

PNP 2N3789 – 2N3790 – 2N3791 – 2N3792

EPITAXIAL-BASE TRANSISTORS

The 2N3789, 2N3790, 2N3791 and 2N3792 are silicon epitaxial-base PNP power transistor in Jedec TO-3 metal case. They are intended for use in power linear and switching applications. The 2N3713, 2N3714, 2N3715 and 2N3716 complementary NPN types are respectively. Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings | | Value | Unit |
|-----------|---------------------------|--------------------|-------------|------------------|
| V_{CBO} | Collector-Base Voltage | $I_E = 0$ | 2N3789 | V |
| | | | 2N3791 | |
| | | | 2N3790 | |
| | | | 2N3792 | |
| V_{CEO} | Collector-Emitter Voltage | $I_B = 0$ | 2N3789 | V |
| | | | 2N3791 | |
| | | | 2N3790 | |
| | | | 2N3792 | |
| V_{EBO} | Emitter-Base Voltage | $I_C = 0$ | -7 | V |
| I_C | Collector Current | | -10 | A |
| I_B | Base Current | | -4 | A |
| P_D | Total Device Dissipation | @ $T_C = 25^\circ$ | 150 | W |
| T_J | Junction Temperature | | -65 to +200 | $^\circ\text{C}$ |
| T_S | Storage Temperature | | | |

THERMAL CHARACTERISTICS

| Symbol | Ratings | Value | Unit |
|------------|--|-------|------------------------------|
| R_{thJC} | Thermal Resistance, Junction to Case (Max) | | 1.17 $^\circ\text{C/W}$ |

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

| Symbol | Ratings | Test Condition(s) | Min | Typ | Max | Unit | |
|----------------|---|---|--------|-----|-----|------|----|
| $V_{CEO(BR)}$ | Collector-Emitter Breakdown Voltage | $I_C=-200\text{ mA}, I_B=0\text{ (*)}$ | 2N3789 | -60 | - | - | V |
| | | | 2N3791 | | | | |
| | | | 2N3790 | -80 | - | - | |
| | | | 2N3792 | | | | |
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage (*) | $I_C=-200\text{ mA}, I_B=0\text{ (*)}$ | 2N3789 | -60 | - | - | V |
| | | | 2N3791 | | | | |
| | | | 2N3790 | -80 | - | - | |
| | | | 2N3792 | | | | |
| I_{CEO} | Collector-Emitter Current | $V_{CE}=-30\text{ V}, I_B=0$ | 2N3789 | - | - | -0.7 | mA |
| | | | 2N3791 | | | | |
| | | $V_{CE}=-40\text{ V}, I_B=0$ | 2N3790 | - | - | -0.7 | |
| | | | 2N3792 | | | | |
| I_{CEV} | Collector Cutoff Current | $V_{CE}=-80\text{ V}, V_{EB}=1.5\text{ V}$ | 2N3789 | - | - | -1 | mA |
| | | | 2N3791 | | | | |
| | | $V_{CE}=-100\text{ V}, V_{EB}=1.5\text{ V}$ | 2N3790 | - | - | -1 | |
| | | | 2N3792 | | | | |
| | | $V_{CE}=-60\text{ V}, V_{EB}=1.5\text{ V}$ $T_C = 150^\circ\text{C}$ | 2N3789 | - | - | -10 | |
| | | | 2N3791 | | | | |
| | | $V_{CE}=-80\text{ V}, V_{EB}=1.5\text{ V}$ $T_C = 150^\circ\text{C}$ | 2N3790 | - | - | -10 | |
| | | | 2N3792 | | | | |
| I_{EBO} | Emitter Cutoff Current | $V_{BE}=-7\text{ V}, I_C=0$ | 2N3713 | - | - | -5 | mA |
| | | | 2N3714 | | | | |
| | | | 2N3715 | | | | |
| | | | 2N3716 | | | | |
| h_{FE} | DC Current Gain (*) (**) | $I_C=-1\text{ A}, V_{CE}=-2\text{ V}$ | 2N3789 | 25 | - | 90 | - |
| | | | 2N3790 | | | | |
| | | | 2N3791 | 50 | - | 150 | |
| | | | 2N3792 | | | | |
| | | $I_C=-3\text{ A}, V_{CE}=-2\text{ V}$ | 2N3789 | 15 | - | - | |
| | | | 2N3790 | | | | |
| | | | 2N3791 | 30 | - | - | |
| | | | 2N3792 | | | | |
| | | $I_C=-10\text{ A}, V_{CE}=-4\text{ V}$ | 2N3789 | 5 | - | - | |
| | | | 2N3790 | | | | |
| | | | 2N3791 | | | | |
| | | | 2N3792 | | | | |
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) (**) | $I_C=-5\text{ A}, I_B=-0.5\text{ A}$ | 2N3791 | - | - | -1 | V |
| | | | 2N3792 | | | | |

