

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	$^\circ\text{C}$

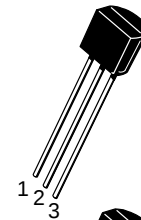
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Note 1)

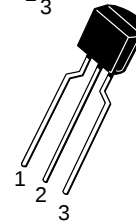
($T_A = 25^\circ\text{C}$ unless otherwise noted)

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	$^\circ\text{C/W}$

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.



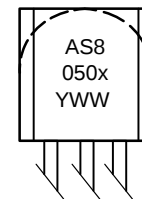
TO-92-3
CASE 135AN



TO-92-3
CASE 135AR

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

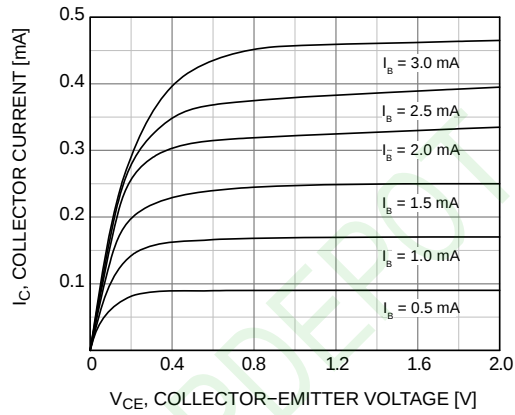


Figure 1. Static Characteristic

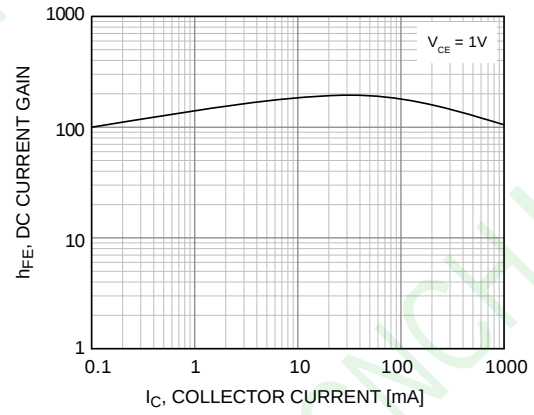


Figure 2. DC Current Gain

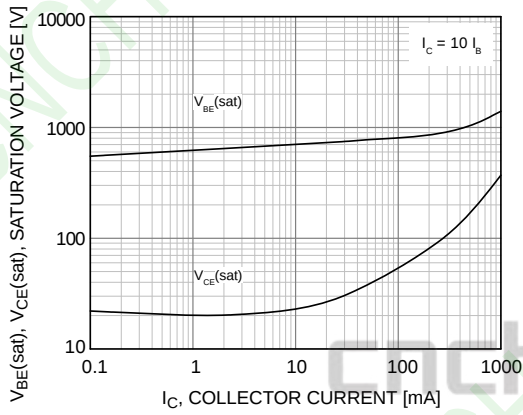


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

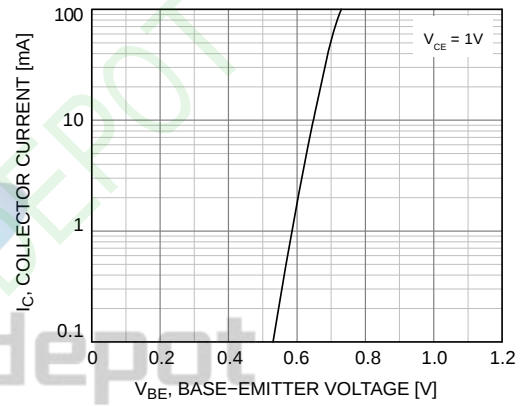


Figure 4. Base-Emitter On Voltage

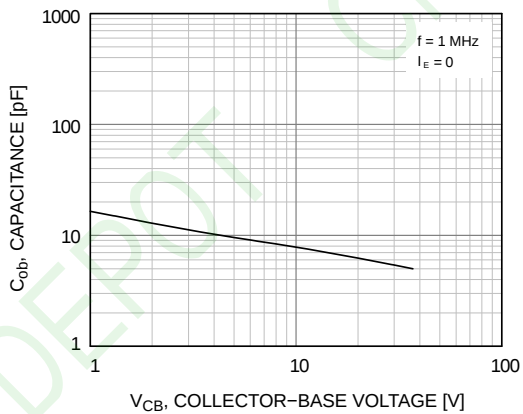


Figure 5. Collector Output Capacitance

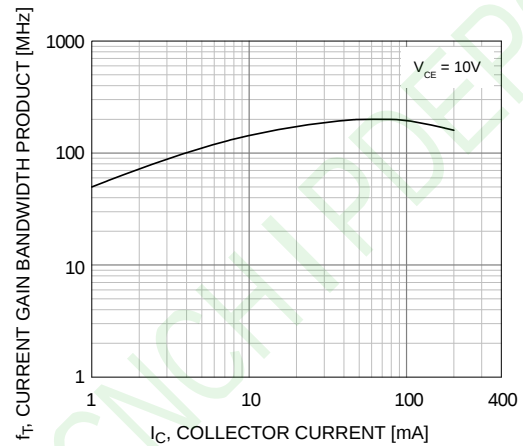
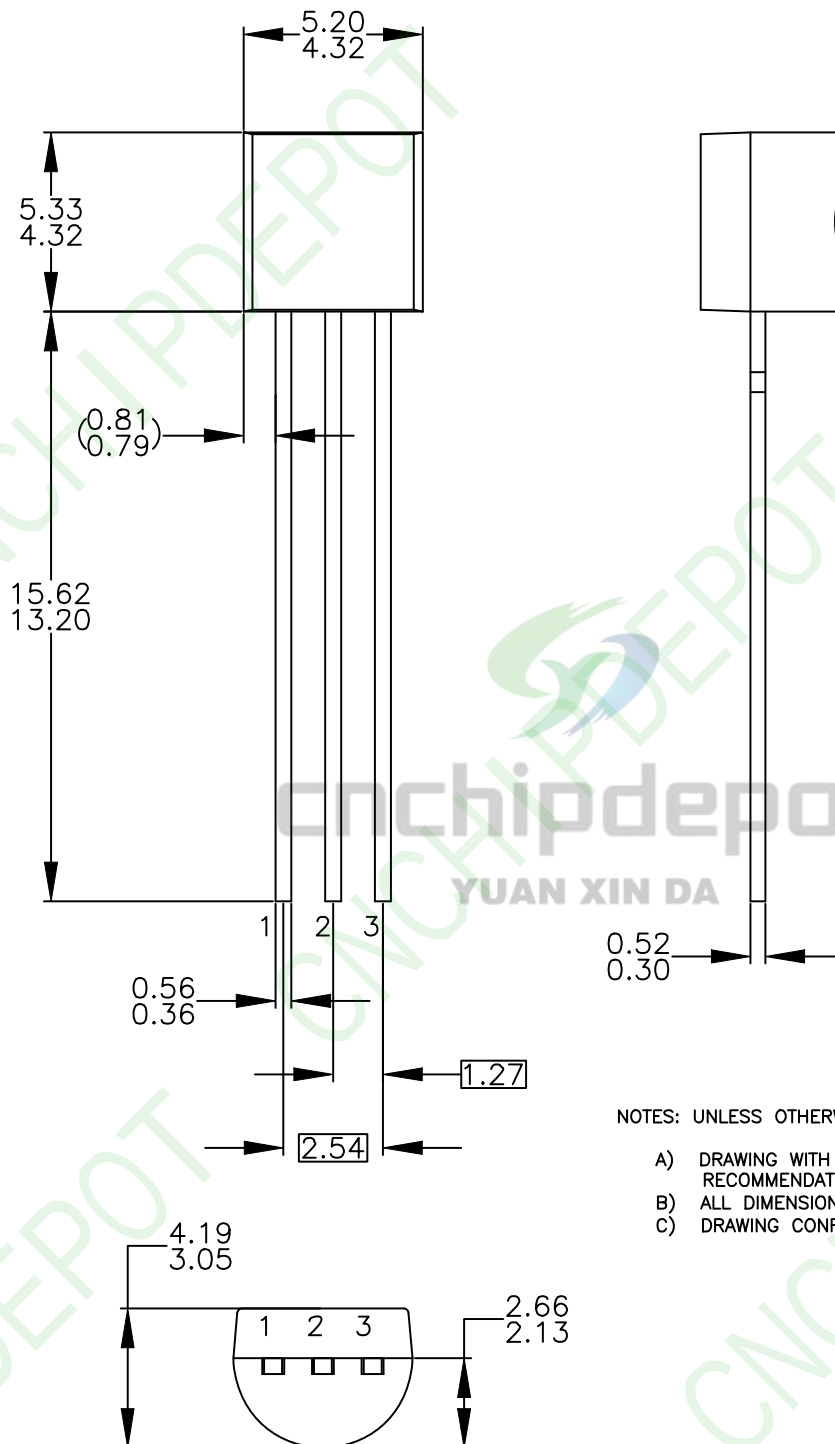


