

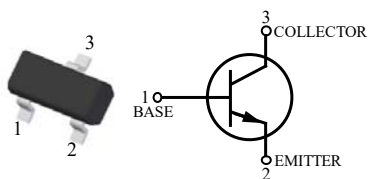


# 2SC4617 SERIES

## NPN TRANSISTORS

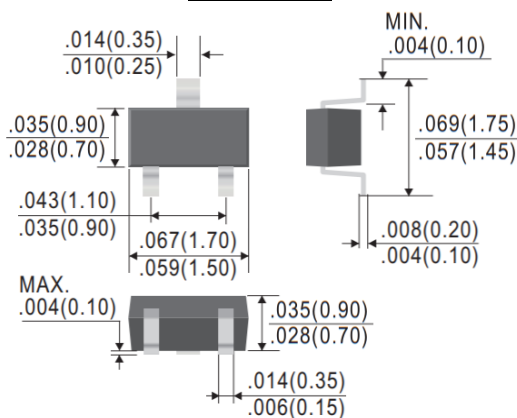
### FEATURES

· Suffix "H" indicates Halogen-free parts, ex.2SC4617QTH



|   |           |
|---|-----------|
| B | Base      |
| C | Collector |
| E | Emitter   |

### SOT-523



Dimensions in inch and (millimeter)

### Maximum Ratings ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

| Parameter  | Symbol          | Value         | Unit                      |
|--|-----------------|---------------|---------------------------|
| 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                        |
| Power Dissipation                                    | $P_{tot}$       | 150           | mW                        |
| Thermal Resistance from Junction to Ambient (Note 1) | $R_{\theta JA}$ | 833           | $^\circ\text{C}/\text{W}$ |
| Junction Temperature                                 | $T_J$           | 150           | $^\circ\text{C}$          |
| Storage Temperature Range                            | $T_{stg}$       | - 55 to + 150 | $^\circ\text{C}$          |

Note :

1. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.

### Electrical Characteristics ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)

| Parameter                            | Conditions  | Symbol        | Min. | Typ. | Max. | Unit |
|--------------------------------------|---|---------------|------|------|------|------|
| DC Current Gain                      | $V_{CE}=6\text{V}, I_C=1\text{mA}$                    | Q             | 120  | -    | 270  | -    |
|                                      |   | R             | 180  | -    | 390  | -    |
|                                      |   | S             | 270  | -    | 560  | -    |
| Collector Base Cutoff Current        | $V_{CB}=60\text{V}$                                   | $I_{CBO}$     | -    | -    | 100  | nA   |
| Emitter Base Cutoff Current          | $V_{EB}=7\text{V}$                                    | $I_{EBO}$     | -    | -    | 100  | nA   |
| Collector Base Breakdown Voltage     | $I_C=50\mu\text{A}$                                   | $V_{(BR)CBO}$ | 60   | -    | -    | V    |
| Collector Emitter Breakdown Voltage  | $I_C=1\text{mA}$                                      | $V_{(BR)CEO}$ | 50   | -    | -    | V    |
| Emitter Base Breakdown Voltage       | $I_E=50\mu\text{A}$                                   | $V_{(BR)EBO}$ | 7    | -    | -    | V    |
| Collector Emitter Saturation Voltage | $I_C=50\text{mA}, I_B=5\text{mA}$                     | $V_{CE(sat)}$ | -    | -    | 0.4  | V    |
| Transition Frequency                 | $V_{CE}=12\text{V}, I_E=-2\text{mA}, f=100\text{MHz}$ | $f_T$         | -    | 180  | -    | MHz  |
| Collector Output Capacitance         | $V_{CB}=12\text{V}, f=1\text{MHz}$                    | $C_{ob}$      | -    | -    | 3.5  | pF   |



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### RATINGS AND CHARACTERISTIC CURVES