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

| Symbol | Ratings | Test Condition(s) | Min | Typ | Max | Unit | |
|---------------|--|--|--------|-----|-----|------|---|
| $V_{BE(SAT)}$ | Base-Emitter saturation Voltage (*) (**) | $I_C=-5\text{ A}, I_B=-0.5\text{ A}$ | 2N3789 | - | - | -2 | V |
| | | | 2N3790 | - | - | -1.5 | |
| | | | 2N3791 | - | - | -1.5 | |
| | | | 2N3792 | - | - | -1.5 | |
| V_{BE} | Base-Emitter Voltage (*) (**) | $I_C=-3\text{ A}, V_{CE}=-2\text{ V}$ | 2N3789 | - | - | -1.5 | V |
| | | | 2N3790 | - | - | -1.5 | |
| h_{fe} | Small Signal Current Gain | $V_{CE}=-10\text{ V}, I_C=-0.5\text{ A}$ $f=1.0\text{ kHz}$ | 2N3789 | 25 | - | 250 | - |
| | | | 2N3790 | | | | |
| | | | 2N3791 | | | | |
| | | | 2N3792 | | | | |
| | | $V_{CE}=-10\text{ V}, I_C=-0.5\text{ A}$ $f=1.0\text{ MHz}$ | 2N3789 | 4 | - | 4 | - |
| | | | 2N3790 | | | | |
| | | | 2N3791 | | | | |
| | | | 2N3792 | | | | |

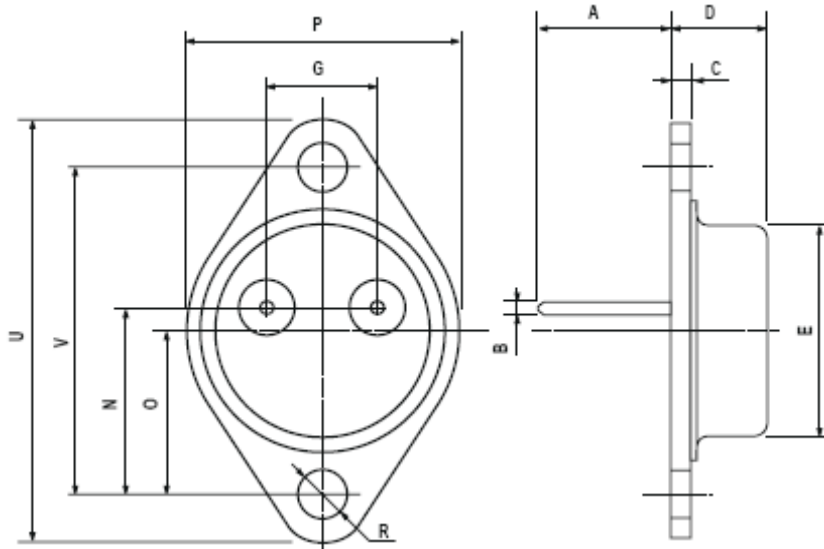
(*) Pulse Width $\approx 300\ \mu\text{s}$, Duty Cycle $\angle 2.0\%$

(**) These parameters are measured with voltage sensing contacts separate from the current carrying contacts

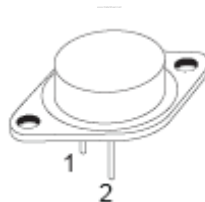
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MECHANICAL DATA CASE TO-3

| 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 |



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