BC856BM3T5G

Preferred Devices

General Purpose Transistor

PNP Silicon

This transistor is designed for general purpose amplifier applications. It is housed in the SOT−723 which is designed for low power surface mount applications.

- This is a Pb−Free Device

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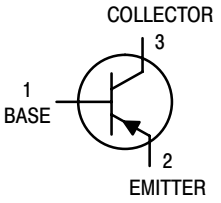


MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	−65	V
Collector−Base Voltage	V_{CBO}	−80	V
Emitter−Base Voltage	V_{EBO}	−5.0	V
Collector Current − Continuous	I_C	−100	mA

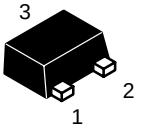
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board (Note 1) T_A = 25°C Derate above 25°C	P_D	265 2.1	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	470	°C/W
Total Device Dissipation Alumina Substrate (Note 2) T_A = 25°C Derate above 25°C	P_D	640 5.1	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$	195	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°C

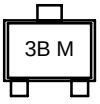
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR−5 = 1.0 × 0.75 × 0.062 in.
2. Alumina = 0.4 × 0.3 × 0.024 in. 99.5% alumina.

MARKING DIAGRAM



SOT−723
CASE 631AA
STYLE 1



3B = Specific Device Code
M = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
BC856BM3T5G	SOT−723 (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.

Preferred devices are recommended choices for future use and best overall value.

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 −0.65	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 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	mV
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
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

