2SC5658M3T5G

NPN Silicon General Purpose Amplifier Transistor

This NPN transistor is designed for general purpose amplifier applications. This device is housed in the SOT-723 package which is designed for low power surface mount applications, where board space is at a premium.

- Reduces Board Space
- High h_{FE}, 210−460 (typical)
- Low $V_{CE(sat)}$, < 0.5 V
- ESD Performance: Human Body Model; > 2000 V, Machine Model; > 200 V
- Available in 8 mm, 7-inch/3000 Unit Tape and Reel
- This is a Pb−Free Device

MAXIMUM RATINGS (T_A = 25°C)

Rating	Symbol	Value	Unit
Collector-Base Voltage	$V_{(BR)CBO}$	50	Vdc
Collector-Emitter Voltage	$V_{(BR)CEO}$	50	Vdc
Emitter-Base Voltage	$V_{(BR)EBO}$	5.0	Vdc
Collector Current − Continuous	I_C	100	mAdc

THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Power Dissipation (Note 1)	P_D	260	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{stg}	−55 ~ +150	°C

1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.

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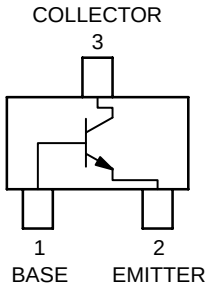
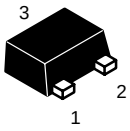
NPN GENERAL PURPOSE AMPLIFIER TRANSISTORS SURFACE MOUNT



MARKING DIAGRAM



SOT−723
CASE 631AA

XX = Specific Device Code
M = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
2SC5658M3T5G	SOT−723	3000/Tape & Reel

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

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage (I_C = 50 μAdc, I_E = 0)	$V_{(BR)CBO}$	50	–	–	Vdc
Collector-Emitter Breakdown Voltage (I_C = 1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	50	–	–	Vdc
Emitter-Base Breakdown Voltage (I_E = 50 μAdc, I_E = 0)	$V_{(BR)EBO}$	5.0	–	–	Vdc
Collector-Base Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)	I_{CBO}	–	–	0.5	μA
Emitter-Base Cutoff Current (V_{EB} = 4.0 Vdc, I_B = 0)	I_{EBO}	–	–	0.5	μA
Collector-Emitter Saturation Voltage (Note 2) (I_C = 60 mAdc, I_B = 5.0 mAdc)	$V_{CE(sat)}$	–	–	0.4	Vdc
DC Current Gain (Note 2) (V_{CE} = 6.0 Vdc, I_C = 1.0 mAdc)	h_{FE}	120	–	560	–
Transition Frequency (V_{CE} = 12 Vdc, I_C = 2.0 mAdc, f = 30 MHz)	f_T	–	180	–	MHz
Output Capacitance (V_{CB} = 12 Vdc, I_C = 0 Adc, f = 1.0 MHz)	C_{OB}	–	2.0	–	pF

2. Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.

