
PART NUMBER**NST856BF3T5G-ROC**

Rochester Electronics**Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer. (OCM)

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-38535
 - Class Q Military
 - Class V Space Level

Qualified Suppliers List of Distributors (QSLD)

- Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

NST856BF3T5G

PNP General Purpose Transistor

The NST856BF3T5G device is a spin-off of our popular SOT-23/SOT-323/SOT-563/SOT-963 three-leaded device. It is designed for general purpose amplifier applications and is housed in the SOT-1123 surface mount package. This device is ideal for low-power surface mount applications where board space is at a premium.

Features

- h_{FE} , 220–475
- Low $V_{CE(sat)}$, ≤ -0.3 V
- Reduces Board Space
- This is a Halide-Free Device
- This is a Pb-Free Device

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	–65	Vdc
Collector–Base Voltage	V_{CBO}	–80	Vdc
Emitter–Base Voltage	V_{EBO}	–5.0	Vdc
Collector Current – Continuous	I_C	–100	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation, $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D (Note 1)	290 2.3	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$ (Note 1)	432	$^\circ\text{C}/\text{W}$
Total Device Dissipation, $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D (Note 2)	347 2.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$ (Note 2)	360	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction–to–Lead 3	$R_{\psi JL}$ (Note 2)	143	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

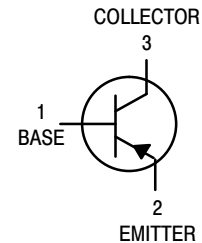
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. 100 mm² 1 oz, copper traces.
2. 500 mm² 1 oz, copper traces.

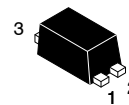


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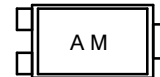


NST856BF3T5G



SOT-1123
CASE 524AA
STYLE 1

MARKING DIAGRAM



A = Device Code
M = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
NST856BF3T5G	SOT-1123 (Pb-Free)	8000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

NST856BF3T5G

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (I _C = -10 mA)	V _{(BR)CEO}	-65	-	-	V
Collector–Emitter Breakdown Voltage (I _C = -10 μA, V _{EB} = 0)	V _{(BR)CES}	-80	-	-	V
Collector–Base Breakdown Voltage (I _C = -10 μA)	V _{(BR)CBO}	-80	-	-	V
Emitter–Base Breakdown Voltage (I _E = -1.0 μA)	V _{(BR)EBO}	-5.0	-	-	V
Collector Cutoff Current (V _{CB} = -30 V) (V _{CB} = -30 V, T _A = 150°C)	I _{CBO}	-	-	-15 -4.0	nA μA

ON CHARACTERISTICS

DC Current Gain (I _C = -10 μA, V _{CE} = -5.0 V) (I _C = -2.0 mA, V _{CE} = -5.0 V)	h _{FE}	- 220	150 290	- 475	-
Collector–Emitter Saturation Voltage (I _C = -10 mA, I _B = -0.5 mA) (I _C = -100 mA, I _B = -5.0 mA)	V _{CE(sat)}	- -	- -	-0.3 -0.8	V
Base–Emitter Saturation Voltage (I _C = -10 mA, I _B = -0.5 mA) (I _C = -100 mA, I _B = -5.0 mA)	V _{BE(sat)}	- -	-0.7 -0.9	- -	V
Base–Emitter On Voltage (I _C = -2.0 mA, V _{CE} = -5.0 V) (I _C = -10 mA, V _{CE} = -5.0 V)	V _{BE(on)}	-0.6 -	- -	-0.75 -0.82	V

SMALL-SIGNAL CHARACTERISTICS

Current–Gain – Bandwidth Product (I _C = -10 mA, V _{CE} = -5.0 Vdc, f = 100 MHz)	f _T	100	-	-	MHz
Output Capacitance (V _{CB} = -10 V, f = 1.0 MHz)	C _{obo}	-	-	4.5	pF
Input Capacitance (V _{EB} = -0.5 V, I _C = 0 mA, f = 1.0 MHz)	C _{ibo}	-	-	10	pF
Noise Figure (I _C = -0.2 mA, V _{CE} = -5.0 Vdc, R _S = 2.0 kΩ, f = 1.0 kHz, BW = 200 Hz)	NF	-	-	10	dB

