



PNP 2N4030 – 2N4031 – 2N4032 – 2N4033

GENERAL PURPOSE AMPLIFIERS AND SWITCHES

They are silicon planar epitaxial PNP transistors mounted in TO-39 metal package.
They are intended for large signal, low noise industrial applications.

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings | Value | Unit | |
|------------|--|---------------------------|------------|-------|
| $-V_{CBO}$ | Collector-Base Voltage $I_E = 0$ | 2N4030 | 60 | V |
| | | 2N4031 | 80 | |
| | | 2N4032 | 60 | |
| | | 2N4033 | 80 | |
| $-V_{CEO}$ | Collector-Emitter Voltage $I_B = 0$ | 2N4030 | 60 | V |
| | | 2N4031 | 80 | |
| | | 2N4032 | 60 | |
| | | 2N4033 | 80 | |
| $-V_{EBO}$ | Emitter-Base Voltage $I_C = 0$ | 2N4030 | 5 | V |
| | | 2N4031 | | |
| | | 2N4032 | | |
| | | 2N4033 | | |
| $-I_C$ | Collector Current | 2N4030 | 1 | A |
| | | 2N4031 | | |
| | | 2N4032 | | |
| | | 2N4033 | | |
| P_{tot} | | @ $T_{case} = < 25^\circ$ | 4 | Watts |
| | | @ $T_{amb} = < 25^\circ$ | 0.8 | |
| T_J | Junction Temperature | 200 | $^\circ C$ | |
| T_{Stg} | Storage Temperature range | -65 to +200 | $^\circ C$ | |

THERMAL CHARACTERISTICS

| Symbol | Ratings | Value | Unit |
|---------------|--------------------------------------|-------|------|
| R_{thJ-c} | Thermal Resistance, Junction-case | 44 | K/ W |
| $R_{thJ-amb}$ | Thermal Resistance, Junction-ambient | 218 | K/ W |

PNP 2N4030 – 2N4031 – 2N4032 – 2N4033

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

| Symbol | Ratings | Test Condition(s) | Min | Typ | Mx | Unit | | | |
|--|---------------------------------------|--|------------------------------------|---|--------|------|----|----|---|
| -I_{CB0} | Collector – Cutoff Current | I _E = 0 ; V _{CB} = 50 V | 2N4030 | - | - | 50 | nA | | |
| | | I _E = 0 ; V _{CB} = 60 V | 2N4031 | - | - | - | - | | |
| | | I _E = 0 ; V _{amb} = 150°C | V _{CB} = 50 V | 2N4030 | - | - | 50 | μA | |
| | | | V _{CB} = 60 V | 2N4031 | - | - | - | - | |
| | | I _E = 0 ; V _{CB} = 50 V | 2N4032 | - | - | 50 | nA | | |
| | | I _E = 0 ; V _{CB} = 60 V | 2N4033 | - | - | - | - | | |
| -I_{CB0} | Collector – Cutoff Current | I _E = 0 ; V _{amb} = 150°C | V _{CB} = 50 V | 2N4032 | - | - | 50 | μA | |
| | | | V _{CB} = 60 V | 2N4033 | - | - | - | - | |
| | | -V_{CB0} | Collector – Base Breakdown Voltage | -I _C = 10 μA I _E = 0 | 2N4030 | 60 | - | - | V |
| | | | | | 2N4031 | 80 | - | - | |
| | | | | | 2N4032 | 60 | - | - | |
| | | | | | 2N4033 | 80 | - | - | |
| -V_{CE0} (*) | Collector – Emitter Breakdown Voltage | -I _C = 10 mA I _B = 0 | 2N4030 | 60 | - | - | V | | |
| | | | 2N4031 | 80 | - | - | | | |
| | | | 2N4032 | 60 | - | - | | | |
| | | | 2N4033 | 80 | - | - | | | |
| -V_{EB0} | Emitter – Base Breakdown Voltage | -I _E = 10 μA I _C = 0 | 2N4030 | 5 | - | - | V | | |
| | | | 2N4031 | | | | | | |
| | | | 2N4032 | | | | | | |
| | | | 2N4033 | | | | | | |
| -V_{CE(SAT)} (*) | Collector-Emitter Saturation Voltage | -I _C = 150 mA , -I _B = 15 mA | 2N4030 | - | - | 0.15 | V | | |
| | | -I _C = 500 mA , -I _B = 50 mA | 2N4031 | - | - | 0.5 | | | |
| | | -I _C = 1 A , -I _B = 100 mA | 2N4030 | - | - | 1 | | | |
| | | | 2N4032 | - | - | - | | | |
| -V_{BE} (*) | Base-Emitter Saturation Voltage | -I _C = 150 mA , -I _B = 15 mA | 2N4030 | - | - | 0.9 | V | | |
| | | -I _C = 500 mA , -I _B = 50 mA | 2N4031 | - | - | 1.1 | | | |
| | | -I _C = 1 A , -I _B = 100 mA | 2N4030 | - | - | 1.2 | | | |
| | | | 2N4032 | - | - | - | | | |
| h_{FE} (*) | DC Current Gain | -I _C = 100 μA , -V _{CE} = 5 V | 2N4030 | 30 | - | - | - | | |
| | | | 2N4031 | | | | | | |
| | | | 2N4032 | | | | | | |
| | | | 2N4033 | | | | | | |
| | | -I _C = 100 mA , -V _{CE} = 5V | 2N4030 | 40 | - | 120 | | | |
| | | | 2N4031 | | | | | | |
| | | | 2N4032 | | | | | | |
| | | | 2N4033 | | | | | | |
| | | -I _C = 500 mA , -V _{CE} = 5V | 2N4030 | 25 | - | - | | | |
| | | | 2N4031 | | | | | | |
| | | | 2N4032 | | | | | | |
| | | | 2N4033 | | | | | | |
| | | -I _C = 1 A , -V _{CE} = 5 V | 2N4030 | 15 | - | - | | | |
| | | | 2N4031 | | | | | | |
| | | | 2N4032 | | | | | | |
| | | | 2N4033 | | | | | | |
| -I _C = 100 mA , -V _{CE} = 5V T _{amb} = -55°C | 2N4030 | 15 | - | - | | | | | |
| | 2N4031 | | | | | | | | |
| | 2N4032 | | | | | | | | |
| | 2N4033 | | | | | | | | |

