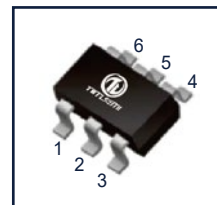
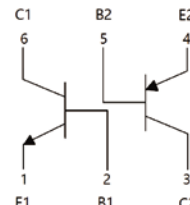


## Features

- Epitaxial Die Construction
- Two isolated NPN/PNP(BC847W+BC857W) Transistors in one package



SOT-363



Equivalent Circuit

## Ordering information

| Product ID | Pack    | Naming rule                                                                                                                                            | Marking | hFE(1)  | Qty(PCS) |
|------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|----------|
| BC847PN    | SOT-363 | <div style="border: 1px solid black; padding: 5px; display: inline-block;">BC847PN</div><br><div style="font-size: 0.8em;">产品名称<br/>product name</div> | 7P      | 200-450 | 3000     |

## MAXIMUM RATINGS TR1 (TA=25℃)

| Symbol                            | Parameter                                        | Value      | Uniat |
|-----------------------------------|--------------------------------------------------|------------|-------|
| V <sub>CB0</sub>                  | Collector-Base Voltage                           | 50         | V     |
| V <sub>CE0</sub>                  | Collector-Emitter Voltage                        | 45         | V     |
| V <sub>EB0</sub>                  | Emitter-Base Voltage                             | 6          | V     |
| I <sub>c</sub>                    | Collector Current                                | 0.1        | A     |
| P <sub>c</sub>                    | Collector Power Dissipation                      | 0.2        | W     |
| T <sub>j</sub> , T <sub>stg</sub> | Operation Junction And Storage Temperature Range | -55 ~ +150 | ℃     |

## CHARACTERISTICS of TR1 (NPN Transistor) (TA=25℃)

| Symbol               | Parameter                            | Test conditions                                                                   | Min  | Typ | Max  | Unit |
|----------------------|--------------------------------------|-----------------------------------------------------------------------------------|------|-----|------|------|
| V <sub>(BR)CBO</sub> | Collector-base breakdown voltage     | I <sub>c</sub> =10μA, I <sub>E</sub> =0                                           | 50   |     |      | V    |
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | I <sub>c</sub> =10mA, I <sub>B</sub> =0                                           | 45   |     |      | V    |
| V <sub>(BR)EBO</sub> | Emitter-base breakdown voltage       | I <sub>E</sub> =1μA, I <sub>c</sub> =0                                            | 6    |     |      | V    |
| I <sub>cBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =30V, I <sub>E</sub> =0                                           |      |     | 15   | nA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =5V, I <sub>c</sub> =0                                            |      |     | 15   | nA   |
| h <sub>FE</sub>      | DC current gain                      | V <sub>CE</sub> =5V, I <sub>c</sub> =2mA                                          | 200  |     | 450  |      |
| V <sub>CE(sat)</sub> | Collector-emitter saturation voltage | I <sub>c</sub> =10mA, I <sub>B</sub> =0.5mA                                       |      |     | 0.25 | V    |
|                      |                                      | I <sub>c</sub> =100mA, I <sub>B</sub> =5mA                                        |      |     | 0.6  |      |
| V <sub>BE(sat)</sub> | Base-emitter saturation voltage      | I <sub>c</sub> =10mA, I <sub>B</sub> =0.5mA                                       |      | 0.7 |      | V    |
|                      |                                      | I <sub>c</sub> =100mA, I <sub>B</sub> =5mA                                        |      | 0.9 |      |      |
| V <sub>BE(on)</sub>  | Base-emitter voltage                 | V <sub>CE</sub> =5V, I <sub>c</sub> =2mA                                          | 0.58 |     | 0.7  | V    |
|                      |                                      | V <sub>CE</sub> =5V, I <sub>c</sub> =10mA                                         |      |     | 0.72 |      |
| C <sub>ob</sub>      | Collector output capacitance         | V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz                                   |      |     | 6.0  | pF   |
| f <sub>T</sub>       | Transition frequency                 | V <sub>CE</sub> =5V, I <sub>c</sub> =10mA, f=100MHz                               | 100  |     |      | MHz  |
| NF                   | Noise figure                         | V <sub>CE</sub> =5V, I <sub>c</sub> =0.2mA, f=1kHz, R <sub>g</sub> =2KΩ, Δf=200Hz |      |     | 10   | dB   |

