

PNP 2N6050 – 2N6051 – 2N6052

POWER COMPLEMENTARY SILICON TRANSISTORS

The 2N6050, 2N6051 and 2N6052 are silicon epitaxial-base transistors in monolithic Darlington configuration mounted in Jedec TO-3 metal case.

They are intended for use in power linear and low frequency switching applications.

The complementary NPN types are 2N6057, 2N6058 and 2N6059 respectively.

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings | | Value | Unit | |
|-----------|---------------------------|--------------------|-------------|------|---|
| V_{CBO} | Collector-Base Voltage | $I_E=0$ | 2N6050 | -60 | V |
| | | | 2N6051 | -80 | |
| | | | 2N6052 | -100 | |
| V_{CEO} | Collector-Emitter Voltage | $I_B=0$ | 2N6050 | -60 | V |
| | | | 2N6051 | -80 | |
| | | | 2N6052 | -100 | |
| V_{CEX} | Collector-Emitter Voltage | $V_{BE}= 1.5 V$ | 2N6050 | -60 | V |
| | | | 2N6051 | -80 | |
| | | | 2N6052 | -100 | |
| V_{EBO} | Emitter-Base Voltage | $I_C=0$ | -5.0 | V | |
| I_C | Collector Current | | -12 | A | |
| I_{CM} | Collector Peak Current | | -20 | A | |
| I_B | Base Current | | -200 | mA | |
| P_T | Power Dissipation | @ $T_C < 25^\circ$ | 150 | W | |
| T_J | Junction Temperature | | 200 | °C | |
| T_s | Storage Temperature | | -65 to +200 | | |

THERMAL CHARACTERISTICS

| Symbol | Ratings | Value | Unit |
|-------------|--------------------------------------|-------|------|
| R_{thJ-C} | Thermal Resistance, Junction to Case | 1.17 | °C/W |