TYPICAL ELECTRICAL CHARACTERISTICS

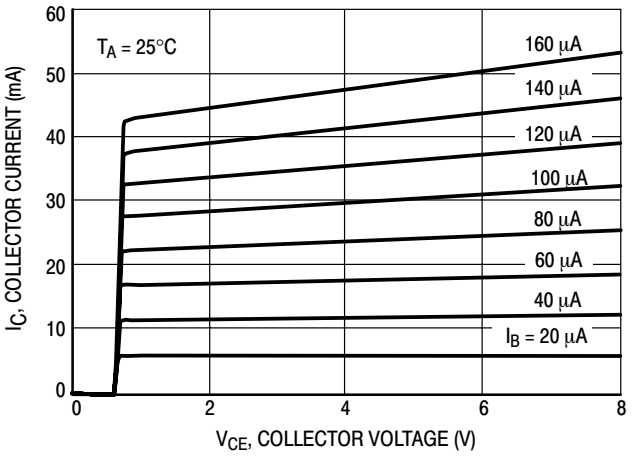


Figure 1. $I_C - V_{CE}$

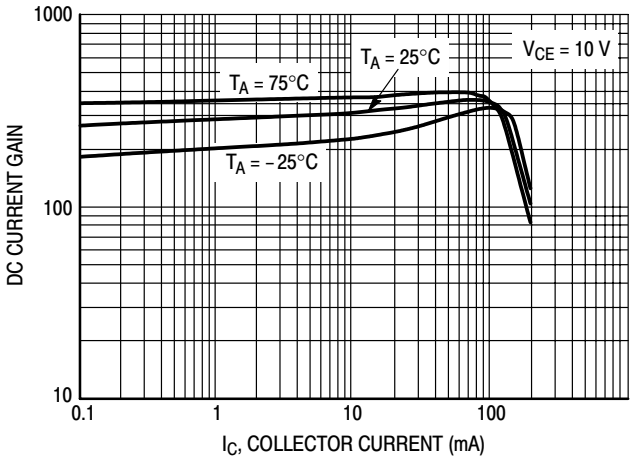


Figure 2. DC Current Gain

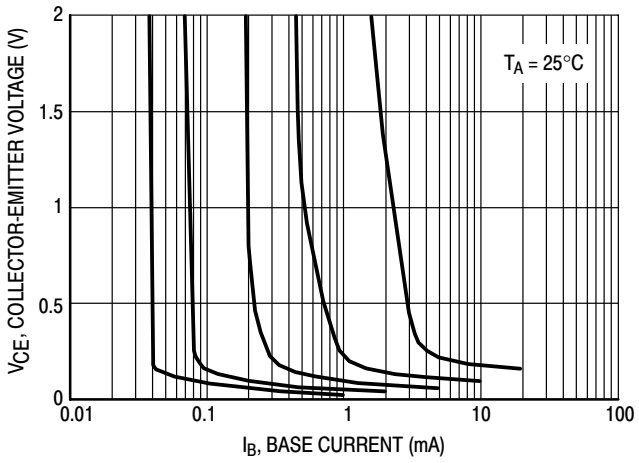


Figure 3. Collector Saturation Region

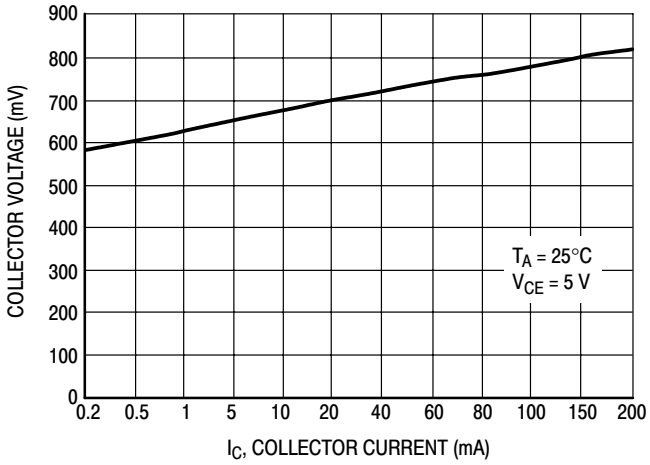


Figure 4. On Voltage

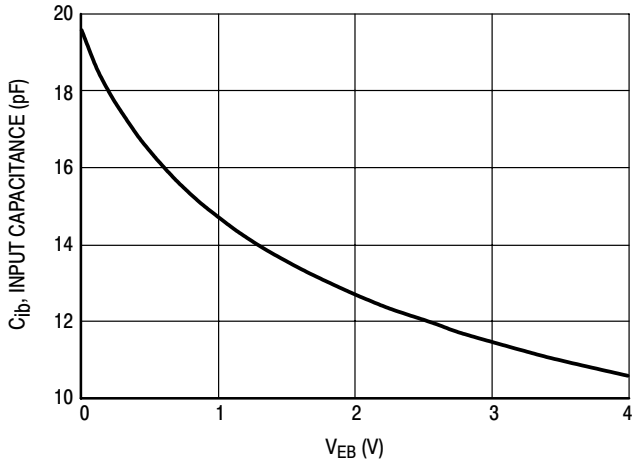


Figure 5. Capacitance

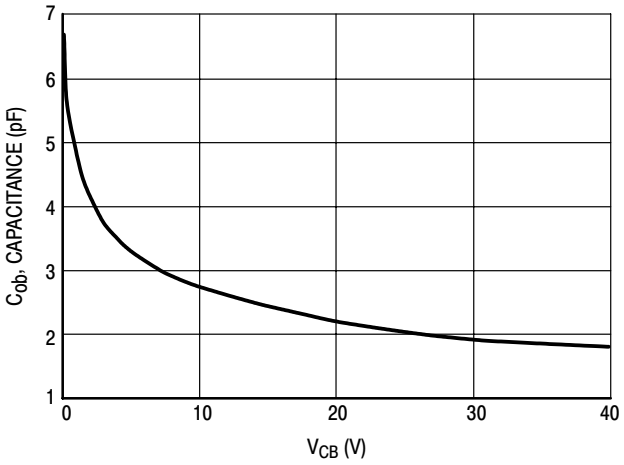
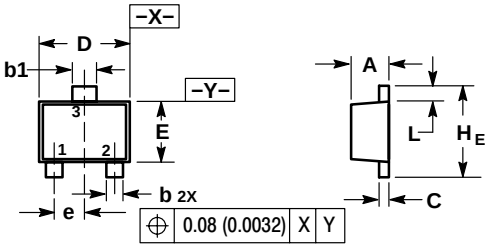


Figure 6. Capacitance

2SC5658M3T5G

PACKAGE DIMENSIONS

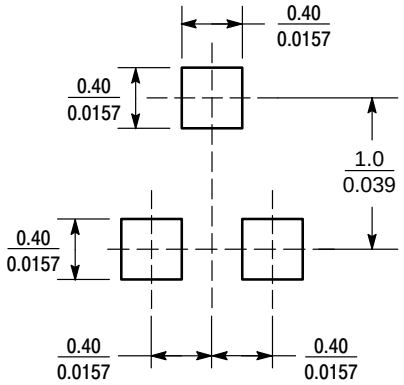
SOT−723
CASE 631AA−01
ISSUE A



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	0.20	0.27	0.0059	0.0079	0.0106
b1	0.25	0.3	0.35	0.010	0.012	0.014
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

SOLDERING FOOTPRINT*



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

SOT−723

*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 5163, Denver, Colorado 80217 USA
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Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

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2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
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ON Semiconductor Website: http://onsemi.com

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

For additional information, please contact your local Sales Representative.