

## PNP TIP42-A-B-C

### SILICON POWER TRANSISTORS

They are epitaxial-base PNP power transistors mounted in jedec TO-220 plastic package.  
They are intended for use in medium power linear and switching applications.  
NPN complements are TIP41-A-B-C  
Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Ratings                   |        | Value | Unit |
|-----------|---------------------------|--------|-------|------|
| $V_{CBO}$ | Collector-Base Voltage    | TIP42  | -40   | V    |
|           |                           | TIP42A | -60   |      |
|           |                           | TIP42B | -80   |      |
|           |                           | TIP42C | -100  |      |
| $V_{CEO}$ | Collector-Emitter Voltage | TIP42  | -40   | V    |
|           |                           | TIP42A | -60   |      |
|           |                           | TIP42B | -80   |      |
|           |                           | TIP42C | -100  |      |
| $V_{EBO}$ | Emitter-Base Voltage      | TIP42  | -5    | V    |
|           |                           | TIP42A |       |      |
|           |                           | TIP42B |       |      |
|           |                           | TIP42C |       |      |
| $I_C$     | Collector Current         | TIP42  | -6    | A    |
|           |                           | TIP42A |       |      |
|           |                           | TIP42B |       |      |
|           |                           | TIP42C |       |      |
| $I_{CM}$  | Collector Peak Current    | TIP42  | -10   | A    |
|           |                           | TIP42A |       |      |
|           |                           | TIP42B |       |      |
|           |                           | TIP42C |       |      |

## PNP TIP42-A-B-C

### ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings                   |                      |                    | Value       | Unit  |                  |
|--------|---------------------------|----------------------|--------------------|-------------|-------|------------------|
| $I_B$  | Base Current              |                      | TIP42              | -2          | A     |                  |
|        |                           |                      | TIP42A             |             |       |                  |
|        |                           |                      | TIP42B             |             |       |                  |
|        |                           |                      | TIP42C             |             |       |                  |
| $P_c$  | Power Dissipation         |                      | @ $T_c < 25^\circ$ | 65          | Watts |                  |
|        |                           |                      | TIP42              |             |       |                  |
|        |                           |                      | TIP42A             |             |       |                  |
|        |                           |                      | TIP42B             |             |       |                  |
|        |                           |                      | TIP42C             | 2           |       |                  |
|        |                           |                      | TIP42              |             |       |                  |
|        |                           |                      | TIP42A             |             |       |                  |
|        |                           |                      | TIP42B             |             |       |                  |
|        |                           | TIP42C               |                    |             |       |                  |
|        |                           | Junction Temperature |                    | TIP42       | 150   | $^\circ\text{C}$ |
|        |                           |                      |                    | TIP42A      |       |                  |
|        |                           |                      |                    | TIP42B      |       |                  |
| TIP42C |                           |                      |                    |             |       |                  |
| $T_s$  | Storage Temperature range |                      | TIP42              | -65 to +150 |       |                  |
|        |                           |                      | TIP42A             |             |       |                  |
|        |                           |                      | TIP42B             |             |       |                  |
|        |                           |                      | TIP42C             |             |       |                  |

### THERMAL CHARACTERISTICS

| Symbol       | Ratings                              |        | Value | Unit               |
|--------------|--------------------------------------|--------|-------|--------------------|
| $R_{thJ-MB}$ | From junction to mounting base       | TIP42  | 1.92  | $^\circ\text{C/W}$ |
|              |                                      | TIP42A |       |                    |
|              |                                      | TIP42B |       |                    |
|              |                                      | TIP42C |       |                    |
| $R_{thJ-A}$  | From junction to ambient in free air | TIP42  | 62.5  | $^\circ\text{C/W}$ |
|              |                                      | TIP42A |       |                    |
|              |                                      | TIP42B |       |                    |
|              |                                      | TIP42C |       |                    |

