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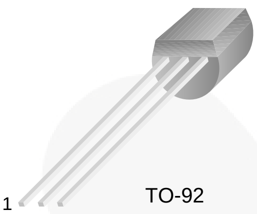
February 2015

2N5550
NPN Epitaxial Silicon Transistor

Features

- Amplifier Transistor
- Collector-Emitter Voltage: V_{CEO} = 140 V



TO-92

1. Emitter 2. Base 3. Collector

Ordering Information

Part Number	Top Mark	Package	Packing Method
2N5550BU	2N5550	TO-92 3L	Bulk
2N5550TA	2N5550	TO-92 3L	Ammo
2N5550TAR	2N5550	TO-92 3L	Ammo
2N5550TF	2N5550	TO-92 3L	Tape and Reel
2N5550TFR	2N5550	TO-92 3L	Tape and Reel

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_{CBO}	Collector-Base Voltage	160	V
V_{CEO}	Collector-Emitter Voltage	140	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	600	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to 150	°C

Thermal Characteristics[1]

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

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	625	mW
	Derate Above 25°C	5.0	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	200	°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_{CBO}	Collector-Base Breakdown Voltage	I_C = 100 μA, I_E = 0	160			V
BV_{CEO}	Collector-Emitter Breakdown Voltage[2]	I_C = 1 mA, I_B = 0	140			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10 μA, I_C = 0	6			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 100 V, I_E = 0			100	nA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 4 V, I_C = 0			50	nA
h_{FE}	DC Current Gain[2]	I_C = 1 mA, V_{CE} = 5 V	60			
		I_C = 10 mA, V_{CE} = 5 V	60		250	
		I_C = 50 mA, V_{CE} = 5 V	20			
V_{CE}(sat)	Collector-Emitter Saturation Voltage[2]	I_C = 10 mA, I_B = 1 mA			0.15	V
		I_C = 50 mA, I_B = 5 mA			0.25	
V_{BE}(sat)	Base-Emitter Saturation Voltage[2]	I_C = 10 mA, I_B = 1 mA			1.0	V
		I_C = 50 mA, I_B = 5 mA			1.2	
f_T	Current Gain Bandwidth Product	I_C = 10 mA, V_{CE} = 10 V f = 100 MHz	100		300	MHz
C_{ob}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz			6	pF
NF	Noise Figure	I_C = 250 μA, V_{CE} = 5 V, R_S = 1 kΩ,f = 10 Hz to 15.7 kHz			10	dB

Note:

2. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2%

Typical Performance Characteristics

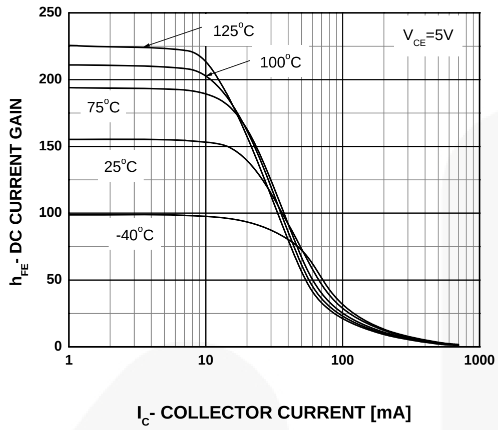


Figure 1. Typical Pulsed Current Gain vs. Collector Current

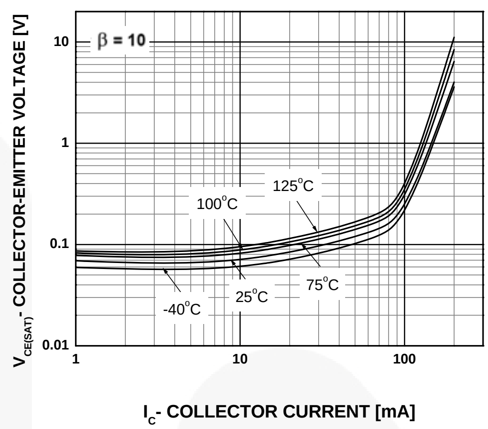


Figure 2. Collector-Emitter Saturation Voltage vs. Collector Current

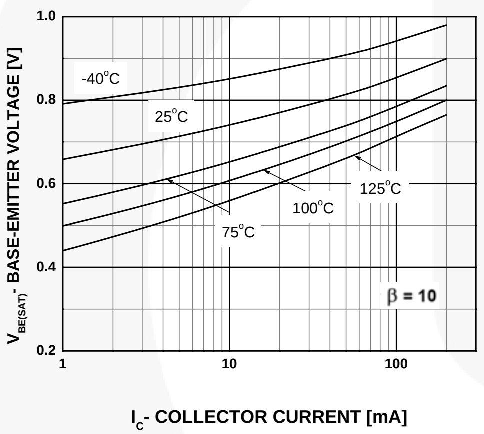


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

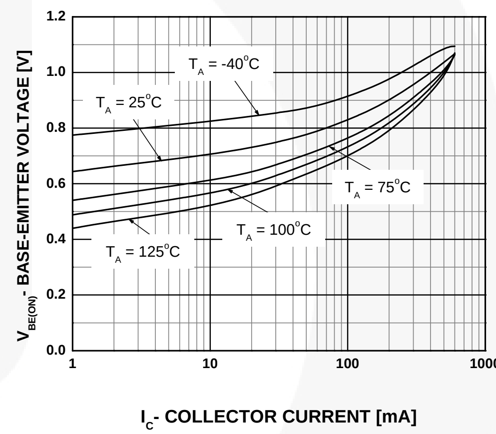


Figure 4. Base-Emitter On Voltage vs. Collector Current

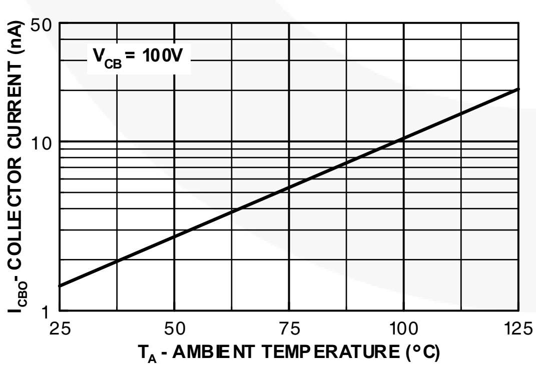


Figure 5. Collector Cut-Off Current vs. Ambient Temperature

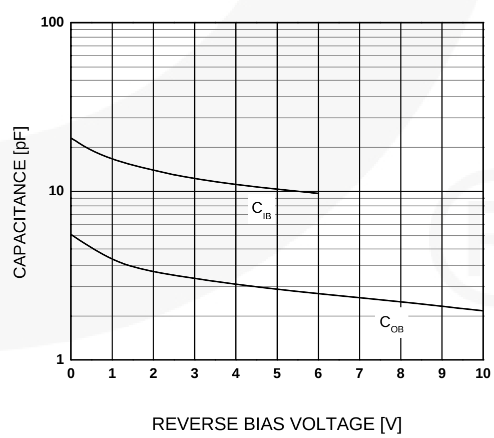


Figure 6. Input and Output Capacitance vs. Reverse Voltage

Typical Performance Characteristics (Continued)

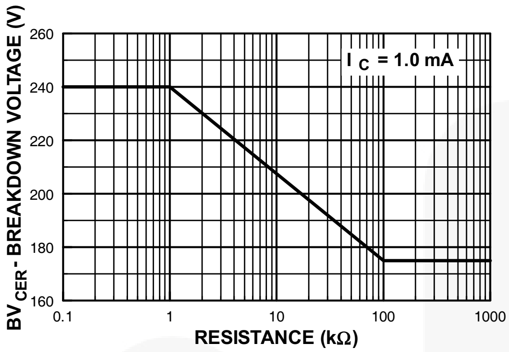


Figure 7. Collector- Emitter Breakdown Voltage with Resistance between Emitter-Base

