



## 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 |      |   |

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### 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             |             |                  |
|        |                           | @ $T_a < 25^\circ$ | 2           |                  |
|        |                           | TIP42              |             |                  |
|        |                           | TIP42A             |             |                  |
| TIP42B |                           |                    |             |                  |
| TIP42C |                           |                    |             |                  |
| $T_J$  | Junction Temperature      | TIP42              | 150         | $^\circ\text{C}$ |
|        |                           | TIP42A             |             |                  |
|        |                           | TIP42B             |             |                  |
|        |                           | TIP42C             |             |                  |
| $T_s$  | Storage Temperature range | TIP42              | -65 to +150 | $^\circ\text{C}$ |
|        |                           | 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

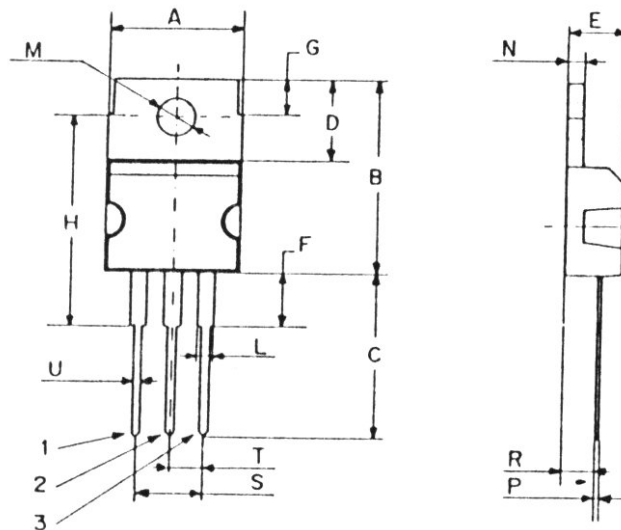
| Symbol        | Ratings                                  | Test Condition(s)                        | Min    | Typ  | Mx | Unit |     |
|---------------|--|--|--------|------|----|------|-----|
| $I_{CES}$     | Collector Cutoff Current                 | $I_E = 0, V_{CE} = -V_{CEO}$             | TIP42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

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

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### 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 |

September 2012

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