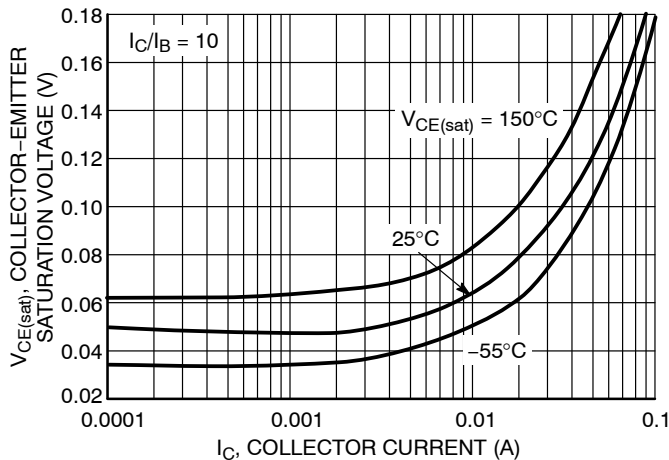


Figure 1. Collector Emitter Saturation Voltage vs. Collector Current

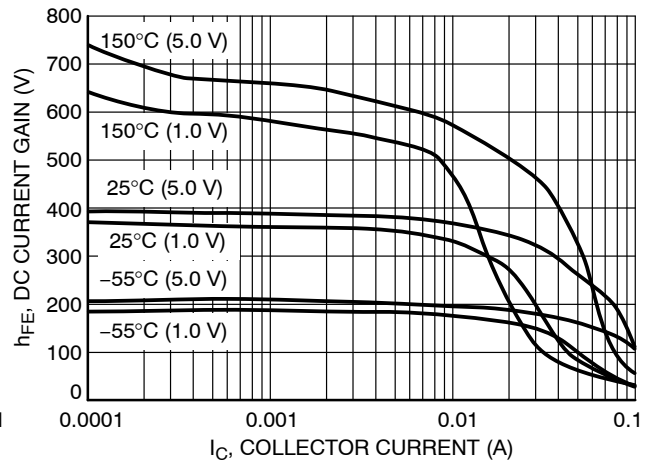


Figure 2. DC Current Gain vs. Collector Current

NST856BF3T5G

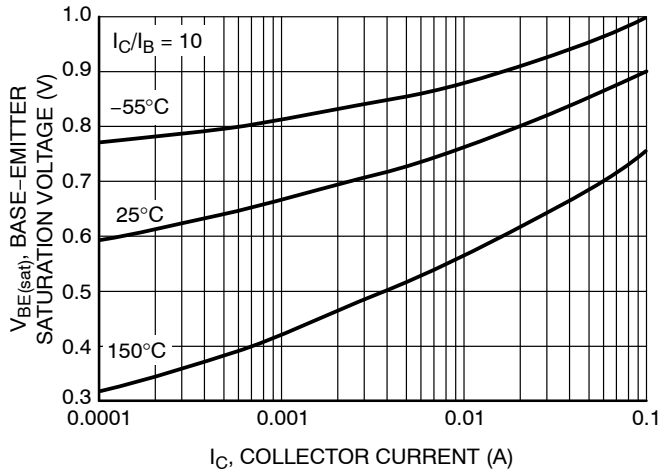


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

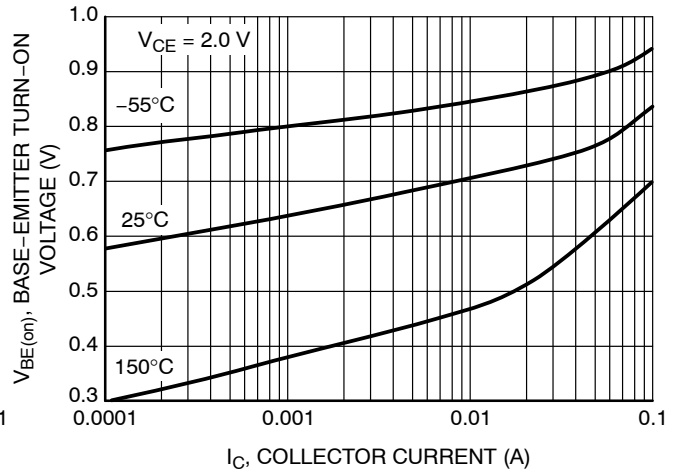


Figure 4. Base-Emitter Turn-On Voltage vs. Collector Current

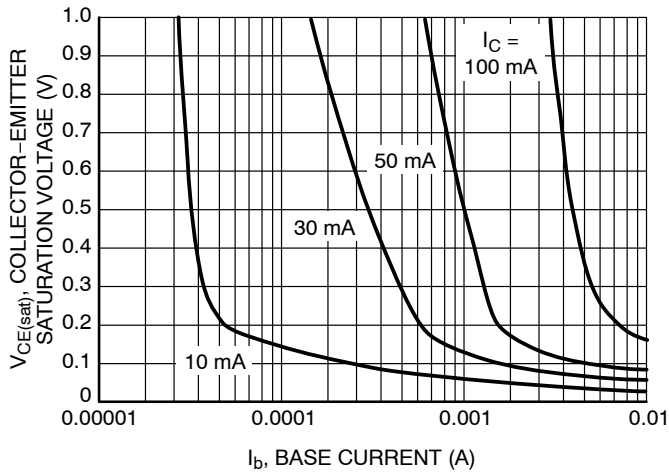


Figure 5. Saturation Region

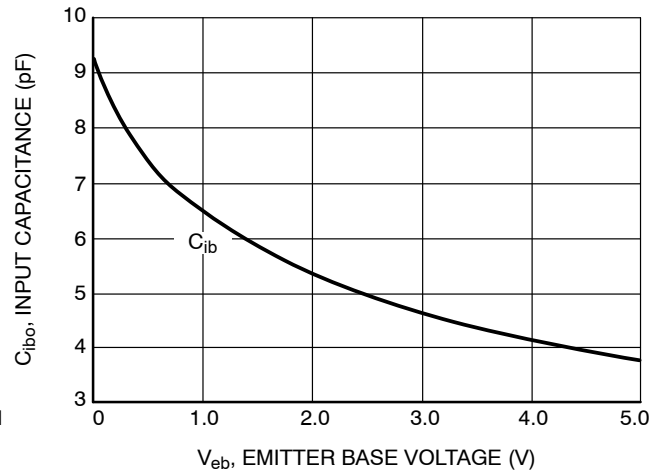


Figure 6. Input Capacitance

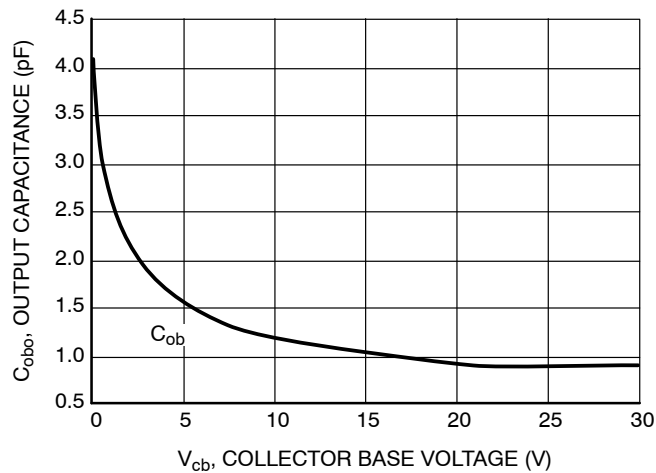


Figure 7. Output Capacitance

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

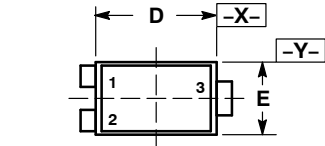
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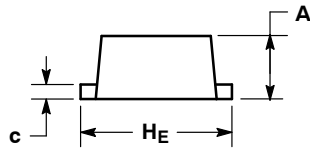
SCALE 8:1

SOT-1123
CASE 524AA
ISSUE C

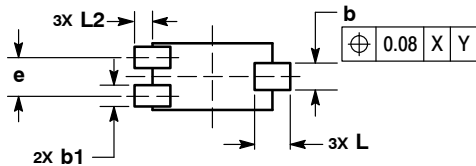