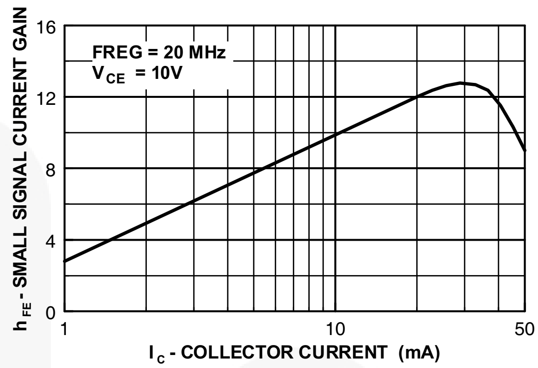


Figure 8. Small Signal Current Gain vs. Collector Current

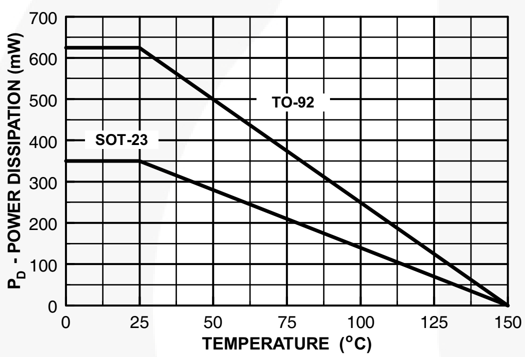
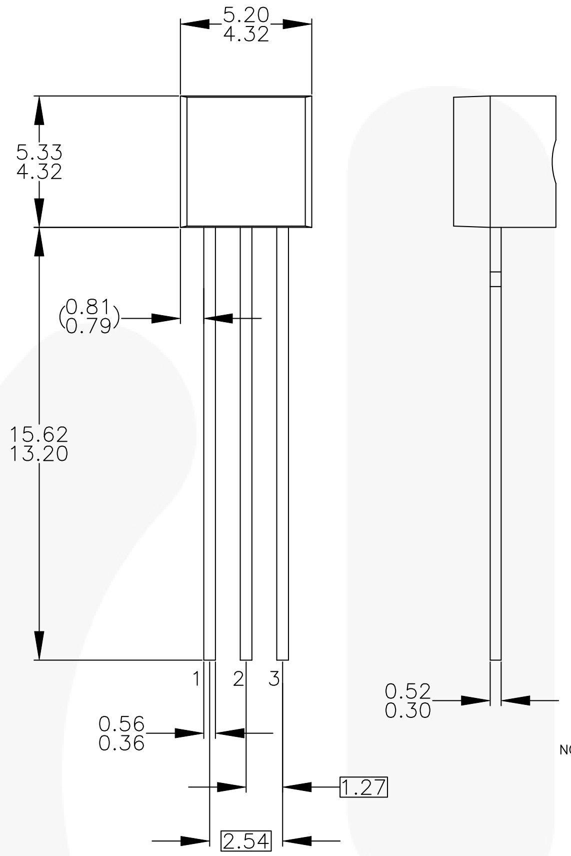
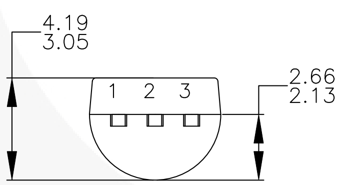


Figure 9. Power Dissipation vs. Ambient Temperature

Physical Dimensions





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.
D) TO–92 (92,94,96,97,98) PIN CONFIGURATION:

PIN	92			94			96			97			98		
	P	F	M	P	F	M	B	F	M	P	F	M	P	F	M
1	E	S	S	E	S	S	B	D	G	C	G	D	C	G	D
2	B	D	G	C	G	D	E	S	S	B	D	G	E	S	S
3	C	G	D	B	D	G	C	G	D	E	S	S	B	D	G

LEGEND:
P – BIPOLAR E – EMITTER D – DRAIN
F – JFET B – BASE S – SOURCE
M – DMOS C – COLLECTOR G – GATE

E) FOR PACKAGE 92, 94, 96, 97 AND 98: PIN CONFIGURATION DRAIN "D" AND SOURCE "S" ARE INTERCHANGEAGLE AT JFET "F" OPTION.
F) DRAWING FILENAME: MKT–ZA03DREV3.