## MAXIMUM RATINGS TR2 (TA=25℃)

| Symbol                            | Parameter                                        | Value      | Uniat |
|-----------------------------------|--------------------------------------------------|------------|-------|
| V <sub>CBO</sub>                  | Collector-Base Voltage                           | -50        | V     |
| V <sub>CEO</sub>                  | Collector-Emitter Voltage                        | -45        | V     |
| V <sub>EBO</sub>                  | Emitter-Base Voltage                             | -5         | V     |
| I <sub>C</sub>                    | Collector Current                                | -0.1       | A     |
| P <sub>C</sub>                    | Collector Power Dissipation                      | 0.2        | W     |
| T <sub>J</sub> , T <sub>stg</sub> | Operation Junction And Storage Temperature Range | -55 ~ +150 | ℃     |

## CHARACTERISTICS of TR2 (PNP Transistor) (TA=25℃)

| Symbol               | Parameter                            | Test conditions                                                                     | Min  | Typ  | Max   | Unit |
|----------------------|--------------------------------------|-------------------------------------------------------------------------------------|------|------|-------|------|
| V <sub>(BR)CBO</sub> | Collector-base breakdown voltage     | I <sub>C</sub> =-10μA, I <sub>E</sub> =0                                            | -50  |      |       | V    |
| V <sub>(BR)CEO</sub> | Collector-emitter breakdown voltage  | I <sub>C</sub> =-10mA, I <sub>B</sub> =0                                            | -45  |      |       | V    |
| V <sub>(BR)EBO</sub> | Emitter-base breakdown voltage       | I <sub>E</sub> =-1μA, I <sub>C</sub> =0                                             | -5   |      |       | V    |
| I <sub>CBO</sub>     | Collector cut-off current            | V <sub>CB</sub> =-30V, I <sub>E</sub> =0                                            |      |      | -15   | nA   |
| I <sub>EBO</sub>     | Emitter cut-off current              | V <sub>EB</sub> =-5V, I <sub>C</sub> =0                                             |      |      | -15   | nA   |
| h <sub>FE</sub>      | DC current gain                      | V <sub>CE</sub> =-5V, I <sub>C</sub> =-2mA                                          | 220  |      | 475   |      |
| V <sub>CE(sat)</sub> | Collector-emitter saturation voltage | I <sub>C</sub> =-10mA, I <sub>B</sub> =-0.5mA                                       |      |      | -0.3  | V    |
|                      |                                      | I <sub>C</sub> =-100mA, I <sub>B</sub> =-5mA                                        |      |      | -0.65 |      |
| V <sub>BE(sat)</sub> | Base-emitter saturation voltage      | I <sub>C</sub> =-10mA, I <sub>B</sub> =-0.5mA                                       |      | -0.7 |       | V    |
|                      |                                      | I <sub>C</sub> =-100mA, I <sub>B</sub> =-5mA                                        |      |      | -0.95 |      |
| V <sub>BE(on)</sub>  | Base-emitter voltage                 | V <sub>CE</sub> =-5V, I <sub>C</sub> =-2mA                                          | -0.6 |      | -0.75 | V    |
|                      |                                      | V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA                                         |      |      | -0.82 |      |
| C <sub>ob</sub>      | Collector output capacitance         | V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz                                    |      |      | 4.5   | pF   |
| f <sub>T</sub>       | Transition frequency                 | V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA, f=100MHz                               | 100  |      |       | MHz  |
| NF                   | Noise figure                         | V <sub>CE</sub> =-5V, I <sub>C</sub> =-0.2mA, f=1kHz, R <sub>g</sub> =2KΩ, Δf=200Hz |      |      | 10    | dB   |



