

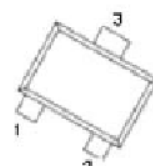
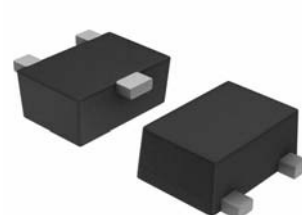
**SOT-723**

**Features**

Epitaxial planar die construction  
Surface device type mounting  
Moisture sensitivity level 1  
Low  $C_{ob}$   
Pb free version and RoHS compliant  
Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code  
Complements the 2SA2029

**Mechanical Data**

Case : SOT-723 small outline plastic package  
per MIL-STD-202, Method 208 guaranteed  
High temperature soldering guaranteed: 260°C/10s



1. BASE
2. EMITTER
3. COLLECTOR

**Ordering Information (example)**

| Part No.  | Package | Packing      | Packing code | Packing code (Green) | Marking |
|-----------|---------|--------------|--------------|----------------------|---------|
| 2SC5658-Q | SOT-723 | 8K / 7" Reel | RM           | RMG                  | BQ      |

**Maximum Ratings and Electrical Characteristics**

Rating at 25 °C ambient temperature unless otherwise specified.

| Parameter                 | Symbol    | Limits        | Units |
|---------------------------|-----------|---------------|-------|
| Collector Base Voltage    | $V_{CBO}$ | 60            | V     |
| Collector Emitter Voltage | $V_{CEO}$ | 50            | V     |
| Emitter Base Voltage      | $V_{EBO}$ | 7             | V     |
| Collector Current         | $I_C$     | 150           | mA    |
| Collector Dissipation     | $P_C$     | 100           | mW    |
| Junction Temperature      | $T_J$     | 150           | °C    |
| Storage Temperature Range | $T_{STG}$ | - 55 to + 150 | °C    |

Characteristics at  $T_A=25^{\circ}\text{C}$

| Parameter                                                                          | Symbol        | Min. | Typ. | Max. | Units |
|------------------------------------------------------------------------------------|---------------|------|------|------|-------|
| Collector Base Breakdown Voltage at $I_C=50\mu\text{A}$ , $I_E=0$                  | $V_{(BR)CBO}$ | 60   | -    | -    | V     |
| Collector Emitter Breakdown Voltage at $I_C=1\text{mA}$ , $I_B=0$                  | $V_{(BR)CEO}$ | 50   | -    | -    | V     |
| Emitter Base Breakdown Voltage at $I_E=50\mu\text{A}$ , $I_C=0$                    | $V_{(BR)EBO}$ | 7    | -    | -    | V     |
| Collector Cutoff Current at $V_{CB}=60\text{V}$ , $I_E=0$                          | $I_{CBO}$     | -    | -    | 0.1  | uA    |
| Emitter Cutoff Current at $V_{EB}=7\text{V}$ , $I_C=0$                             | $I_{EBO}$     | -    | -    | 0.1  | uA    |
| DC Current Transfer ratio at $V_{CE}=6\text{V}$ , $I_C=1\text{mA}$                 | $h_{FE}$      | 120  | -    | 560  |       |
| Collector Emitter Saturation Voltage at $I_C=50\text{mA}$ , $I_B=5\text{mA}$       | $V_{CE(sat)}$ | -    | -    | 0.4  | V     |
| Transition Frequency at $V_{CE}=12\text{V}$ , $I_C=2\text{mA}$ , $f=100\text{MHz}$ | $f_T$         | -    | 180  | -    | MHz   |
| Output Capacitance at $V_{CB}=12\text{V}$ , $f=1\text{MHz}$                        | $C_{ob}$      | -    | -    | 3.5  | pF    |

Classification of  $h_{FE}$

| Rank  | Q       | R       | S       |
|-------|---------|---------|---------|
| Range | 120~270 | 180~390 | 270~560 |