Figure 10. 3-Lead, TO-92, JEDEC TO-92 Compliant Straight Lead Configuration, Bulk Type

Physical Dimensions (Continued)

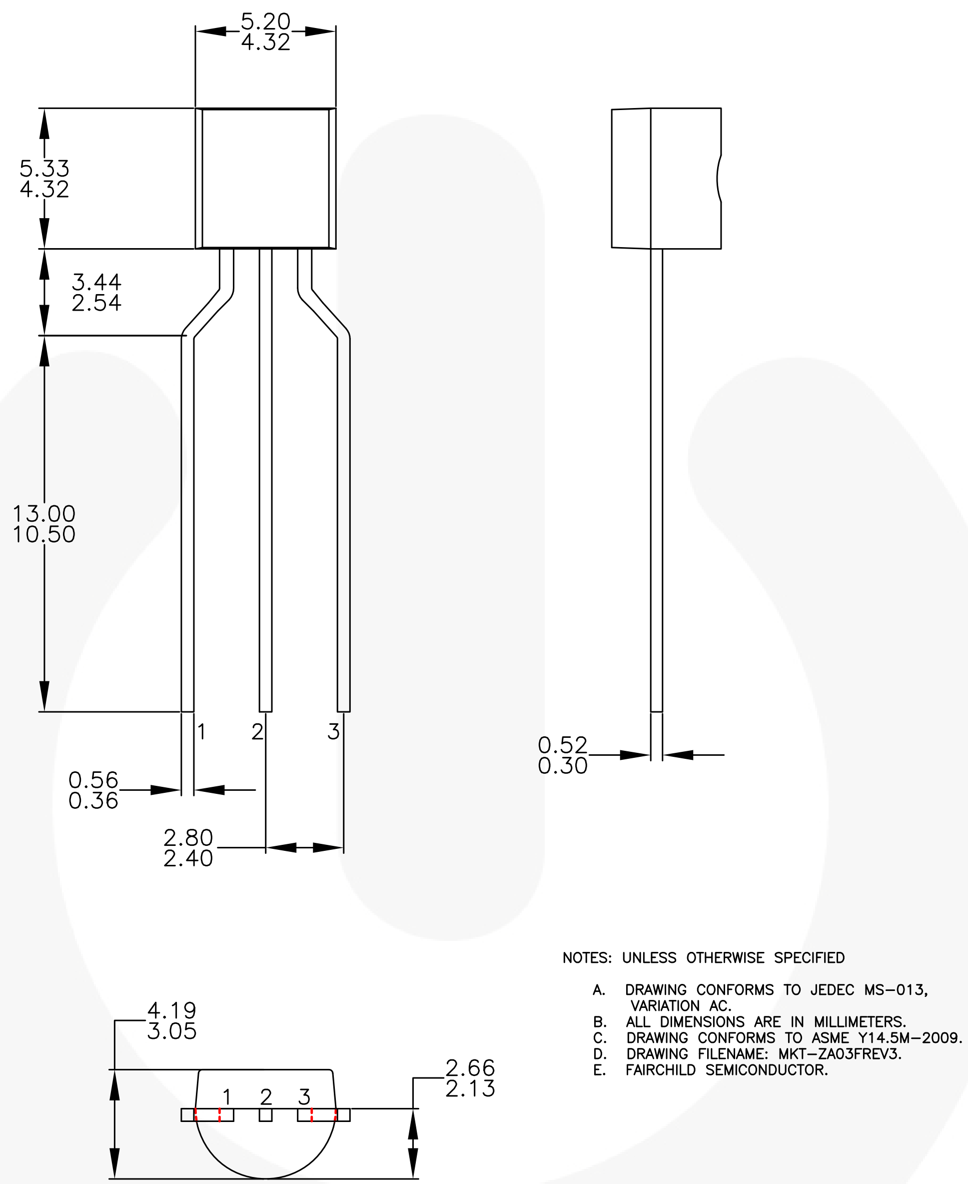


Figure 11. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo, Tape and Reel Type

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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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