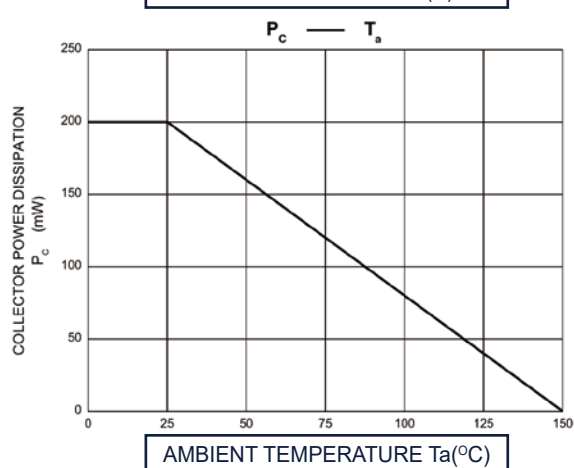
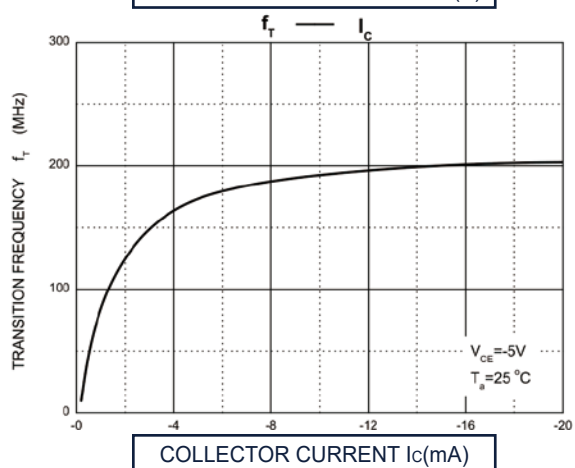
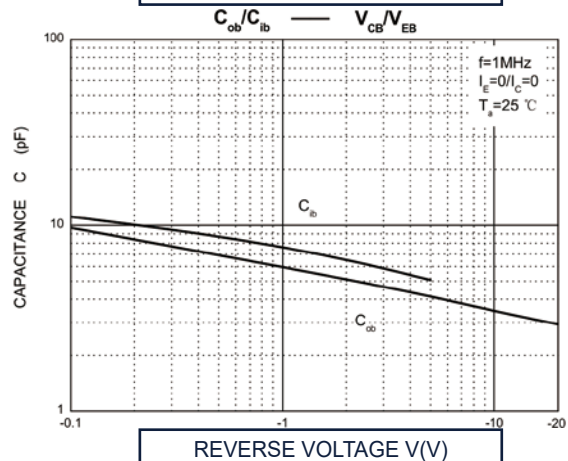
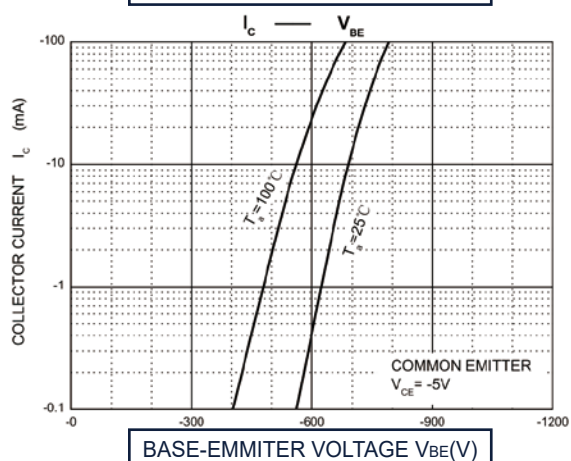
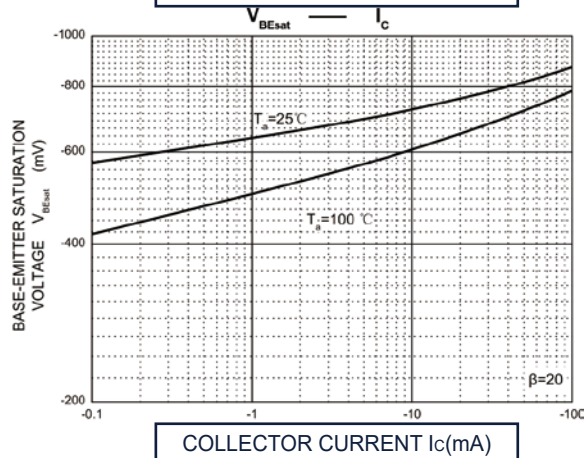