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

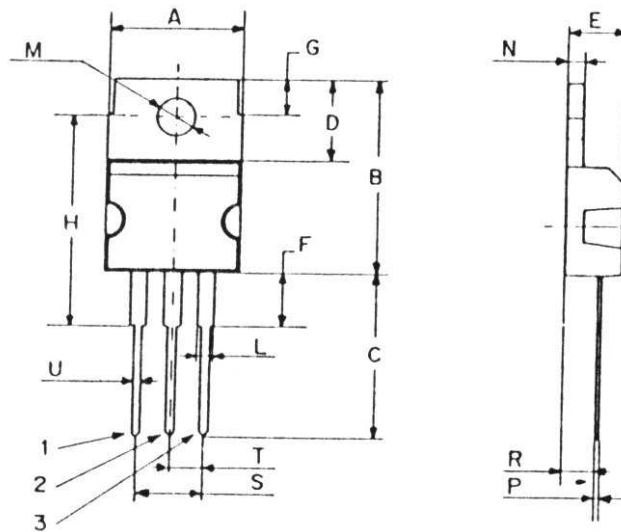
| Symbol        | Ratings                                  | Test Condition(s)                                              |        | Min  | Typ | Mx   | Unit |
|---------------|------------------------------------------|----------------------------------------------------------------|--------|------|-----|------|------|
| $I_{CES}$     | Collector Cutoff Current                 | $I_E = 0, V_{CE} = -V_{CEO}$                                   | TIP42  | -    | -   | -0.4 | Ma   |
|               |                                          |                                                                | TIP42A |      |     |      |      |
|               |                                          |                                                                | TIP42B |      |     |      |      |
|               |                                          |                                                                | TIP42C |      |     |      |      |
| $I_{CEO}$     | Collector Cutoff Current                 | $I_B = 0, V_{CE} = -30V$                                       | TIP42  | -    | -   | -0.7 | mA   |
|               |                                          | TIP42A                                                         |        |      |     |      |      |
|               |                                          | $I_B = 0, V_{CE} = -60V$                                       | TIP42B | -    | -   | -0.7 |      |
|               |                                          | TIP42C                                                         |        |      |     |      |      |
| $I_{EBO}$     | Emitter Cutoff Current                   | $V_{EB} = -5\text{ V}, I_C = 0$                                | TIP42  | -    | -   | -1   | mA   |
|               |                                          |                                                                | TIP42A |      |     |      |      |
|               |                                          |                                                                | TIP42B |      |     |      |      |
|               |                                          |                                                                | TIP42C |      |     |      |      |
| $V_{CEO}$     | Collector-Emitter Breakdown Voltage (*)  | $I_C = -30\text{ mA}, I_B = 0$                                 | TIP42  | -40  | -   | -    | V    |
|               |                                          |                                                                | TIP42A | -60  | -   | -    |      |
|               |                                          |                                                                | TIP42B | -80  | -   | -    |      |
|               |                                          |                                                                | TIP42C | -100 | -   | -    |      |
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) | $I_C = -6\text{ A}, I_B = -600\text{ mA}$                      | TIP42  | -    | -   | -1.5 | V    |
|               |                                          |                                                                | TIP42A |      |     |      |      |
|               |                                          |                                                                | TIP42B |      |     |      |      |
|               |                                          |                                                                | TIP42C |      |     |      |      |
| $V_{BE(on)}$  | Base-Emitter Voltage (*)                 | $I_C = -6\text{ A}, V_{CE} = -4\text{ V}$                      | TIP42  | -    | -   | -2   | V    |
|               |                                          |                                                                | TIP42A |      |     |      |      |
|               |                                          |                                                                | TIP42B |      |     |      |      |
|               |                                          |                                                                | TIP42C |      |     |      |      |
| $h_{FE}$      | DC Current Gain (*)                      | $V_{CE} = -4\text{ V}, I_C = -0.3\text{ A}$                    | TIP42  | 30   | -   | -    | -    |
|               |                                          |                                                                | TIP42A |      |     |      |      |
|               |                                          |                                                                | TIP42B |      |     |      |      |
|               |                                          |                                                                | TIP42C |      |     |      |      |
|               |                                          | $V_{CE} = -4\text{ V}, I_C = -3\text{ A}$                      | TIP42  | 15   | -   | 75   |      |
|               |                                          |                                                                | TIP42A |      |     |      |      |
|               |                                          |                                                                | TIP42B |      |     |      |      |
|               |                                          |                                                                | TIP42C |      |     |      |      |
| $h_{fe}$      | Small Signal Current Gain                | $V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 1\text{ kHz}$ | TIP42  | 20   | -   | -    | -    |
|               |                                          |                                                                | TIP42A |      |     |      |      |
|               |                                          |                                                                | TIP42B |      |     |      |      |
|               |                                          |                                                                | TIP42C |      |     |      |      |
| $f_T$         | Current Gain-Bandwidth Product           | $V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}$                   | TIP42  | 3    | -   | -    | MHz  |
|               |                                          |                                                                | TIP42A |      |     |      |      |
|               |                                          |                                                                | TIP42B |      |     |      |      |
|               |                                          |                                                                | TIP42C |      |     |      |      |

(\*) Pulse Width  $\approx 300 \mu\text{s}$ , Duty Cycle  $\angle 2.0\%$

## PNP TIP42-A-B-C

### MECHANICAL DATA CASE TO-220

| DIMENSIONS (mm) |       |       |
|-----------------|-------|-------|
|                 | Min.  | Max.  |
| A               | 9,90  | 10,30 |
| B               | 15,65 | 15,90 |
| C               | 13,20 | 13,40 |
| D               | 6,45  | 6,65  |
| E               | 4,30  | 4,50  |
| F               | 2,70  | 3,15  |
| G               | 2,60  | 3,00  |
| H               | 15,75 | 17,15 |
| L               | 1,15  | 1,40  |
| M               | 3,50  | 3,70  |
| N               | -     | 1,37  |
| P               | 0,46  | 0,55  |
| R               | 2,50  | 2,70  |
| S               | 4,98  | 5,08  |
| T               | 2,49  | 2,54  |
| U               | 0,70  | 0,90  |



|         |           |
|---------|-----------|
| Pin 1 : | Base      |
| Pin 2 : | Collector |
| Pin 3 : | Emitter   |
| Case :  | Collector |

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