# 2SC5658M3T5G, 2SC5658RM3T5G

# 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.

#### Features

- Reduces Board Space
- High h<sub>FE</sub>, 210–460 (typical)
- Low V<sub>CE(sat)</sub>, < 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
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These are Pb-Free Devices

#### **MAXIMUM RATINGS** (T<sub>A</sub> = 25°C)

Rating	Symbol	Value	Unit
Collector-Base Voltage	V <sub>(BR)CBO</sub>	50	Vdc
Collector-Emitter Voltage	V <sub>(BR)CEO</sub>	50	Vdc
Emitter-Base Voltage	V <sub>(BR)EBO</sub>	7.0	Vdc
Collector Current – Continuous	Ι <sub>C</sub>	150	mAdc

#### THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit	
Power Dissipation (Note 1)	PD	260	mW	
Junction Temperature	Т <sub>Ј</sub>	150	°C	
Storage Temperature Range	T <sub>stg</sub>	-55 ~ +150	°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.

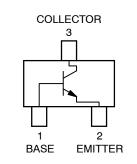
 Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.

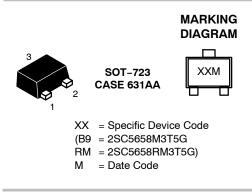


# **ON Semiconductor®**

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# NPN GENERAL PURPOSE AMPLIFIER TRANSISTORS SURFACE MOUNT





#### **ORDERING INFORMATION**

Device	Package	Shipping <sup>†</sup>
2SC5658M3T5G	SOT-723 (Pb-Free)	8000 / Tape & Reel
2SC5658RM3T5G	SOT-723 (Pb-Free)	8000 / Tape & Reel
NSV2SC5658M3T5G	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 Specification Brochure, BRD8011/D.

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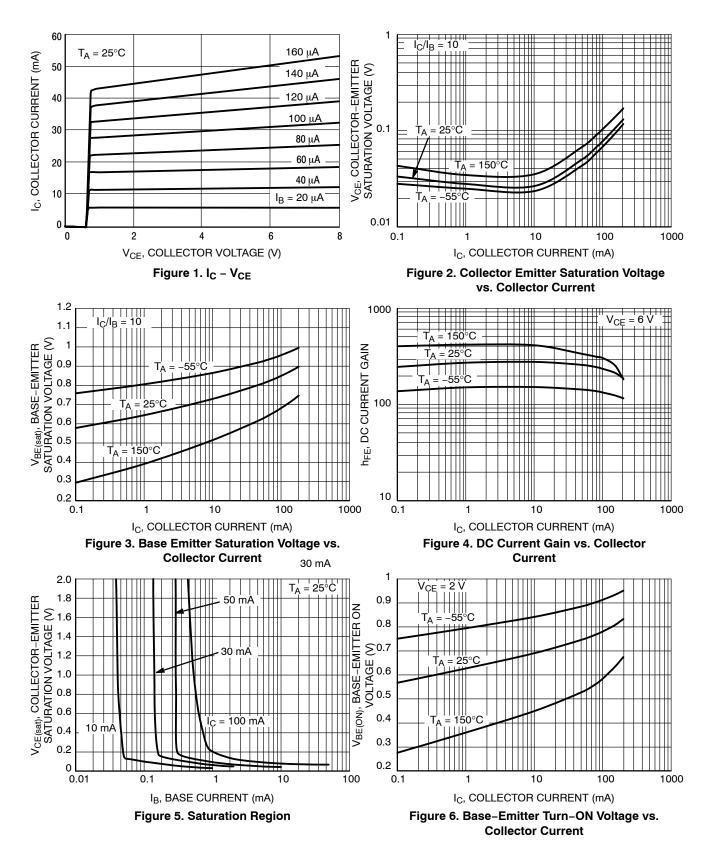
Characteristic	Symbol	Min	Тур	Max	Unit
Collector-Base Breakdown Voltage (I_C = 50 $\mu Adc, \ I_E$ = 0)	V <sub>(BR)CBO</sub>	50	-	-	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 1.0 \text{ mAdc}, I_B = 0$ )	V <sub>(BR)CEO</sub>	50	-	-	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 50 $\mu$ Adc, I <sub>E</sub> = 0)	V <sub>(BR)EBO</sub>	7.0	-	-	Vdc
Collector-Base Cutoff Current (V <sub>CB</sub> = 30 Vdc, $I_E$ = 0)	I <sub>CBO</sub>	-	-	0.5	μΑ
Emitter-Base Cutoff Current (V <sub>EB</sub> = 4.0 Vdc, $I_B$ = 0)	I <sub>EBO</sub>	-	-	0.5	μΑ
Collector-Emitter Saturation Voltage (Note 2) $(I_{C} = 50 \text{ mAdc}, I_{B} = 5.0 \text{ mAdc})$	V <sub>CE(sat)</sub>	-	-	0.4	Vdc
$\begin{array}{ll} \mbox{DC Current Gain (Note 2)} \\ (V_{CE} = 6.0 \mbox{ Vdc},  I_{C} = 1.0 \mbox{ mAdc}) \\ (V_{CE} = 6.0 \mbox{ Vdc},  I_{C} = 1.0 \mbox{ mAdc}) \\ \end{array} \\ \begin{array}{ll} \mbox{2SC5658M3T5G} \\ \mbox{2SC5658RM3T5G} \end{array}$	h <sub>FE</sub>	120 215		560 375	-
Transition Frequency (V <sub>CE</sub> = 12 Vdc, $I_C$ = 2.0 mAdc, f = 30 MHz)	f <sub>T</sub>	-	180	-	MHz
Output Capacitance (V <sub>CB</sub> = 12 Vdc, $I_C$ = 0 Adc, f = 1.0 MHz)	C <sub>OB</sub>	-	2.0	-	pF