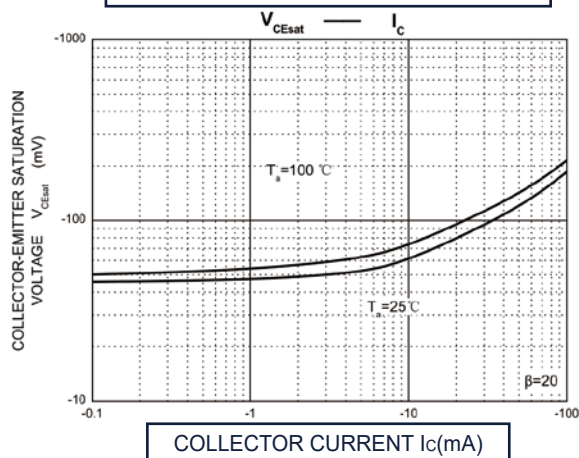
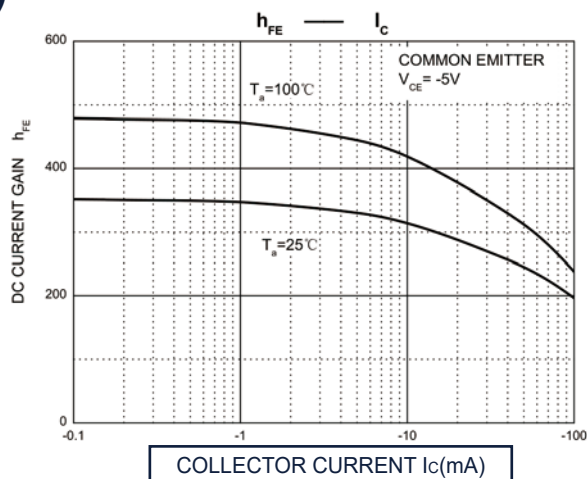
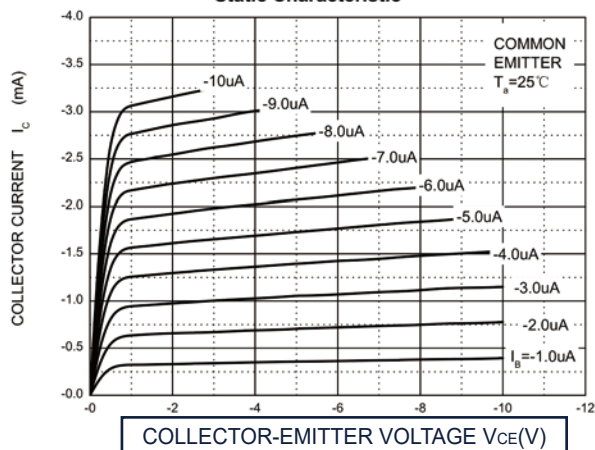
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## TL-BC847PN

