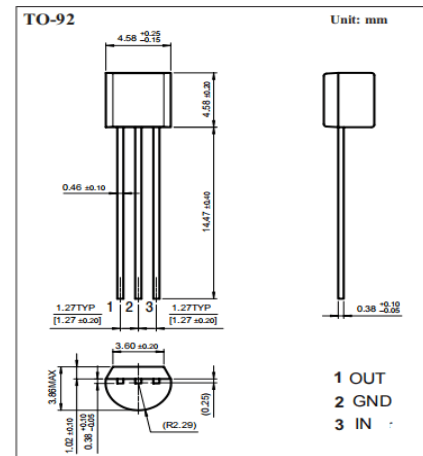


## NPN Transistors

### MMBTA42

#### ■ Features

- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary to MMBTA92 (PNP)



#### ■ Absolute Maximum Ratings Ta = 25°C

| Parameter                              | Symbol           | Rating     | Unit |
|----------------------------------------|------------------|------------|------|
| Collector - Base Voltage               | V <sub>CB0</sub> | 300        | V    |
| Collector - Emitter Voltage            | V <sub>CE0</sub> | 300        |      |
| Emitter - Base Voltage                 | V <sub>EB0</sub> | 5          |      |
| Collector Current - Continuous         | I <sub>C</sub>   | 500        | mA   |
| Collector Power Dissipation            | P <sub>C</sub>   | 350        | mW   |
| Thermal Resistance Junction to Ambient | R <sub>θJA</sub> | 357        | °C/W |
| Junction Temperature                   | T <sub>J</sub>   | 150        | °C   |
| Storage Temperature Range              | T <sub>stg</sub> | -55 to 150 |      |

#### ■ Electrical Characteristics Ta = 25°C

| Parameter                            | Symbol               | Test Conditions                                       | Min | Typ | Max | Unit |
|--------------------------------------|----------------------|-------------------------------------------------------|-----|-----|-----|------|
| Collector-base breakdown voltage     | V <sub>CB0</sub>     | I <sub>C</sub> = 100 μA, I <sub>E</sub> = 0           | 300 |     |     | V    |
| Collector- emitter breakdown voltage | V <sub>CE0</sub>     | I <sub>C</sub> = 1 mA, I <sub>B</sub> = 0             | 300 |     |     |      |
| Emitter - base breakdown voltage     | V <sub>EB0</sub>     | I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0           | 5   |     |     |      |
| Collector-base cut-off current       | I <sub>CB0</sub>     | V <sub>CB</sub> = 200 V, I <sub>E</sub> = 0           |     |     | 0.1 | μA   |
| Emitter cut-off current              | I <sub>EB0</sub>     | V <sub>EB</sub> = 5V, I <sub>C</sub> =0               |     |     | 0.1 |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> = 20 mA, I <sub>B</sub> = 2mA          |     |     | 0.2 | V    |
| Base - emitter saturation voltage    | V <sub>BE(sat)</sub> | I <sub>C</sub> = 20mA, I <sub>B</sub> = 2mA           |     |     | 0.9 |      |
| DC current gain                      | h <sub>fe</sub> (1)  | V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA           | 60  |     |     |      |
|                                      | h <sub>fe</sub> (2)  | V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA          | 100 |     | 300 |      |
|                                      | h <sub>fe</sub> (3)  | V <sub>CE</sub> = 10V, I <sub>C</sub> = 30mA          | 60  |     |     |      |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> = 20V, I <sub>C</sub> = 10mA, f=30MHz | 50  |     |     | MHz  |

#### ■ Classification of h<sub>fe</sub>(2)

| Type    | MMBTA42 | MMBTA42-L |
|---------|---------|-----------|
| Range   | 100-300 | 100-200   |
| Marking | 1D      |           |

## NPN Transistors

## MMBTA42

## ■ Typical Characteristics