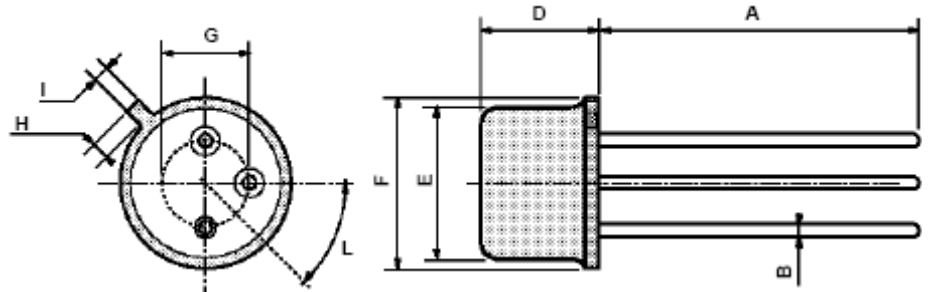
PNP 2N4030 – 2N4031 – 2N4032 – 2N4033

| Symbol | Ratings | Test Condition(s) | Min | Typ | Mix | Unit | |
|-----------|------------------------------|---|--------|-----|-----|------|-----|
| f_T | Transition Frequency | $-I_C = 50 \text{ mA}$, $-V_{CE} = 10 \text{ V}$ $f = 100 \text{ MHz}$ | 2N4030 | 100 | - | 400 | MHz |
| | | | 2N4031 | | | | |
| | | | 2N4032 | 150 | - | 500 | |
| | | | 2N4033 | | | | |
| C_{EBO} | Emitter – base Capacitance | $I_C = 0$; $-V_{EB} = 0.5 \text{ V}$ $f = 1 \text{ MHz}$ | - | - | 110 | pF | |
| C_{CBO} | Collector – base Capacitance | $I_E = 0$; $-V_{CB} = 10 \text{ V}$ $f = 1 \text{ MHz}$ | - | - | 20 | pF | |
| t_s | Storage times | $-I_C = 500 \text{ Ma}$; $-V_{CC} = 30 \text{ V}$ $-I_{B1} = -I_{B1} = 50 \text{ mA}$ | - | - | 350 | ns | |
| t_f | Fall times | $-I_C = 500 \text{ Ma}$; $-V_{CC} = 30 \text{ V}$ $-I_{B1} = -I_{B1} = 50 \text{ mA}$ | - | - | 50 | ns | |
| t_{on} | Turn-on times | $-I_C = 500 \text{ Ma}$; $-V_{CC} = 30 \text{ V}$ $-I_{B1} = -I_{B1} = 50 \text{ mA}$ | - | - | 100 | ns | |

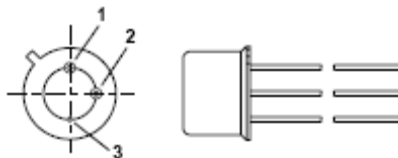
(*) Pulsed : pulse duration = 300 μ s, duty cycle = 1%

MECHANICAL DATA CASE TO-39

| DIMENSIONS (mm) | | | |
|-----------------|------|-----|------|
| | min | typ | max |
| A | 12.7 | - | - |
| B | - | - | 0.49 |
| D | - | - | 6.6 |
| E | - | - | 8.5 |
| F | - | - | 9.4 |
| G | 5.08 | - | - |
| H | - | - | 1.2 |
| I | - | - | 0.9 |
| L | 45° | - | - |



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



Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.

Data are subject to change without notice.