Small Signal Product

FIG.1 Static Characteristic

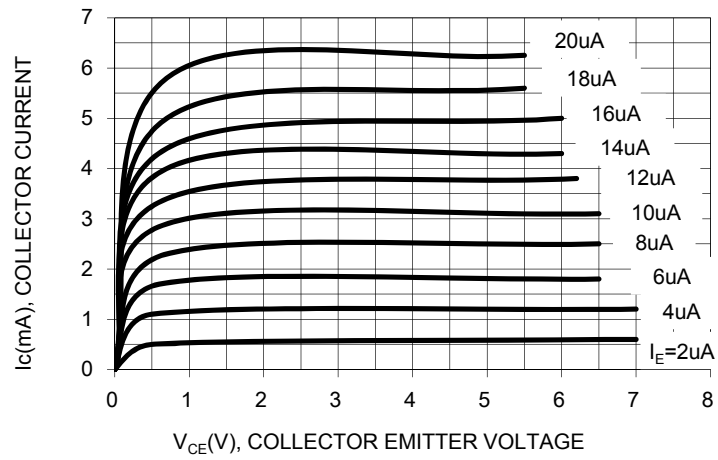


FIG. 2  $h_{FE} - I_C$

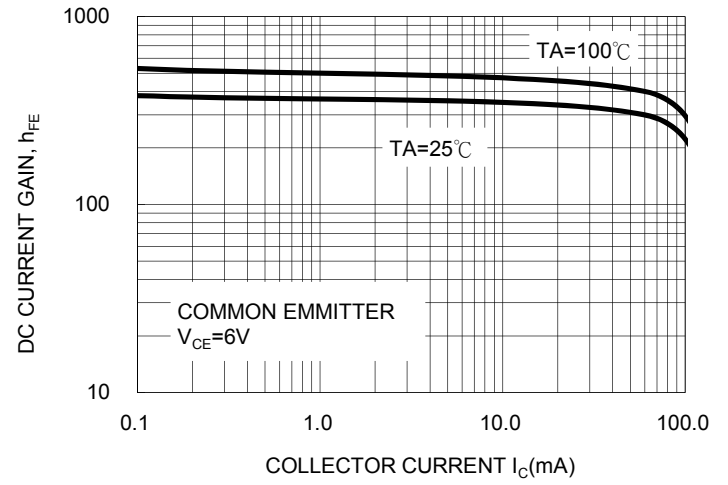


FIG. 3  $V_{BE(sat)} - I_C$

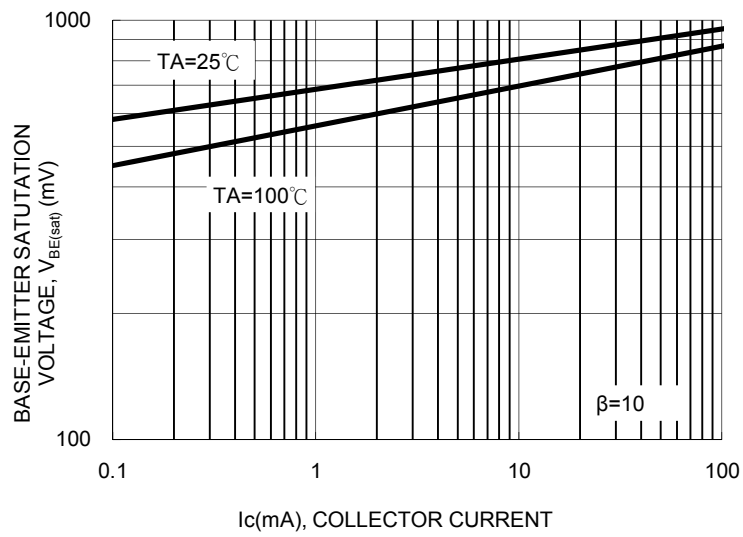


FIG. 4  $V_{CE(sat)} - I_C$