### **ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = 25°C)

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. \*Include NSV-prefix devices where applicable. 2. Pulse Test: Pulse Width  $\leq$  300 µs, D.C.  $\leq$  2%.

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## **TYPICAL ELECTRICAL CHARACTERISTICS**



# 2SC5658M3T5G, 2SC5658RM3T5G

# **TYPICAL ELECTRICAL CHARACTERISTICS**

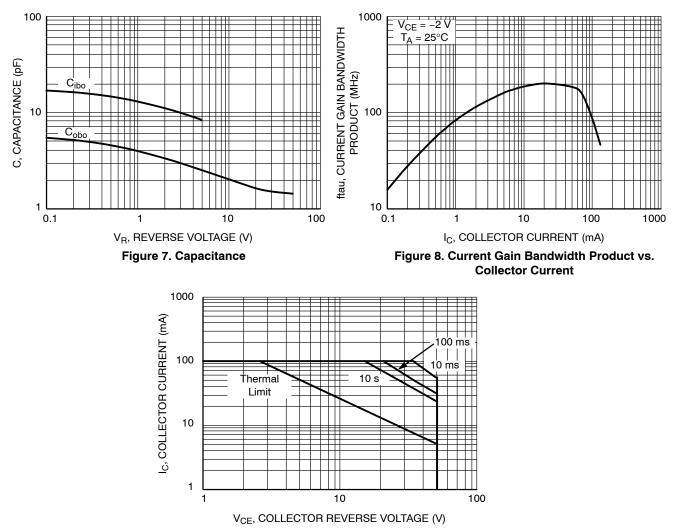
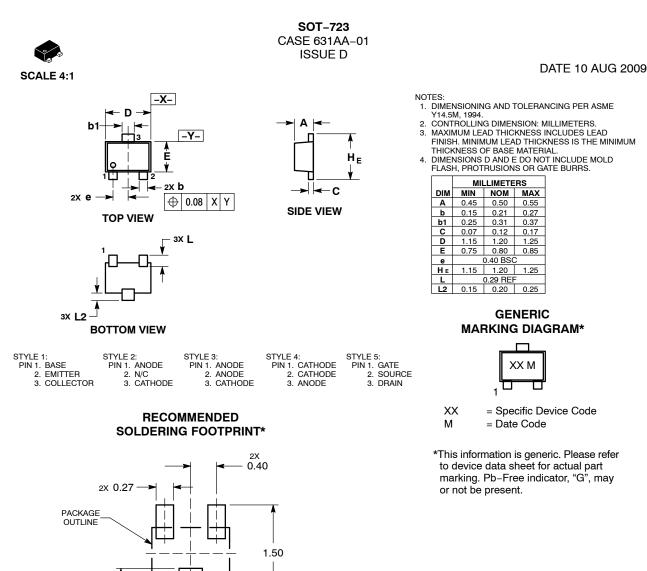


Figure 9. Safe Operating Area





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← 0.36 DIMENSIONS: MILLIMETERS

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

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 DESCRIPTION:
 SOT-723
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