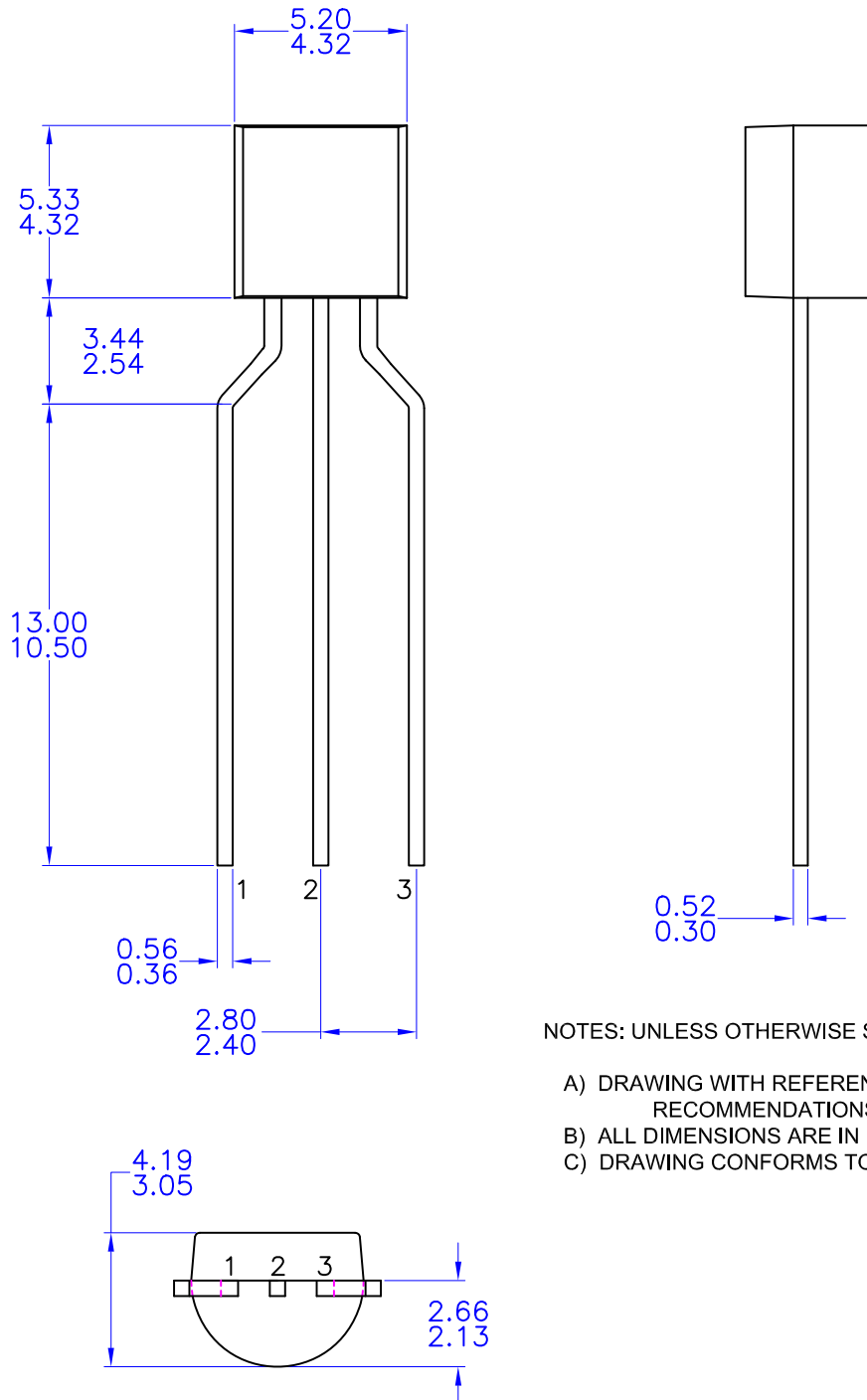
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