Figure 6. Current Gain Bandwidth Product

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

TO-92 3 4.825x4.76
CASE 135AN
ISSUE O

DATE 31 JUL 2016



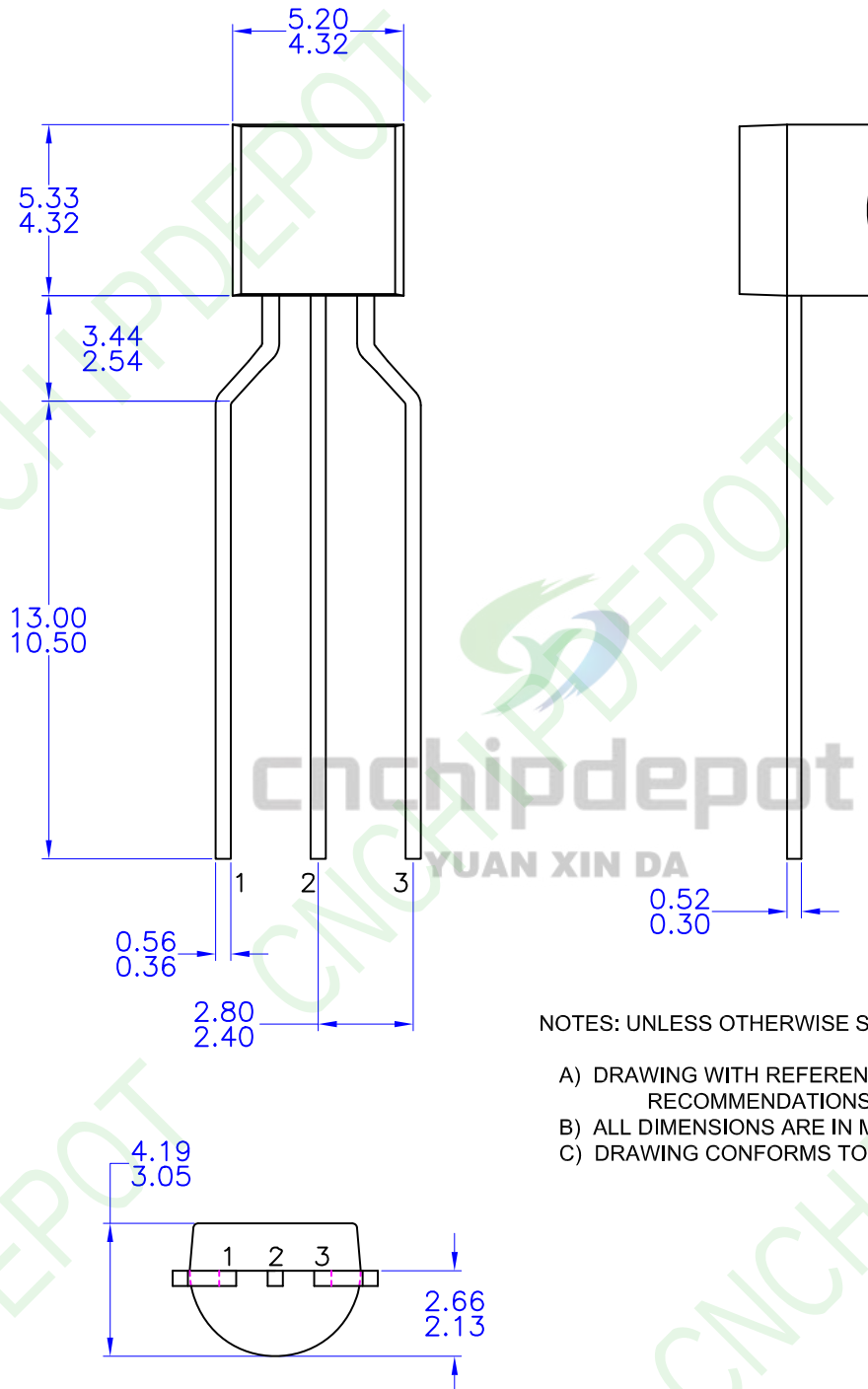
NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-2009.

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

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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Product Portfolio

Primary Category	Secondary Category	Series	Model	Package	Link
Diode	Rectifier Diode	1N4007	1N4007	SMA(DO-214AC)	https://www.cnchipdepot.com/p/fosan-1n4007-107172.html
Diode	Rectifier Diode	1N4007	1N4007	SOD-123FL	https://www.cnchipdepot.com/p/fosan-1n4007-107173.html
Diode	Switching Diode	BAW56	BAW56	SOT-23	https://www.cnchipdepot.com/p/fosan-baw56-107174.html
Diode	Switching Diode	BAW56	BAW56W-6AF	SOT-323	https://www.cnchipdepot.com/p/fosan-baw56w-6af-107175.html

