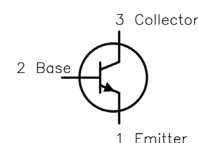
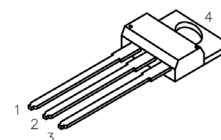
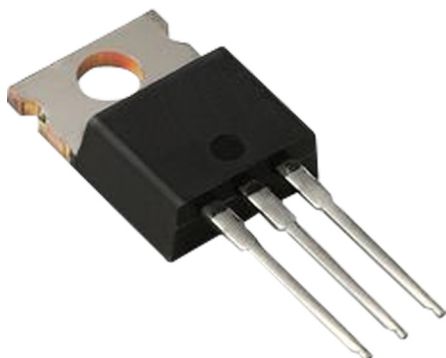


# Medium Power Transistor



RoHS  
Compliant



## Description:

A general purpose, NPN medium power silicon, transistor in a TO-220 type package designed for switching and amplifier applications. This device is especially designed for series and shunt regulators and as a driver and output stage of high-fidelity amplifiers

## Features:

Low Saturation Voltage

## Maximum Ratings:

| Characteristic                                                                                      | Symbol     | Rating        | Unit                     |
|-----------------------------------------------------------------------------------------------------|------------|---------------|--------------------------|
| Collector-Base Voltage                                                                              | $V_{CBO}$  | 50            | V                        |
| Collector-Emitter Voltage                                                                           | $V_{CEO}$  | 40            |                          |
| Emitter-Base Voltage                                                                                | $V_{EBO}$  | 5             |                          |
| Continuous Collector Current                                                                        | $I_C$      | 15            | A                        |
| Continuous Base Current                                                                             | $I_B$      | 5             |                          |
| Total Device Dissipation ( $T_C = +25^\circ\text{C}$ ),<br>Derate Linearly above $25^\circ\text{C}$ | $P_D$      | 75<br>0.6     | W<br>W/ $^\circ\text{C}$ |
| Total Device Dissipation ( $T_A = +25^\circ\text{C}$ ),<br>Derate Linearly above $25^\circ\text{C}$ |            | 1.8<br>0.0144 |                          |
| Operating Junction Temperature Range                                                                | $T_{opr}$  | -65 to +150   | $^\circ\text{C}$         |
| Storage Temperature Range                                                                           | $T_{stg}$  |               |                          |
| Lead Temperature (During Soldering, $\frac{1}{8}$ " (3.17mm) from<br>case, 10 sec max)              | $T_L$      | +235          |                          |
| Thermal Resistance, Junction-to-case                                                                | $R_{thjc}$ | 1.67          | $^\circ\text{C/W}$       |
| Thermal Resistance, Junction-to-Ambient                                                             |            | 70            |                          |

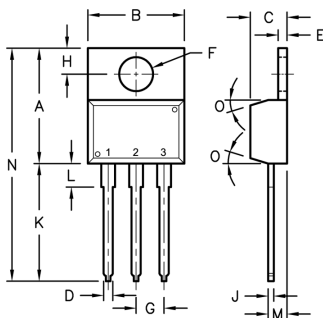
# Medium Power Transistor



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

| Parameter                                   | Symbol         | Test Conditions                                                | Min. | Max. | Unit |
|---------------------------------------------|----------------|----------------------------------------------------------------|------|------|------|
| Collector Cutoff Current                    | $I_{CEO}$      | $V_{CE} = 20\text{V}, I_B = 0$                                 | -    | 1    | mA   |
|                                             | $I_{CEX}$      | $V_{CE} = 45\text{V}, V_{BE} = 1.5\text{V}$                    |      | 0.5  |      |
|                                             |                | $V_{CE} = 150\text{V}, V_{BE} = 1.5\text{V}, T_C = +100^\circ$ |      | 5    |      |
| Emitter Cutoff Current                      | $I_{EBO}$      | $V_{EB} = 5\text{V}, I_C = 0$                                  |      | 1    |      |
| Collector - Emitter Sustaining Voltage      | $V_{CEO(sus)}$ | $I_C = 100\text{mA}, I_B = .0, (\text{Note } 1)$               | 40   | -    | V    |
| DC Current Gain                             | $h_{FE}$       | $I_C = 5\text{A}, V_{CE} = .4\text{V}, (\text{Note } 1)$       | 20   | 150  | -    |
|                                             |                | $I_C = 15\text{A}, V_{CE} = .4\text{V}, (\text{Note } 1)$      | 5    | -    |      |
| Base - Emitter Voltage                      | $V_{BE(on)}$   | $I_C = 5\text{A}, V_{CE} = .4\text{V}, (\text{Note } 1)$       | -    | 1.3  | V    |
|                                             |                | $I_C = 15\text{A}, V_{CE} = .4\text{V}, (\text{Note } 1)$      |      | 3.5  |      |
| Collector - Emitter Saturation Voltage      | $V_{CE(sat)}$  | $I_C = 5\text{A}, I_B = .500\text{mA}, (\text{Note } 1)$       | -    | 1.3  |      |
|                                             |                | $I_C = 15\text{A}, I_B = .5\text{A}, (\text{Note } 1)$         |      | 3.5  |      |
| Small Signal Forward Current Transfer Ratio | $h_{FE}$       | $V_{CE} = 4\text{V}, I_C = 1\text{A}, f = 1\text{MHz}$         | 5    | -    | -    |
| Gain Bandwidth Product                      | $f_T$          | $V_{CE} = 4\text{V}, I_C = 1\text{A}$                          |      |      | MHz  |
| Small Signal Forward Current Transfer Ratio | $h_{FE}$       | $I_C = 1\text{A}, V_{CE} = 4\text{V}, f = 1\text{MHz}$         |      |      | -    |

Note 1 : Pulsed : Pulse Duration = 300 $\mu\text{s}$ , Duty Factor = 2%



### Pin Configuration:

1. Base
2. Collector
3. Emitter
4. Collector

| Dim. | A     | B     | C    | D   | E    | F    | G    | H    | J    | K     | L    | M    | N     | O  |
|------|-------|-------|------|-----|------|------|------|------|------|-------|------|------|-------|----|
| Min. | 14.42 | 9.63  | 3.65 | -   | 1.15 | 3.75 | 2.29 | 2.54 | -    | 12.7  | 2.8  | 2.03 | -     | 7° |
| Max. | 16.51 | 10.67 | 4.83 | 0.9 | 1.4  | 3.88 | 2.79 | 3.43 | 0.56 | 14.73 | 4.07 | 2.92 | 31.24 |    |

Dimensions : Millimetres

### Part Number Table

| Description                       | Part Number |
|-----------------------------------|-------------|
| Transistor, NPN, 15A, 40V, TO-220 | 2N6486      |

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