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

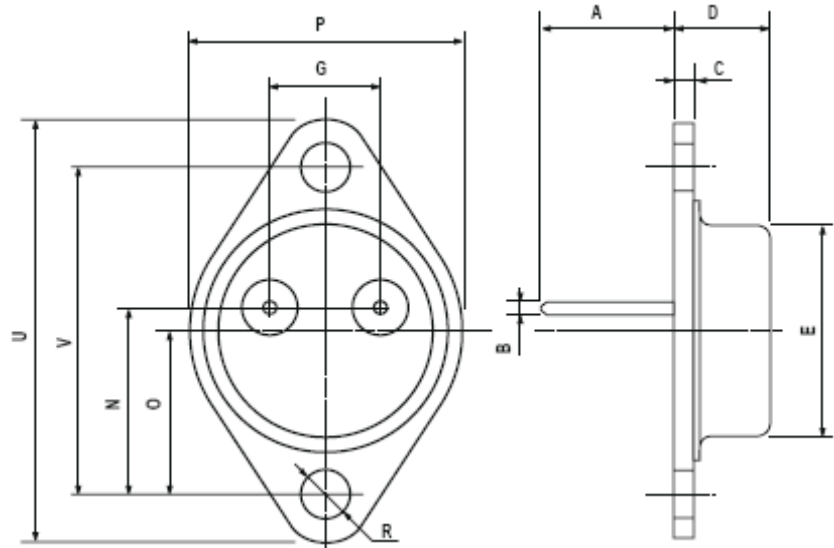
| Symbol | Ratings | Test Condition(s) | Min | Typ | MAx | Unit | |
|----------------|--|--|--------|------|-----|-------|---------------|
| I_{CEX} | Collector Cutoff Current | $V_{CE} = V_{CEX} = -60\text{ V}, V_{BE} = 1.5\text{ V}$ | 2N6050 | - | - | -500 | μA |
| | | $V_{CE} = V_{CEX} = -80\text{ V}, V_{BE} = 1.5\text{ V}$ | 2N6051 | - | - | | |
| | | $V_{CE} = V_{CEX} = -100\text{ V}, V_{BE} = 1.5\text{ V}$ | 2N6052 | - | - | | |
| | | $V_{CE} = V_{CEX} = -60\text{ V}, V_{BE} = 1.5\text{ V}, T_C = 150^\circ\text{C}$ | 2N6050 | - | - | -5 | mA |
| | | $V_{CE} = V_{CEX} = -80\text{ V}, V_{BE} = 1.5\text{ V}, T_C = 150^\circ\text{C}$ | 2N6051 | - | - | | |
| | | $V_{CE} = V_{CEX} = -100\text{ V}, V_{BE} = 1.5\text{ V}, T_C = 150^\circ\text{C}$ | 2N6052 | - | - | | |
| I_{CEO} | Collector Cutoff Current | $V_{CE} = -30\text{ Vdc}, I_B = 0$ | 2N6050 | - | - | -1.0 | mA |
| | | $V_{CE} = -40\text{ Vdc}, I_B = 0$ | 2N6051 | - | - | | |
| | | $V_{CE} = -50\text{ Vdc}, I_B = 0$ | 2N6052 | - | - | | |
| I_{EBO} | Emitter Cutoff Current | $V_{EB} = -5\text{ V}$ | 2N6050 | - | - | -2.0 | mA |
| | | | 2N6051 | - | - | | |
| | | | 2N6052 | - | - | | |
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage (*) | $I_C = -0.1\text{ A}$ | 2N6050 | -60 | - | - | V |
| | | | 2N6051 | -80 | - | | |
| | | | 2N6052 | -100 | - | | |
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) | $I_C = -6\text{ A}, I_B = -24\text{ mA}$ | 2N6050 | - | - | -2.0 | V |
| | | | 2N6051 | - | - | | |
| | | | 2N6052 | - | - | | |
| | | $I_C = -12\text{ A}, I_B = -120\text{ mA}$ | 2N6050 | - | - | -3.0 | V |
| | | | 2N6051 | - | - | | |
| | | | 2N6052 | - | - | | |
| $V_{BE(SAT)}$ | Base-Emitter Saturation Voltage (*) | $I_C = -12\text{ A}, I_B = -120\text{ mA}$ | 2N6050 | - | - | -4 | V |
| | | | 2N6051 | - | - | | |
| | | | 2N6052 | - | - | | |
| $V_{BE(ON)}$ | Base-Emitter Voltage (*) | $I_C = -6\text{ A}, V_{CE} = -3\text{ V}$ | 2N6050 | - | - | -2.8 | V |
| | | | 2N6051 | - | - | | |
| | | | 2N6052 | - | - | | |
| f_T | Transition Frequency | $I_C = -5\text{ A}, V_{CE} = -3\text{ V}, f = 1\text{ MHz}$ | 2N6050 | 4 | - | - | MHz |
| | | | 2N6051 | | | | |
| | | | 2N6052 | | | | |
| h_{FE} | DC Current Gain (*) | $V_{CE} = -3\text{ V}, I_C = -6.0\text{ A}$ | 2N6050 | 750 | - | 18000 | - |
| | | | 2N6051 | | | | |
| | | | 2N6052 | | | | |
| | | $V_{CE} = -3.0\text{ V}, I_C = -12\text{ A}$ | 2N6050 | 100 | - | - | - |
| | | | 2N6051 | | | | |
| | | | 2N6052 | | | | |

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

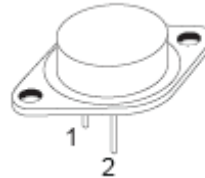
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MECHANICAL DATA CASE TO-3

| DIMENSIONS (mm) | | |
|-----------------|-------|-------|
| | min | max |
| A | 11 | 13.10 |
| B | 0.97 | 1.15 |
| C | 1.5 | 1.65 |
| D | 8.32 | 8.92 |
| F | 19 | 20 |
| G | 10.70 | 11.1 |
| N | 16.50 | 17.20 |
| P | 25 | 26 |
| R | 4 | 4.09 |
| U | 38.50 | 39.30 |
| V | 30 | 30.30 |



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



Revised September 2012

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