SOT-363 DUAL TRANSISTOR (NPN+PNP)

## Typical Characteristics (BC847PN/TR1)

Static Characteristic





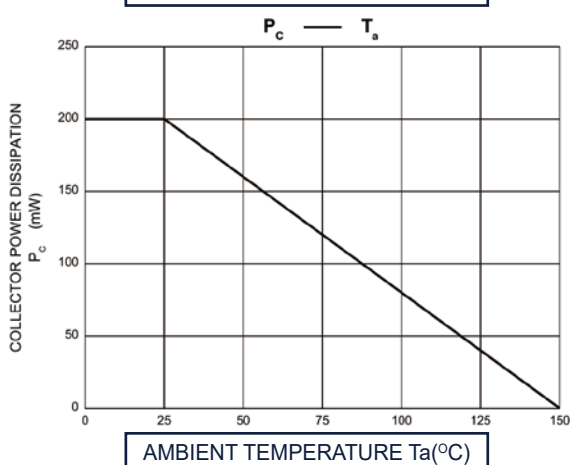
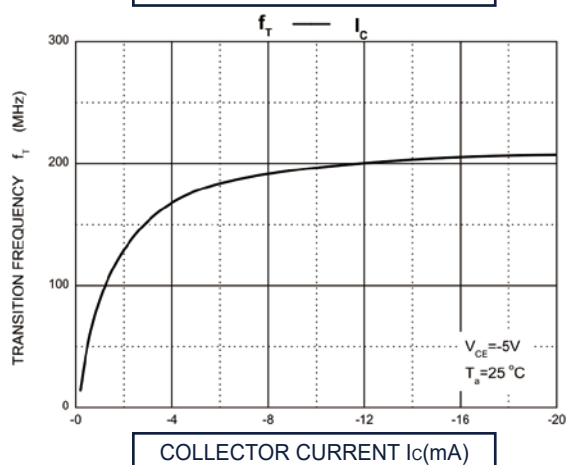
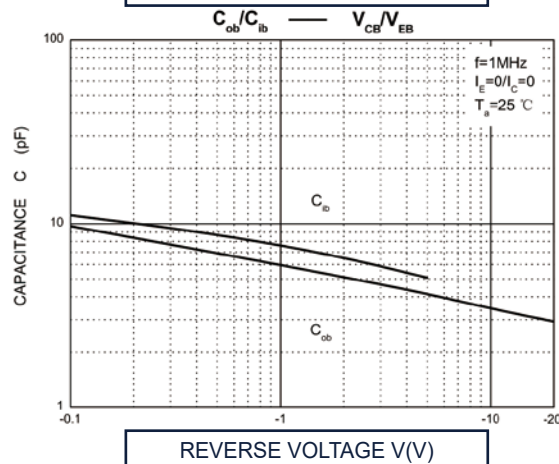
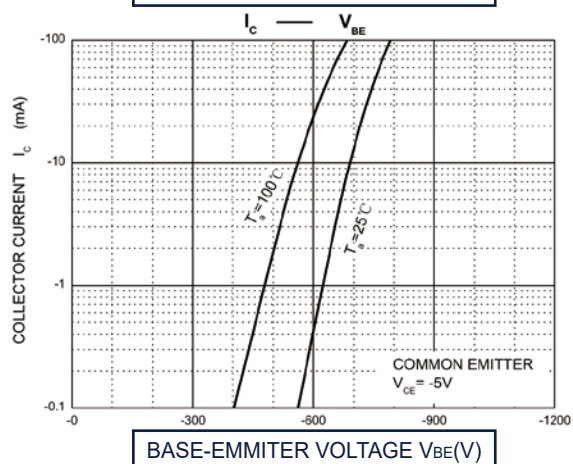
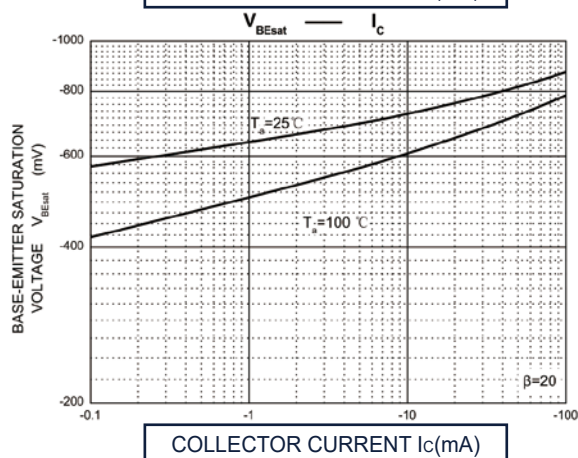
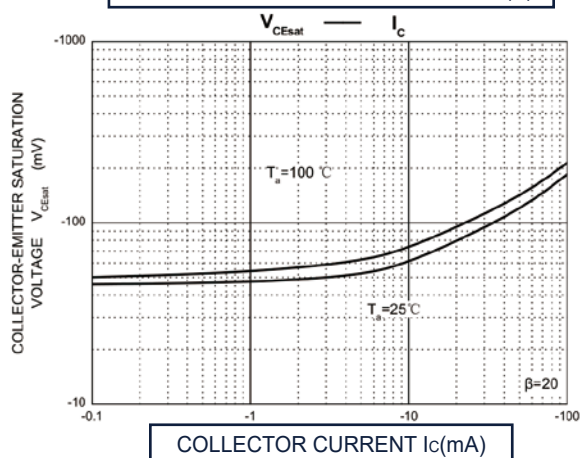
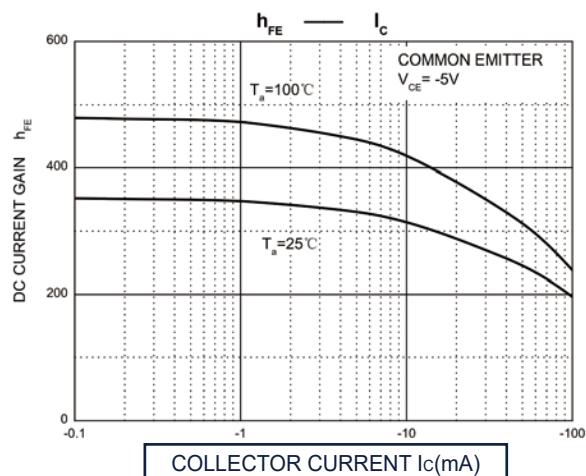
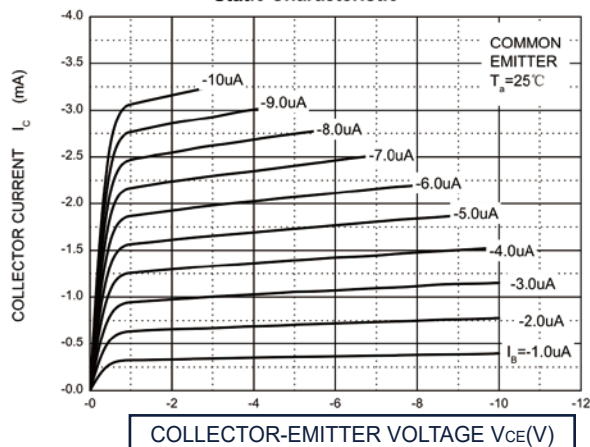
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## TL-BC847PN