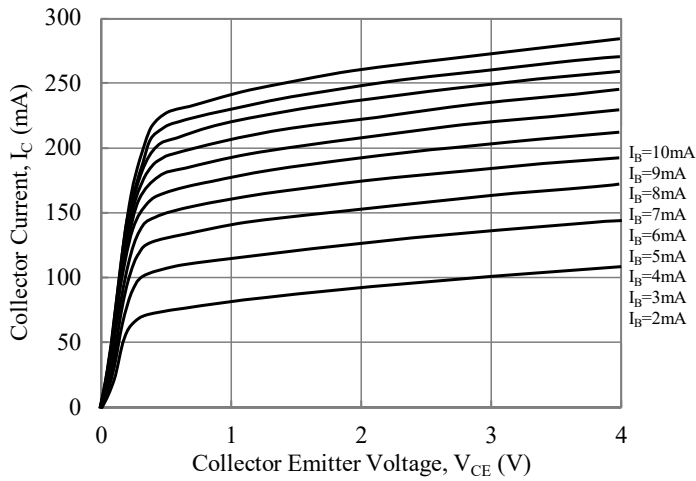


Fig. 1-Output Characteristics Curve

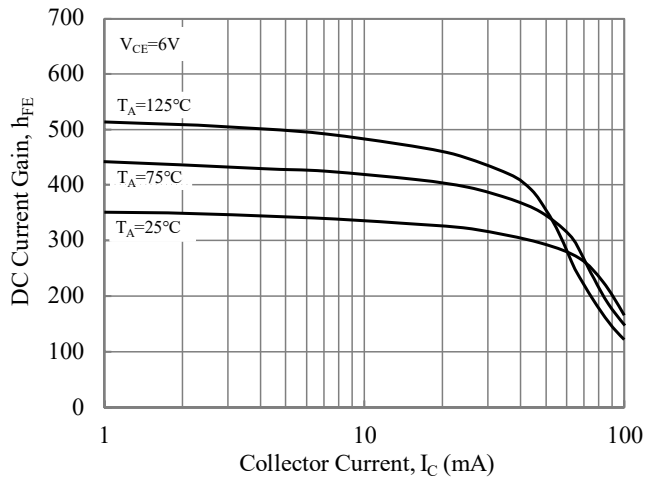


Fig. 2-DC Current Gain vs. Collector Current

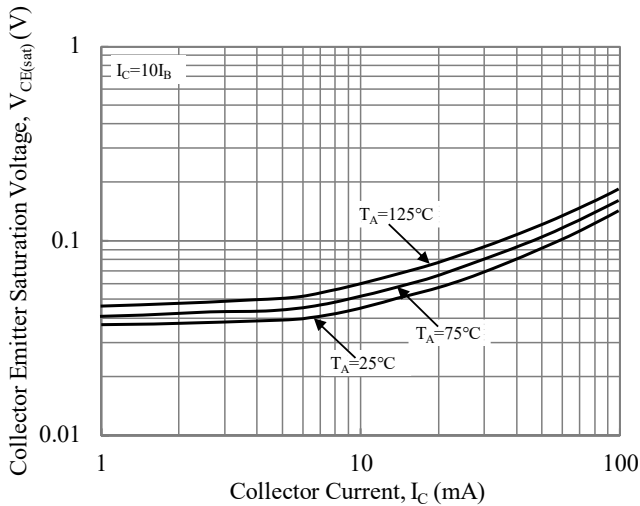


Fig. 3-Collector Emitter Saturation Voltage vs. Collector Current

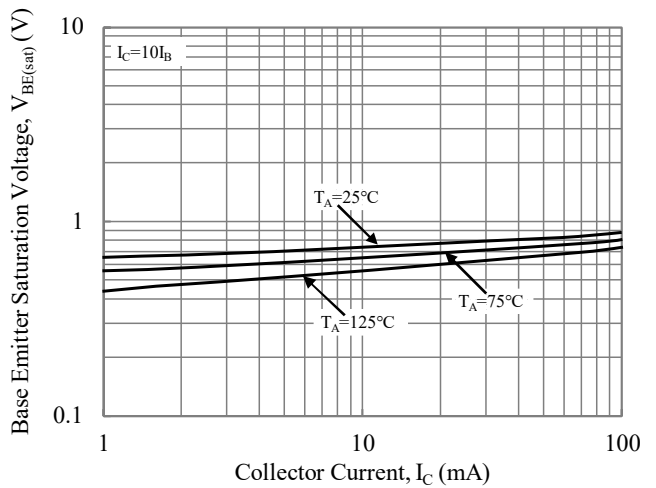


Fig. 4-Base Emitter Saturation Voltage vs. Collector Current

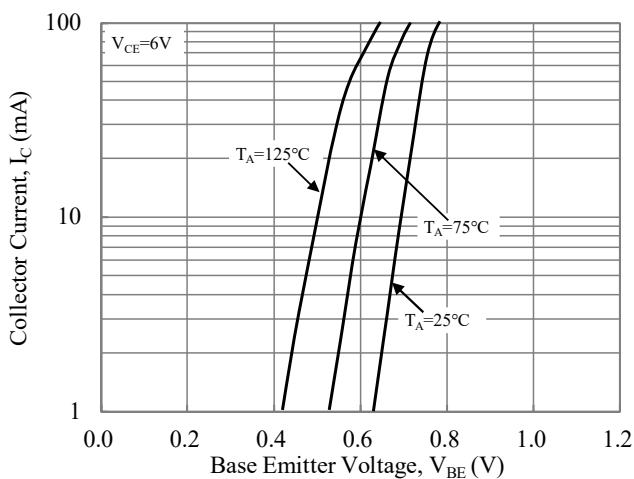


Fig. 5-Base Emitter Voltage vs. Collector Current

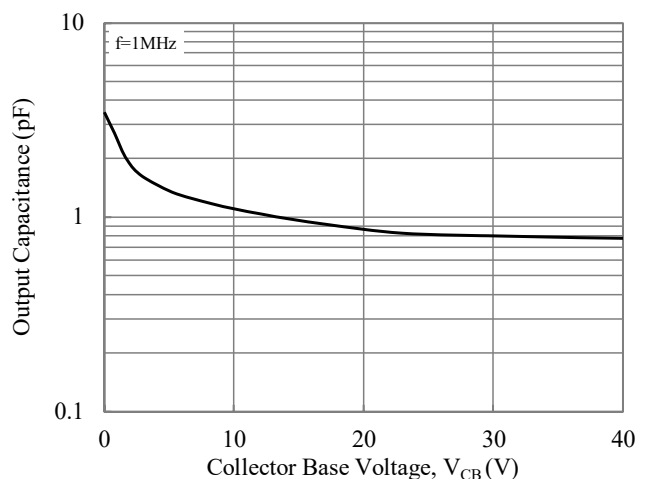


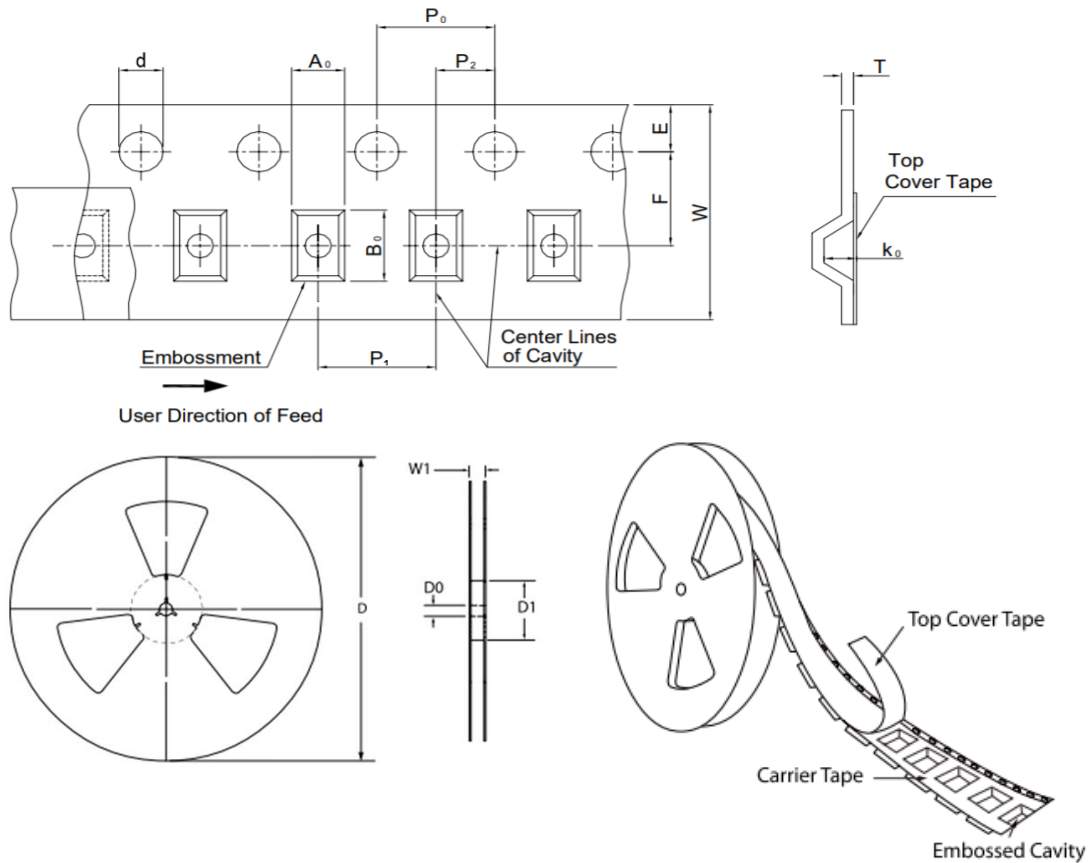
Fig. 6-Output Capacitance



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## NPN TRANSISTORS

### TAPE & REEL SPECIFICATION



| Item                   | Symbol         | SOT-523       |
|------------------------|----------------|---------------|
