DESCRIPTION

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.

The 2SC5658QM~2SC5658RM are available in SOT-723 package

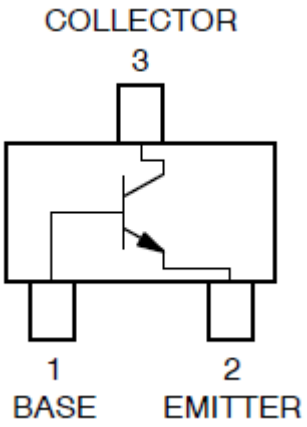
FEATURES

- Reduces Board Space
- High h_{FE}, 210~460 (typical)
- Low $V_{CE(sat)}$, < 0.5V
- ESD Performance:
  Human Body Model; > 2000V
  Machine Model; > 200V
- Available in SOT-723 package

ORDERING INFORMATION

Package Type	Part Number
SOT-723	2SC5658QM
	2SC5658RM
Note	4,000pcs/ Reel
AiT provides all RoHS Compliant Products	

PIN DESCRIPTION



ABSOLUTE MAXIMUM RATINGS

T_A=25℃

$V_{(BR)CBO}$, Collector-Base Voltage	50Vdc
$V_{(BR)CEO}$, Collector-Emitter Voltage	50Vdc
$V_{(BR)EBO}$, Emitter-Base Voltage	5.0Vdc
I_C, Collector Current−Continuous	100mAdc
THERMAL CHARACTERISTICS	
P_D, Power Dissipation[NOTE1]	260mW
T_J, Junction Temperature	150°C
T_{STG}, Storage Temperature Range	-55°C~+150°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1: Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.

ELECTRICAL CHARACTERISTICS

T_A=25℃

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	I_C = 50μAdc, I_E = 0	50	-	-	Vdc
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	I_C = 1.0mAdc, I_B = 0	50	-	-	Vdc
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	I_E = 50μAdc, I_E = 0	5.0	-	-	Vdc
Collector-Base Cutoff Current		I_{CBO}	V_{CB} = 30Vdc, I_E = 0	-	-	0.5	μA
Emitter-Base Cutoff Current		I_{EBO}	V_{EB} = 4.0Vdc, I_B = 0	-	-	0.5	μA
Collector-Emitter Saturation Voltage[NOTE2]		$V_{CE(sat)}$	I_C = 50mAdc, I_B = 5.0mAdc	-	-	0.4	Vdc
DC Current Gain[NOTE2]	2SC5658QM 2SC5658RM	h_{FE}	V_{CE} = 6.0Vdc, I_C = 1.0mAdc	120 180	- -	270 390	-
Transition Frequency		f_T	V_{CE} = 12Vdc, I_C = 2.0mAdc, f = 30MHz	-	180	-	MHz
Output Capacitance		C_{OB}	V_{CB} = 12Vdc, I_C = 0Adc, f = 1.0MHz	-	2.0	-	pF

NOTE2: Pulse Test: Pulse Width ≤ 300μs, D.C. ≤ 2%.

TYPICAL CHARACTERISTICS

Figure 1. $I_C - V_{CE}$

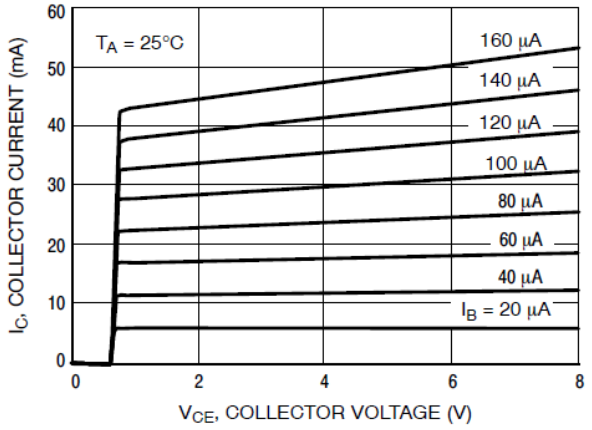


Figure 2. Collector Emitter Saturation Voltage vs. Collector Current

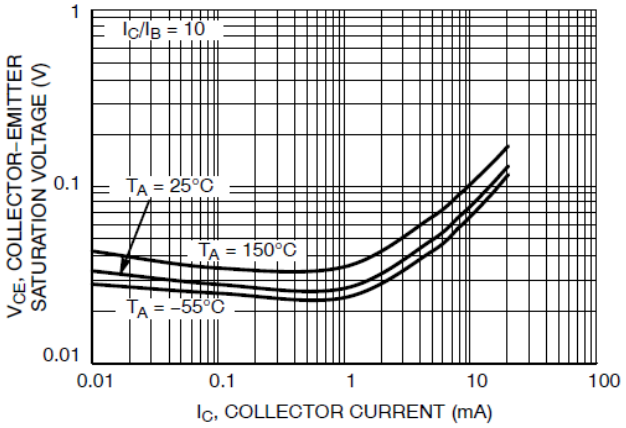


Figure 3. Base Emitter Saturation Voltage vs. Collector Current

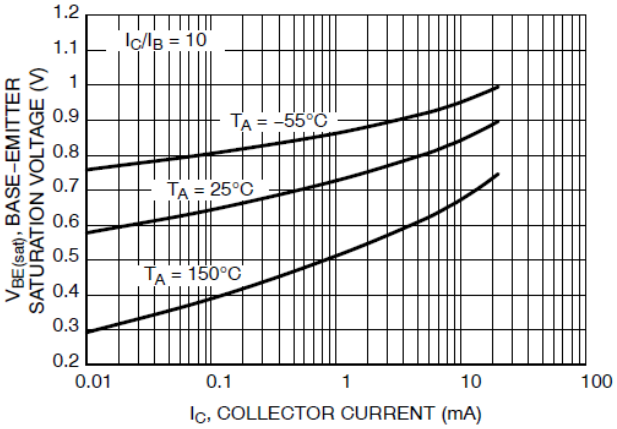


Figure 4. DC Current Gain vs. Collector Current

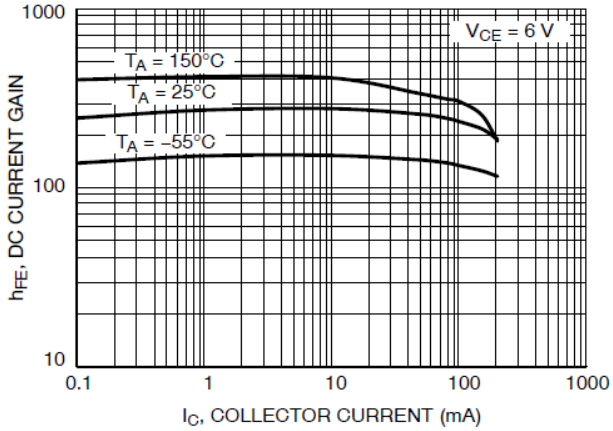


Figure 5. Saturation Region

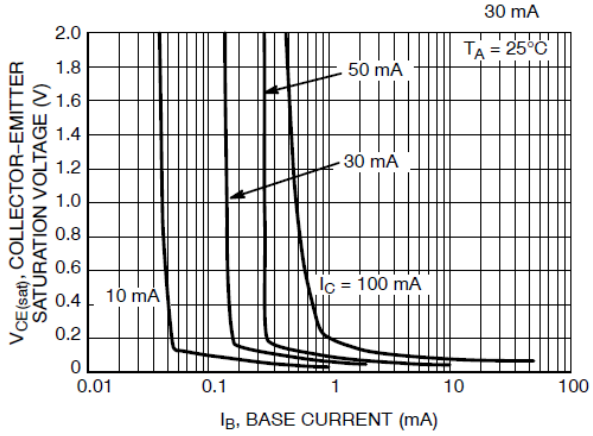


Figure 6. Base−Emitter Turn−ON Voltage vs. Collector Current

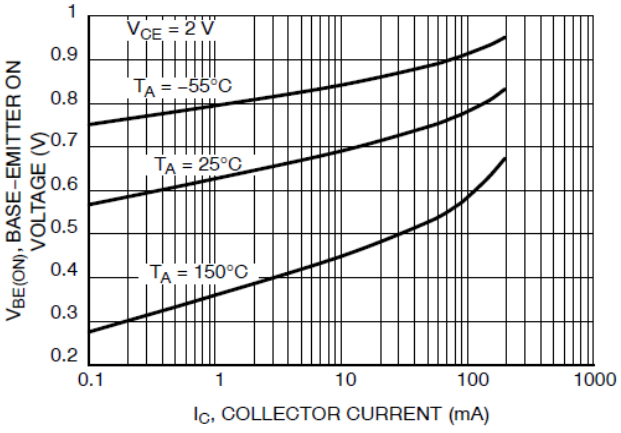


Figure 7. Capacitance

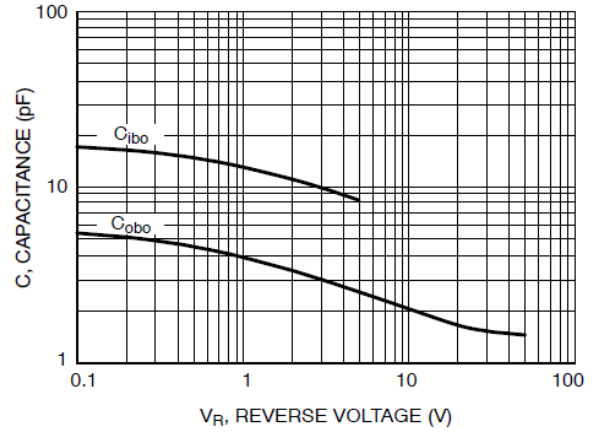


Figure 8. Current Gain Bandwidth Product vs. Collector Current

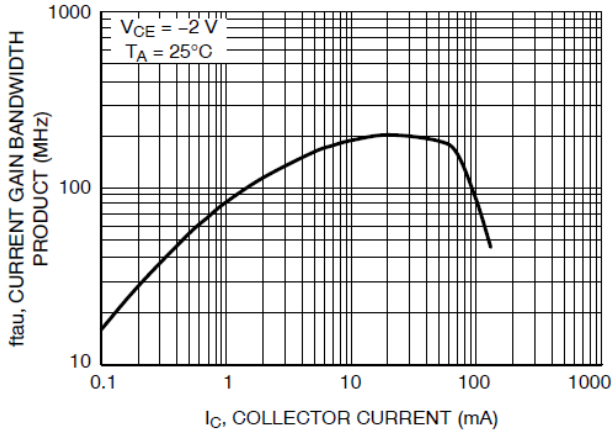
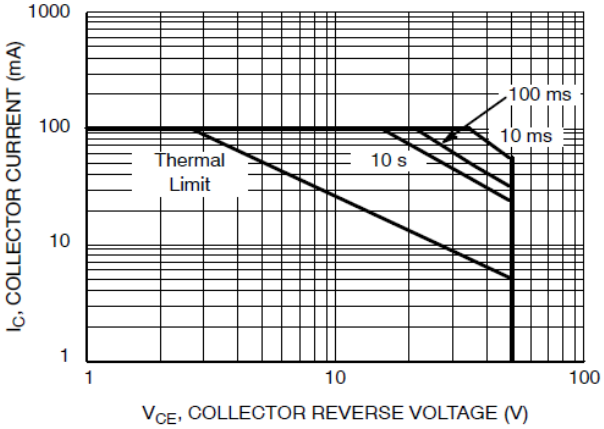
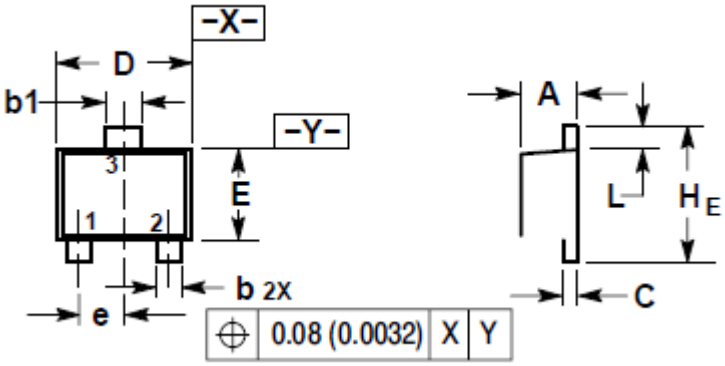


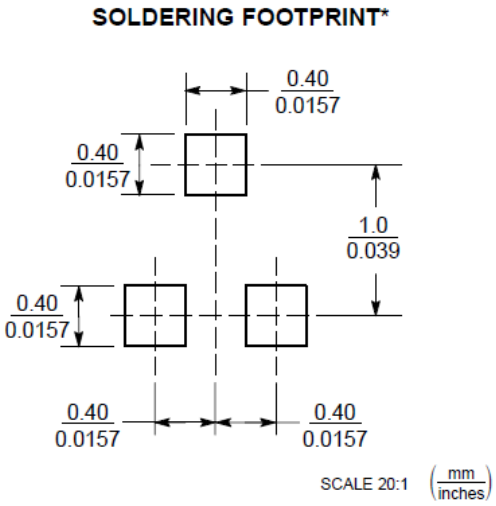
Figure 9. Safe Operating Area



PACKAGE INFORMATION

Dimension in SOT-723 (Unit: mm)





DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.450	0.550	0.018	0.022
b	0.150	0.270	0.0059	0.0106
b1	0.250	0.370	0.010	0.015
C	0.070	0.170	0.0028	0.0067
E	0.750	0.850	0.030	0.034
e	0.400 BSC		0.016 BSC	
H_E	1.150	1.250	0.045	0.049
L	0.150	0.250	0.0059	0.0098

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