SOT-363 DUAL TRANSISTOR (NPN+PNP)

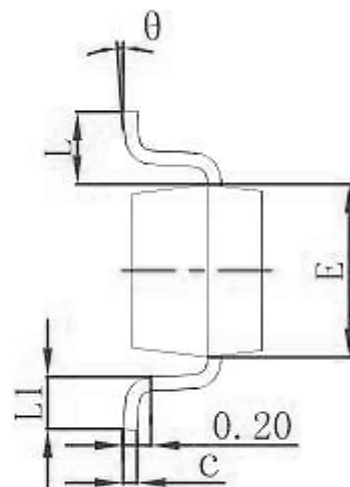
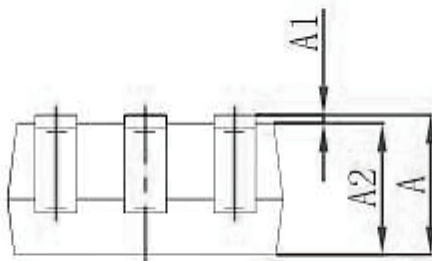
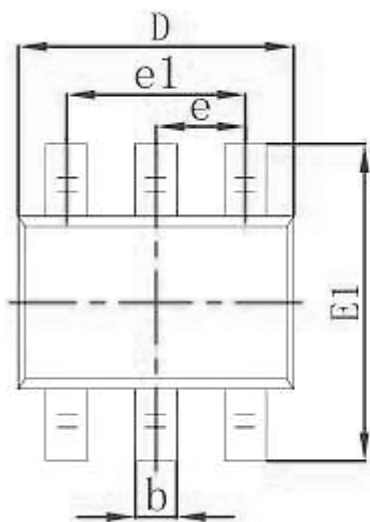
## Typical Characteristics (BC847PN/TR2)

Static Characteristic





## SOT-363 Package Outline Dimensions



| Symbol | Dimensions in Millimeters |       | Dimensions in Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.000 | 0.035                | 0.039 |
| b      | 0.150                     | 0.350 | 0.006                | 0.014 |
| c      | 0.100                     | 0.150 | 0.004                | 0.006 |
| D      | 2.000                     | 2.200 | 0.079                | 0.087 |
| E      | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1     | 2.150                     | 2.450 | 0.085                | 0.096 |
| e      | 0.650 TYP                 |       | 0.026 TYP            |       |
| e1     | 1.200                     | 1.400 | 0.047                | 0.055 |
| L      | 0.525 REF                 |       | 0.021 REF            |       |
| L1     | 0.260                     | 0.460 | 0.010                | 0.018 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |