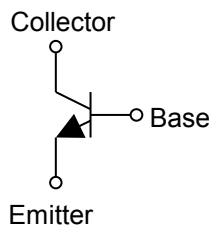


| Parameter | Value |
|-----------|-------|
| $V_{CEO}$ | 50V   |
| $I_C$     | 2.0A  |

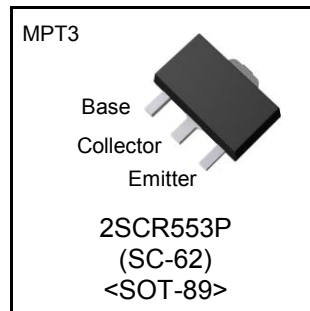
### ●Features

- 1) Suitable for Middle Power Driver
- 2) Complementary PNP Types : 2SAR553P
- 3) Low  $V_{CE(sat)}$   
 $V_{CE(sat)}=0.35V(\text{Max.})$   
 $(I_C/I_B=700mA/35mA)$
- 4) Lead Free/RoHS Compliant.

### ●Inner circuit



### ●Outline



### ●Applications

Motor driver , LED driver  
Power supply

### ●Packaging specifications

| Part No. | Package | Package size (mm) | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit (pcs) | Marking |
|----------|---------|-------------------|-------------|----------------|-----------------|---------------------------|---------|
| 2SCR553P | MPT3    | 4540              | T100        | 180            | 12              | 1,000                     | NG      |

### ●Absolute maximum ratings (Ta = 25°C)

| Parameter                    | Symbol     | Values        | Unit |   |
|------------------------------|------------|---------------|------|---|
| Collector-base voltage       | $V_{CBO}$  | 50            | V    |   |
| Collector-emitter voltage    | $V_{CEO}$  | 50            | V    |   |
| Emitter-base voltage         | $V_{EBO}$  | 6             | V    |   |
| Collector current            | DC         | $I_C$         | 2.0  | A |
|                              | Pulsed     | $I_{CP}^{*1}$ | 4.0  | A |
| Power dissipation            | $P_D^{*2}$ | 0.5           | W    |   |
|                              | $P_D^{*3}$ | 2.0           | W    |   |
| Junction temperature         | $T_j$      | 150           | °C   |   |
| Range of storage temperature | $T_{stg}$  | -55 to +150   | °C   |   |

\*1 Pw=10ms , single pulse

\*2 Each terminal mounted on a reference land

\*3 Mounted on a ceramic board (40×40×0.7mm)

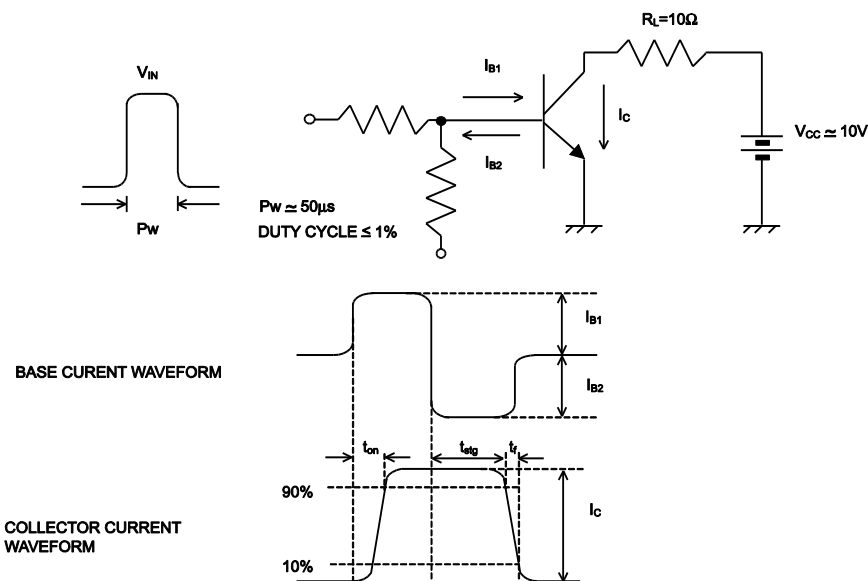
●Electrical characteristics(Ta = 25°C)

| Parameter                            | Symbol             | Conditions  | Min. | Typ. | Max. | Unit    |
|--------------------------------------|--------------------|---|------|------|------|---------|
| Collector-emitter breakdown voltage  | $BV_{CEO}$         | $I_C = 1mA$   | 50   | -    | -    | V       |
| Collector-base breakdown voltage     | $BV_{CBO}$         | $I_C = 100\mu A$  | 50   | -    | -    | V       |
| Emitter-base breakdown voltage       | $BV_{EBO}$         | $I_E = 100\mu A$  | 6    | -    | -    | V       |
| Collector cut-off current            | $I_{CBO}$          | $V_{CB} = 50V$  | -    | -    | 1    | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$          | $V_{EB} = 4V$   | -    | -    | 1    | $\mu A$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}^{*1}$ | $I_C = 700mA, I_B = 35mA$   | -    | 0.13 | 0.35 | V       |
| DC current gain                      | $h_{FE}$           | $V_{CE} = 2V, I_C = 50mA$   | 180  | -    | 450  | -       |
| Transition frequency                 | $f_T$              | $V_{CE} = 10V, I_E = -300mA$<br>$f = 100MHz$                                | -    | 360  | -    | MHz     |
| Output capacitance                   | $C_{ob}$           | $V_{CB} = 10V, I_E = 0A,$<br>$f = 1MHz$                                     | -    | 12   | -    | pF      |
| Turn-on time                         | $t_{on}^{*2}$      | $I_C = 1A$<br>$I_{B1} = 100mA$<br>$I_{B2} = -100mA$<br>$V_{CC} \approx 10V$ | -    | 45   | -    | ns      |
| Storage time                         | $t_{stg}^{*2}$     |   | -    | 420  | -    | ns      |
| Fall time                            | $t_f^{*2}$         |   | -    | 75   | -    | ns      |

\*1 Pulsed

\*2 See switching time test circuit

●Switching time test circuit



●Electrical characteristic curves(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

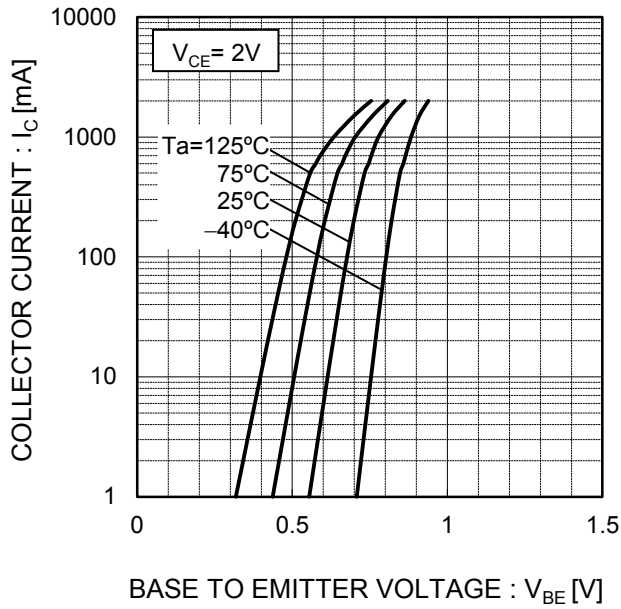


Fig.2 Typical Output Characteristics

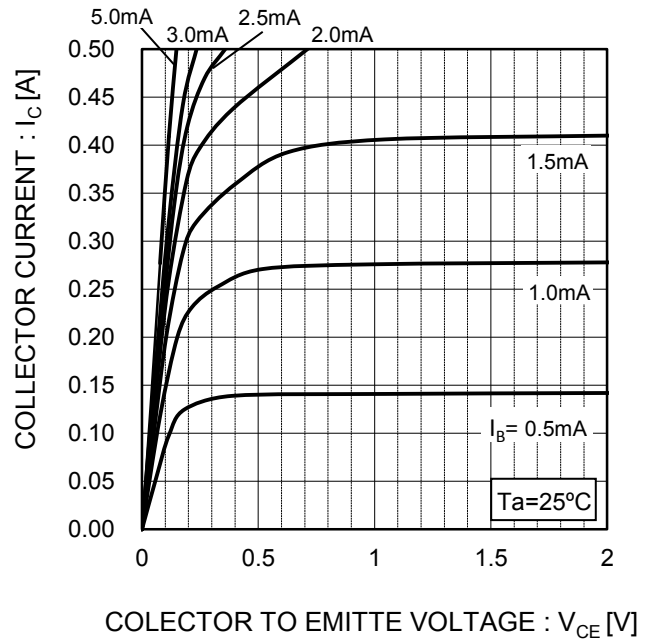


Fig.3 DC Current Gain vs. Collector Current(I)

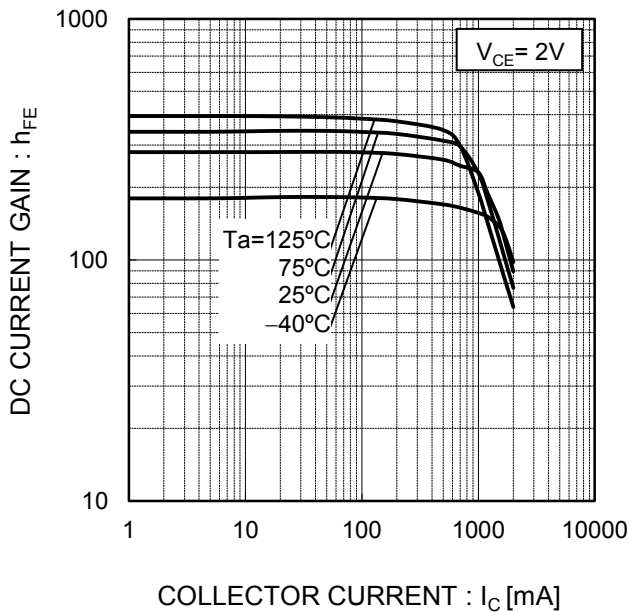
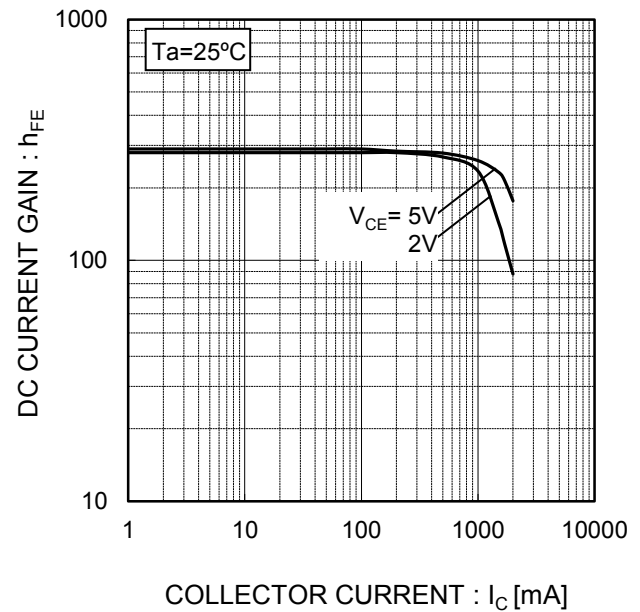


Fig.4 DC current gain vs. output current (II)



●Electrical characteristic curves(Ta = 25°C)

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

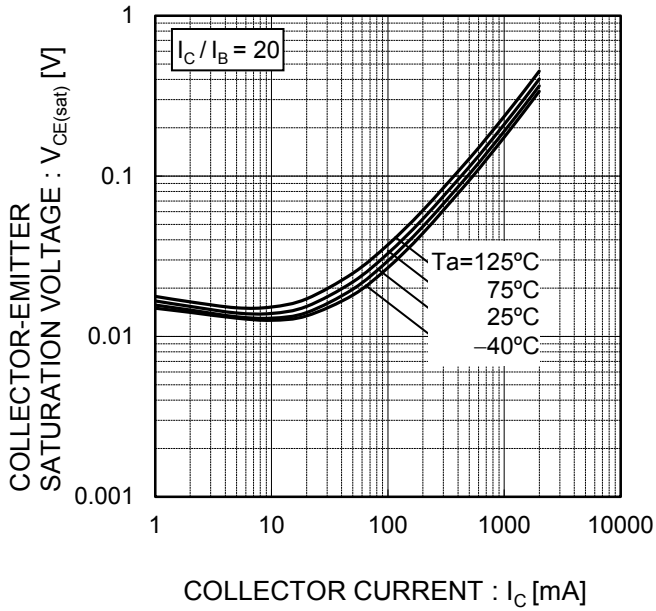


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

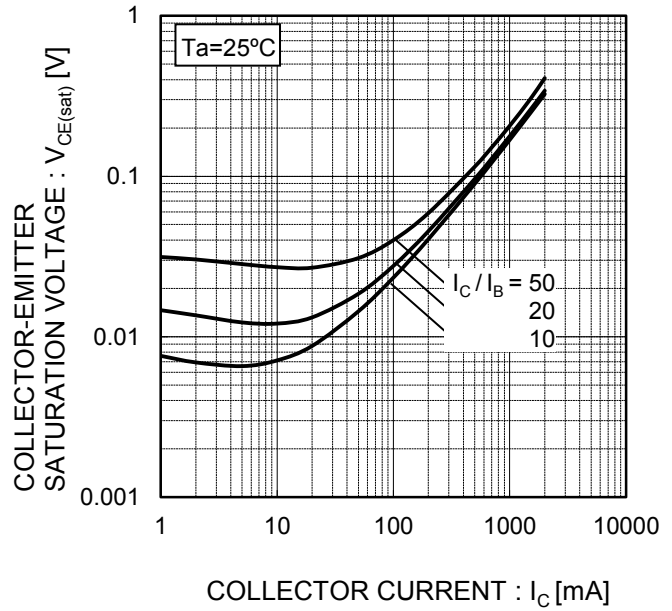


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

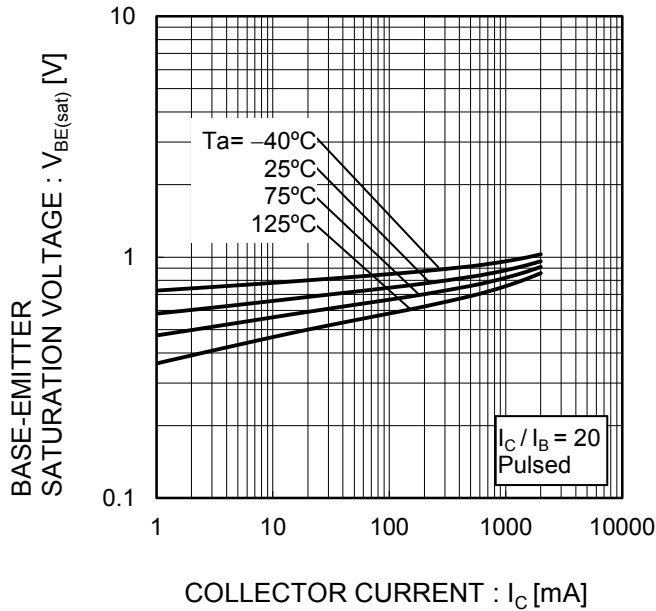
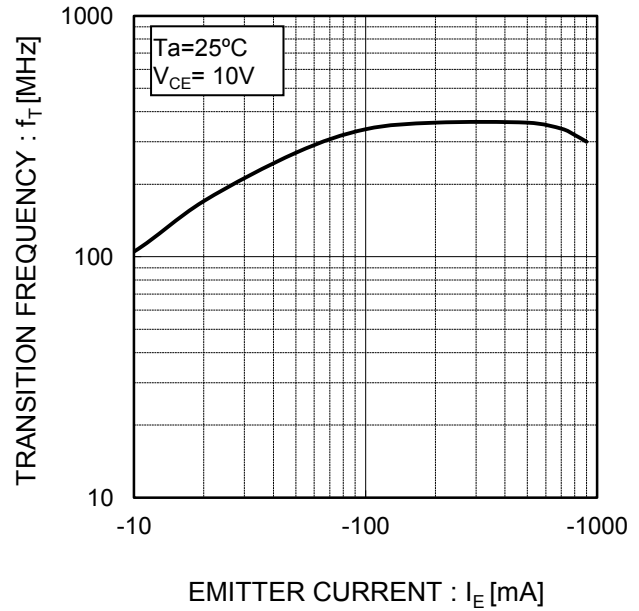


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(Ta = 25°C)

Fig.9 Emitter input capacitance vs. Emitter-Base Voltage  
Collector output capacitance vs. Collector-Base Voltage

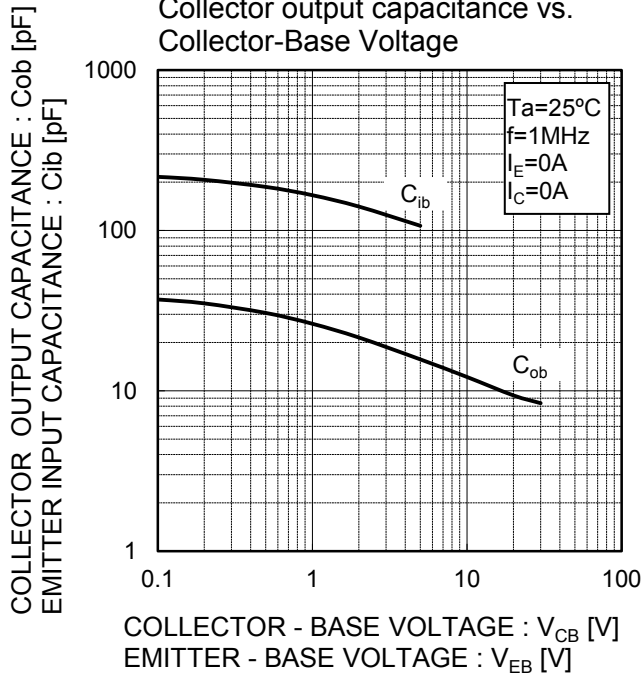
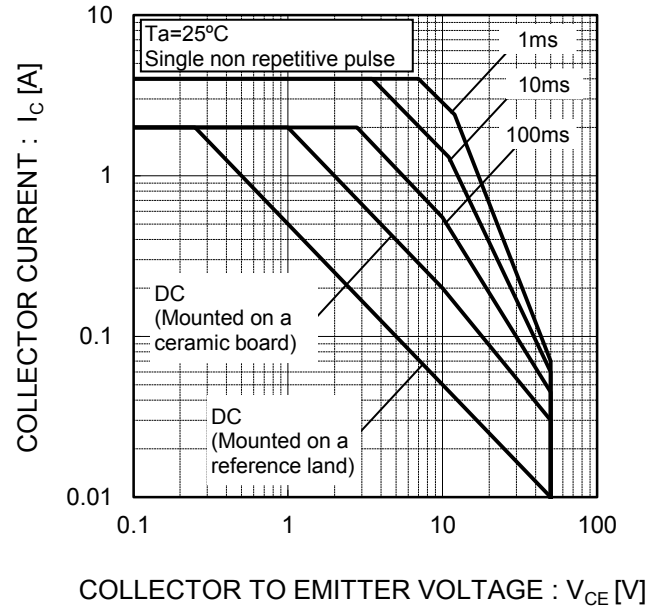
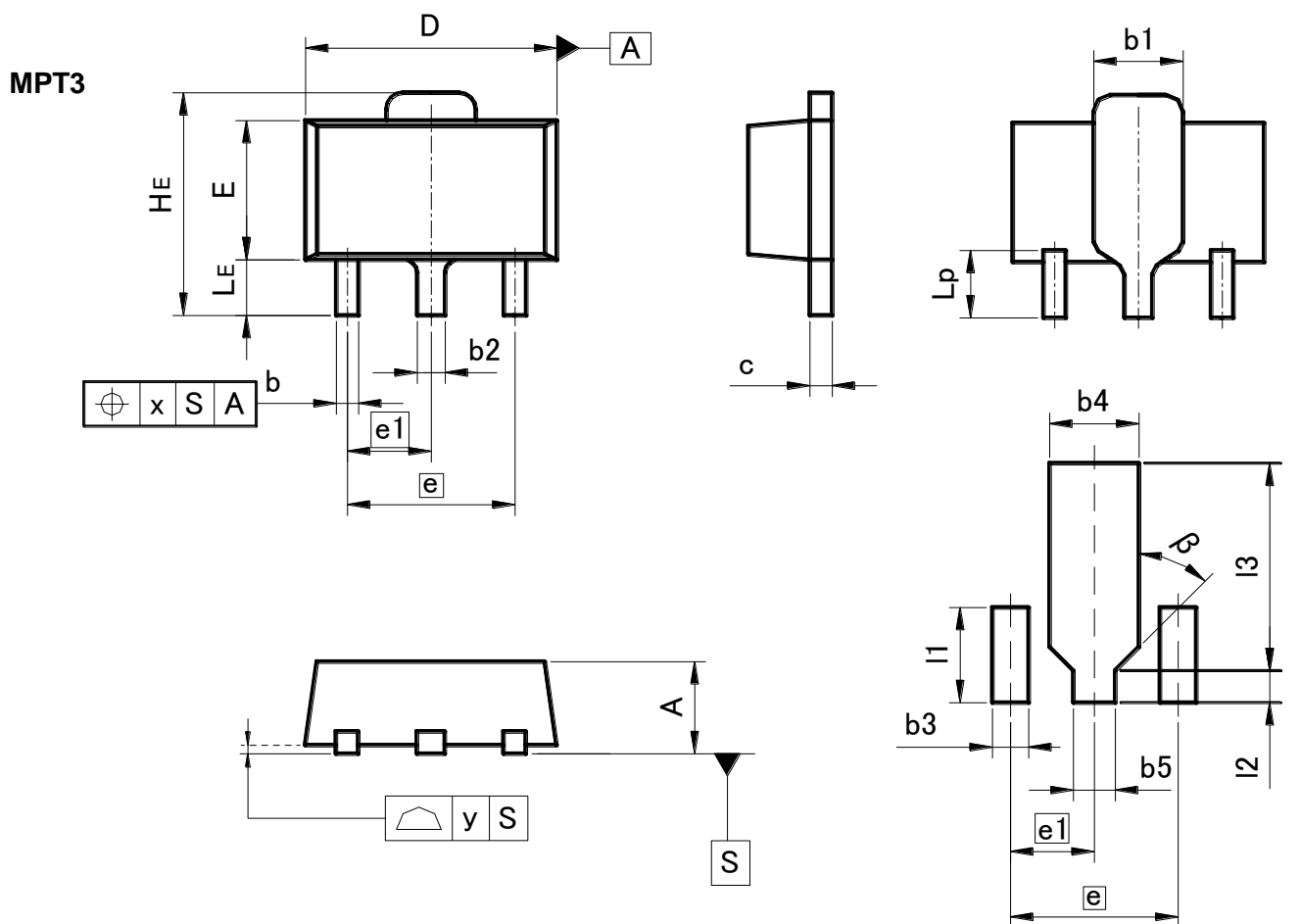


Fig.10 Safe Operating Area



●Dimensions (Unit : mm)



Pattern of terminal position areas  
[Not a recommended pattern of soldering pa

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| A   | 1.40       | 1.50 | 0.055  | 0.059 |
| b   | 0.30       | 0.50 | 0.012  | 0.020 |
| b1  | 1.50       | 1.70 | 0.059  | 0.067 |
| b2  | 0.40       | 0.60 | 0.016  | 0.024 |
| c   | 0.35       | 0.50 | 0.014  | 0.020 |
| D   | 4.40       | 4.70 | 0.173  | 0.185 |
| E   | 2.40       | 2.70 | 0.094  | 0.106 |
| e   | 3.00       |      | 0.118  |       |
| e1  | 1.50       |      | 0.059  |       |
| HE  | 3.70       | 4.30 | 0.146  | 0.169 |
| LE  | 0.80       | 1.20 | 0.031  | 0.047 |
| Lp  | 1.01       | 1.41 | 0.040  | 0.056 |
| x   | -          | 0.15 | -      | 0.006 |
| y   | -          | 0.10 | -      | 0.004 |

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| b3  | -          | 0.65 | -      | 0.026 |
| b4  | -          | 1.70 | -      | 0.067 |
| b5  | -          | 0.75 | -      | 0.030 |

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