TYPICAL CHARACTERISTICS

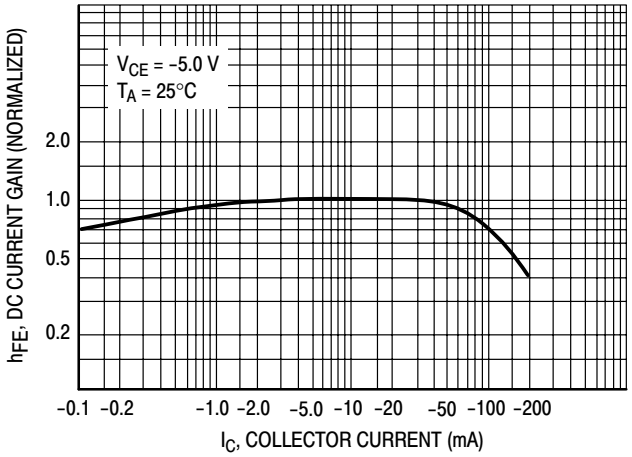


Figure 1. DC Current Gain

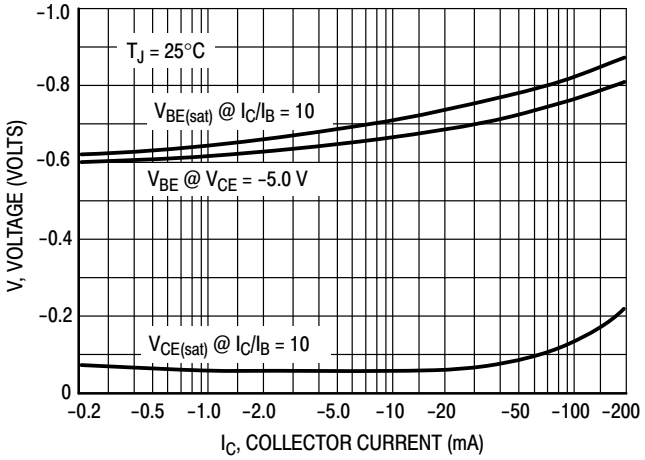


Figure 2. “On” Voltage

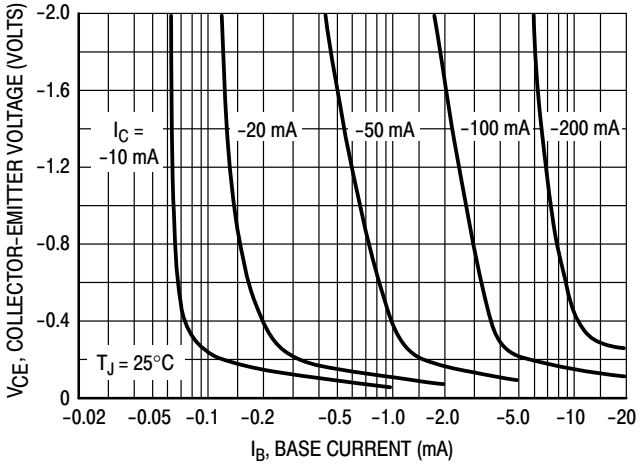


Figure 3. Collector Saturation Region

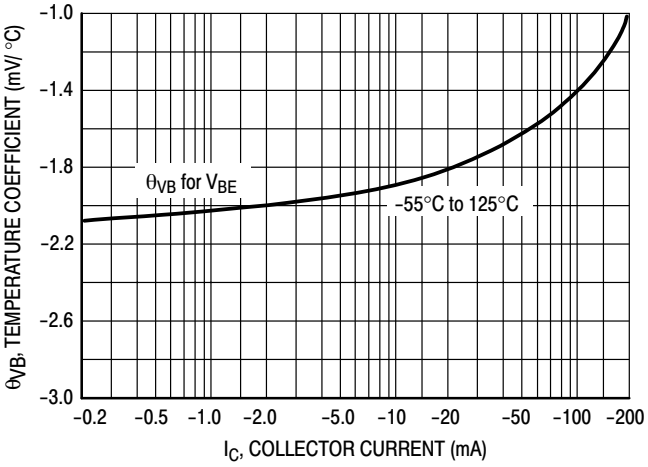


Figure 4. Base−Emitter Temperature Coefficient

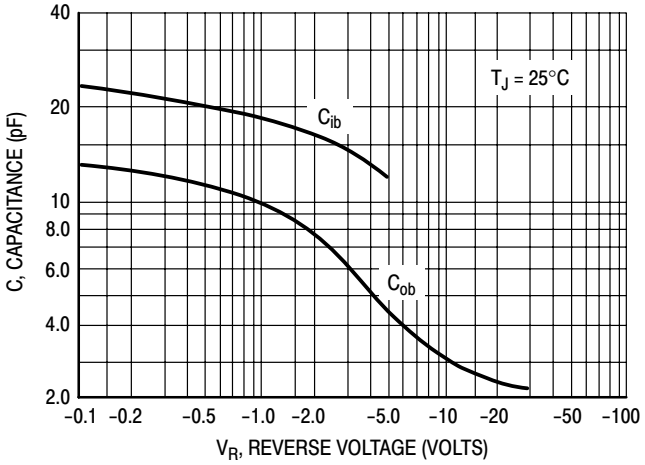


Figure 5. Capacitance

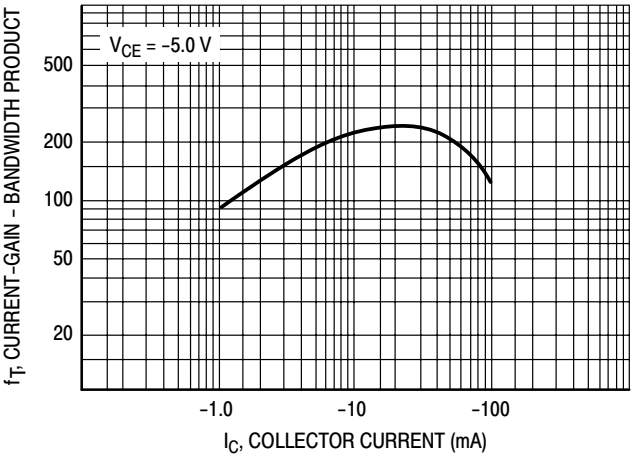
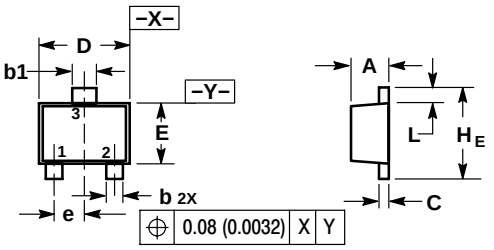


Figure 6. Current−Gain − Bandwidth Product

PACKAGE DIMENSIONS

SOT−723
CASE 631AA−01
ISSUE B

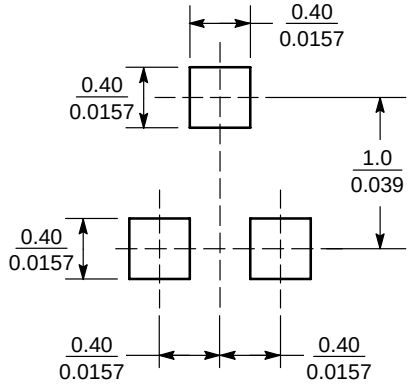


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
b	0.15	0.21	0.27	0.0059	0.0083	0.0106
b1	0.25	0.31	0.37	0.010	0.012	0.015
C	0.07	0.12	0.17	0.0028	0.0047	0.0067
D	1.15	1.20	1.25	0.045	0.047	0.049
E	0.75	0.80	0.85	0.03	0.032	0.034
e	0.40 BSC			0.016 BSC		
H_E	1.15	1.20	1.25	0.045	0.047	0.049
L	0.15	0.20	0.25	0.0059	0.0079	0.0098

STYLE 1:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

SOLDERING FOOTPRINT*



SCALE 20:1 $\left(\frac{\text{mm}}{\text{inches}}\right)$

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

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