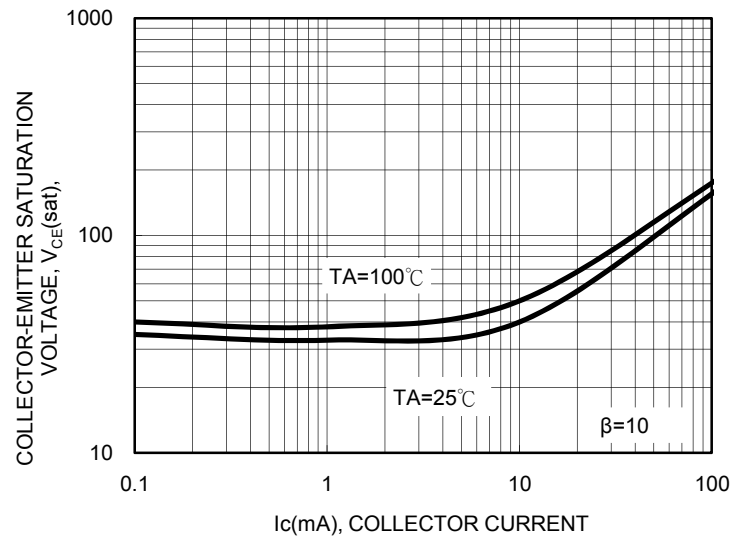


FIG. 5  $I_C - V_{BE}$

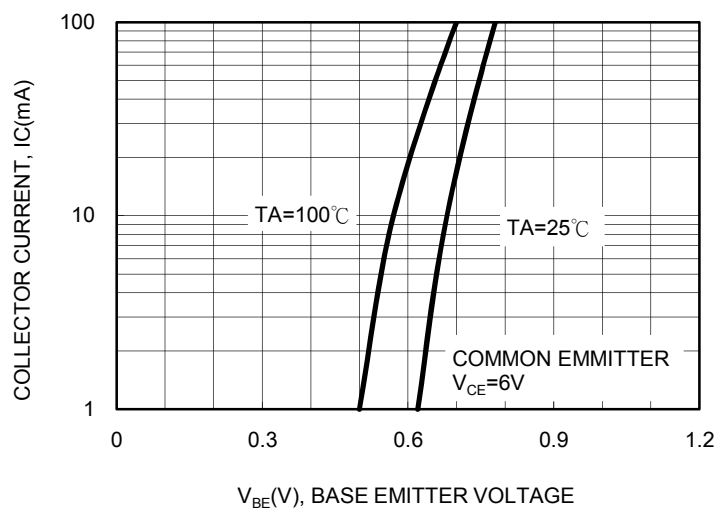


FIG. 6  $f_T - I_C$

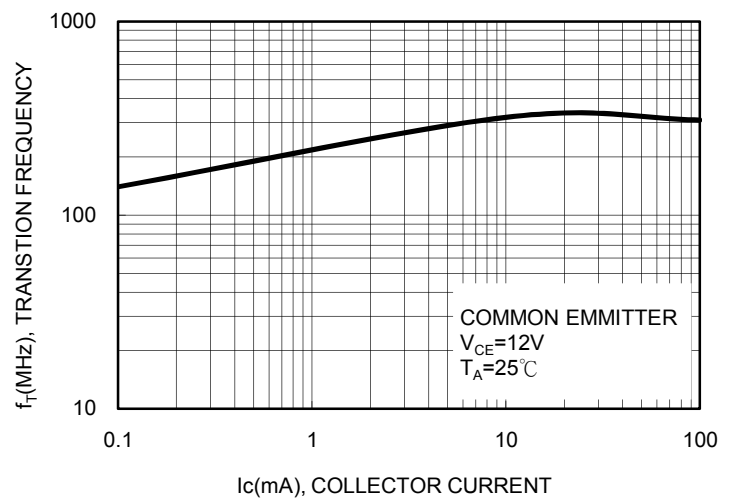


FIG. 7 Cob/Cib -  $V_{CB}/V_{EB}$

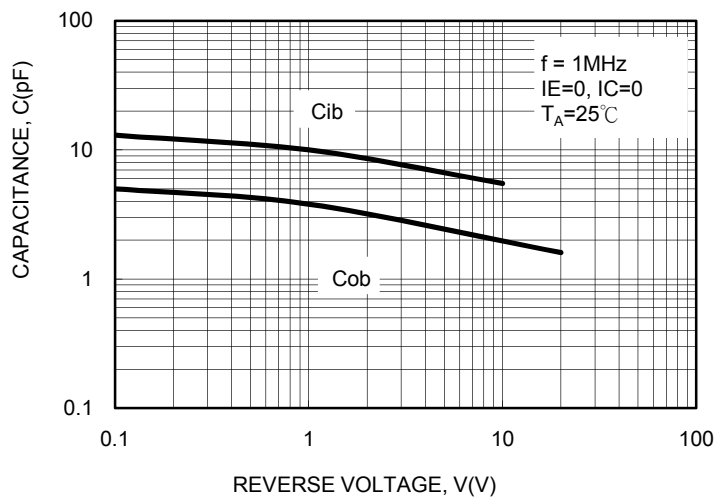
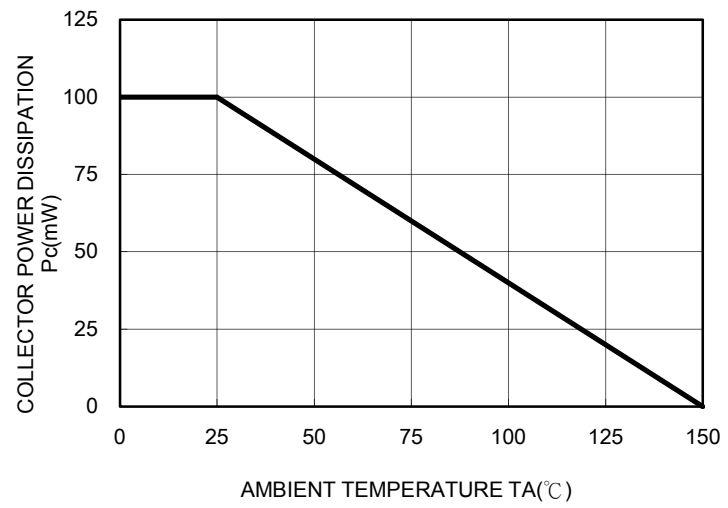


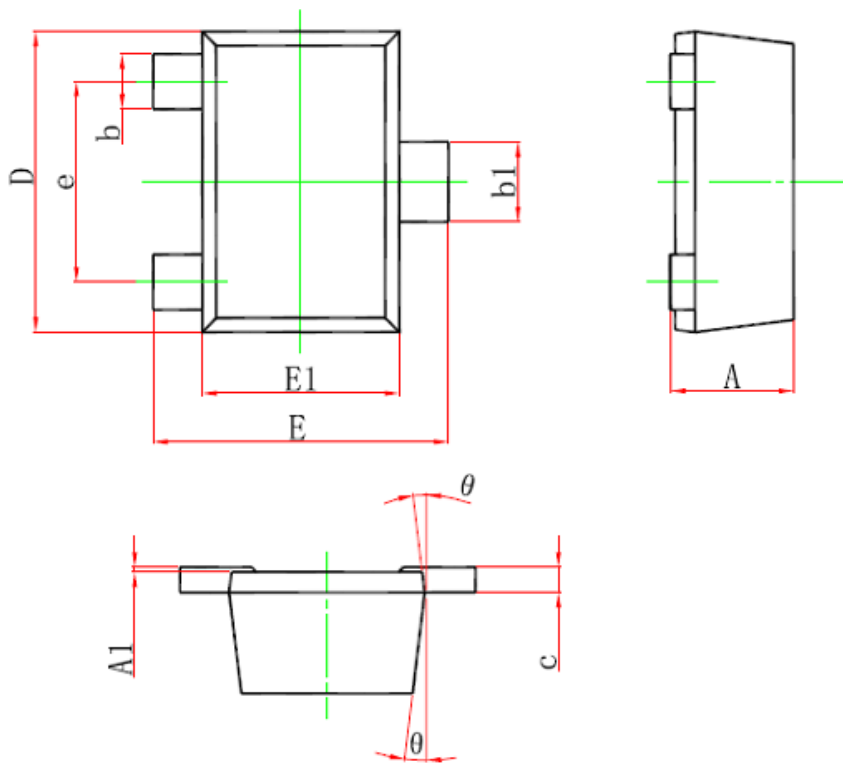
FIG. 8  $P_C - T_A$



### Ordering information

| Part No.  | Package | Packing      | Packing code | Packing code (Green) | Marking |
|-----------|---------|--------------|--------------|----------------------|---------|
| 2SC5658-Q | SOT-723 | 8K / 7" Reel | RM           | RMG                  | BQ      |
| 2SC5658-R | SOT-723 | 8K / 7" Reel | RM           | RMG                  | BR      |
| 2SC5658-S | SOT-723 | 8K / 7" Reel | RM           | RMG                  | BS      |

### Dimensions



| DIM.     | Unit(mm) |       | Unit(inch) |       |
|----------|----------|-------|------------|-------|
|          | Min      | Max   | Min        | Max   |
| A        | -        | 0.50  | -          | 0.020 |
| A1       | 0.00     | 0.05  | 0.000      | 0.002 |
| b        | 0.17     | 0.27  | 0.007      | 0.011 |
| b1       | 0.27     | 0.37  | 0.011      | 0.015 |
| c        | -        | 0.150 | -          | 0.006 |
| D        | 1.15     | 1.25  | 0.045      | 0.049 |
| E        | 1.15     | 1.25  | 0.045      | 0.049 |
| E1       | 0.75     | 0.85  | 0.030      | 0.033 |
| e        | 0.80     |       | 0.031      |       |
| $\theta$ | 7° REF   |       | 7° REF     |       |