DATE 29 NOV 2011



TOP VIEW

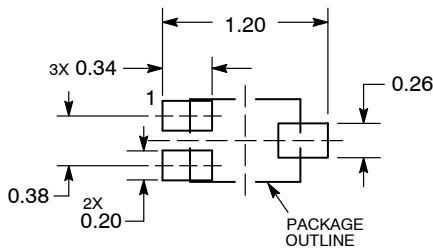


SIDE VIEW



BOTTOM VIEW

SOLDERING FOOTPRINT*



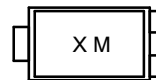
DIMENSIONS: MILLIMETERS

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS	
	MIN	MAX
A	0.34	0.40
b	0.15	0.28
b1	0.10	0.20
c	0.07	0.17
D	0.75	0.85
E	0.55	0.65
e	0.35	0.40
HE	0.95	1.05
L	0.185	REF
L2	0.05	0.15

GENERIC MARKING DIAGRAM*



X = Specific Device Code
M = Date Code

*This information is generic. Please refer to device data sheet for actual part marking.
Pb-Free indicator, "G" or microdot "•", may or may not be present.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

STYLE 1: PIN 1. BASE 2. EMITTER 3. COLLECTOR	STYLE 2: PIN 1. ANODE 2. N/C 3. CATHODE	STYLE 3: PIN 1. ANODE 2. ANODE 3. CATHODE	STYLE 4: PIN 1. CATHODE 2. CATHODE 3. ANODE	STYLE 5: PIN 1. GATE 2. SOURCE 3. DRAIN
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