| Carrier width          | A <sub>0</sub> | See Note a    |
| Carrier length         | B <sub>0</sub> |               |
| Carrier depth          | K <sub>0</sub> |               |
| Sprocket hole          | d              | 1.60 ± 0.10   |
| Reel outside diameter  | D              | 178.00 ± 2.00 |
| Feed hole width        | D <sub>0</sub> | 13.00 ± 0.50  |
| Reel inner diameter    | D <sub>1</sub> | MIN. 50.00    |
| Sprocket hole position | E              | 1.75 ± 0.10   |
| Punch hole position    | F              | 3.50 ± 0.10   |
| Sprocket hole pitch    | P <sub>0</sub> | 4.00 ± 0.10   |
| Punch hole pitch       | P <sub>1</sub> | 4.00 ± 0.10   |
| Embossment center      | P <sub>2</sub> | 2.00 ± 0.10   |
| Overall tape thickness | T              | 0.20 ± 0.05   |
| Tape width             | W              | 8.00 ± 0.20   |
| Reel width             | W <sub>1</sub> | MAX. 14.50    |

Note a: A<sub>0</sub> B<sub>0</sub> K<sub>0</sub> are determined by component size. The clearance between the components and the cavity must be within 0.05mm to 0.5mm max.

### ORDER INFORMATION

| Package | Reel Size | Quantity |
|---------|-----------|----------|
| SOT-523 | 7"        | 4,000    |

### MARKING CODE

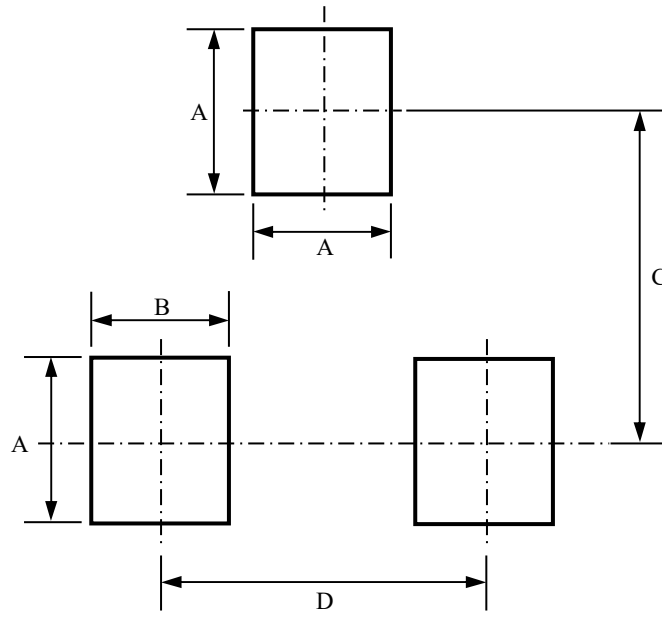
| Part Number | Marking Code |
|-------------|--------------|
| 2SC4617QTH  | 1E           |
| 2SC4617RTH  | 1F           |
| 2SC4617STH  | 1G           |



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## NPN TRANSISTORS

### SUGGESTED SOLDER PAD LAYOUT



Unit :mm

| PACKAGE | A    | B    | C    | D    |
|---------|------|------|------|------|
| SOT-523 | 0.70 | 0.60 | 1.30 | 1.00 |