Diode	Switching Diode	1N4148	1N4148WT	SOD-323	https://www.cnchipdepot.com/p/fosan-1n4148wt-107176.html
Diode	Schottky Diode	1N5819	1N4148WS	SOD-323	https://www.cnchipdepot.com/p/fosan-1n4148ws-107177.html
Diode	Schottky Diode	SS34	SS34	SMA(DO-214AC)	https://www.cnchipdepot.com/p/fosan-ss34-107178.html
Diode	Schottky Diode	SS54	SS34B	SMA(DO-214AC)	https://www.cnchipdepot.com/p/baocheng-ss34b-12183.html
Diode	Schottky Diode	SS14	SS34C	SMA(DO-214AC)	https://www.cnchipdepot.com/p/baocheng-ss34c-12188.html
Diode Fast Recovery / High Efficiency Diode		US1M	US1M	SMA	https://www.cnchipdepot.com/p/fosan-us1m-107198.html
Diode Fast Recovery / High Efficiency Diode		US1M	US1MA-AAF	SMA	https://www.cnchipdepot.com/p/fosan-us1ma-aaf-107179.html
Diode Fast Recovery / High Efficiency Diode		US1M	US1MF	SMAF	https://www.cnchipdepot.com/p/baocheng-us1mf-17709.html
Diode	Switching Diode	BAV99	BAV99	SOT-23	https://www.cnchipdepot.com/p/agertech-bav99-18862.html
Diode	Switching Diode	BAV99	BAV99-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-ss34-107178.html
Diode	Switching Diode	BAV99	BAV99W-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-bav99w-6af-107181.html
Diode	Schottky Diode	B5819W	B5819WS	SOD-123	https://www.cnchipdepot.com/p/am-b5819ws-12167.html
Diode	Schottky Diode	B5819W	B5819W		https://www.cnchipdepot.com/p/am-b5819w-12166.html
Transistor (BJT)	NPN BJT	S8050	S8050	SOT-23	https://www.cnchipdepot.com/p/am-s8050-1108.html

Transistor (BJT)	NPN BJT	S8050	S8050-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-s8050-6af-107182.html
Transistor (BJT)	NPN BJT	SS8050	SS8050	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro-s8050-1087.html
Transistor (BJT)	NPN BJT	SS8050	SS8050S	SOT-23	https://www.cnchipdepot.com/p/fosan-ss8050s-2326.html
Transistor (BJT)	NPN BJT	MMBT5551	MMBT5551	SOT-23	https://www.cnchipdepot.com/p/agertech-mmbt5551-1003.html
Transistor (BJT)	NPN BJT	MMBT5551	MMBT5551S	SOT-23	https://www.cnchipdepot.com/p/fosan-mmbt5551s-2327.html
Transistor (BJT)	NPN BJT	MMBT5551	MMBT5551-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-mmbt5551-6af-107183.html
Transistor	MOSFET	7002	2N7002	SOT-23	https://www.cnchipdepot.com/p/fosan-2n7002-107184.html
Transistor	MOSFET	7002	2N7002K	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro--2n7002k-5083.html
Transistor	MOSFET	7002	2N7002K-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-2n7002k-6af-107185.html
Transistor	MOSFET	7002	2N7002-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-2n7002-6af-107186.html
Transistor	MOSFET	BSS84	BSS84	SOT-23	https://www.cnchipdepot.com/p/fosan-bss84-107187.html
Transistor	MOSFET	BSS84	BSS84-6AF	SOT-363	https://www.cnchipdepot.com/p/fosan-bss84-6af-107188.html
Transistor (BJT)	NPN BJT	BC847	BC847A	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro--bc847a-1052.html
Transistor (BJT)	NPN BJT	BC847	BC847B	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro--bc847b-1056.html

Transistor (BJT)	NPN BJT	BC847	BC847C	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro--bc847c-1055.html
Power IC	LDO	1117	LD1117-3.3	SOT223	https://www.cnchipdepot.com/p/hxy-mosfet-huaxuan-yang-electronics--ld1117-3-3-25490.html
Power IC	LDO	1117	LD1117-1.8	SOT223	https://www.cnchipdepot.com/p/hxy-mosfet-huaxuan-yang-electronics--ld1117-1-8-25429.html
Power IC	LDO	1117	LD1117-5.0	SOT223	https://www.cnchipdepot.com/p/hxy-mosfet-huaxuan-yang-electronics--ld1117-5-0-25444.html
Power IC	LDO	1117	LD1117-ADJ	SOT223	https://www.cnchipdepot.com/p/hxy-mosfet-huaxuan-yang-electronics--ld1117-adj-25427.html