

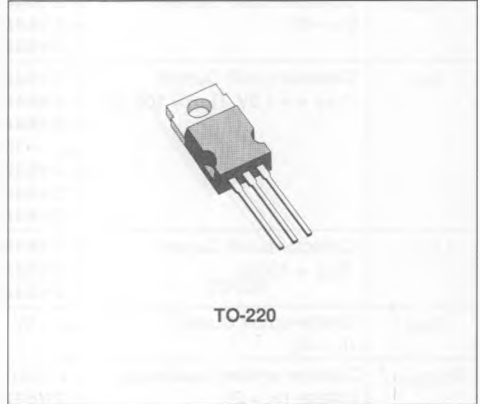
POWER LINEAR AND SWITCHING APPLICATIONS

DESCRIPTION

The 2N6486, 2N6487 and 2N6488 are silicon epitaxial-base NPN transistors mounted in Jedec TO-220 plastic package.

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

The complementary PNP types are the 2N6489, 2N6490 and 2N6491 respectively.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | NPN PNP* | | | Unit |
|-----------|---|------------------|------------------|------------------|------------|
| | | 2N6486 2N6489 | 2N6487 2N6490 | 2N6488 2N6491 | |
| V_{CBO} | Collector-base Voltage ($I_E = 0$) | 50 | 70 | 90 | V |
| V_{CEX} | Collector-base Voltage ($V_{BE} = 1.5V$; $R_{BE} = 100\Omega$) | 50 | 70 | 90 | V |
| V_{CEO} | Collector-base Voltage ($I_B = 0$) | 40 | 60 | 80 | V |
| V_{EBO} | Emitter-base Voltage ($I_C = 0$) | 5 | | | V |
| I_C | Collector Current | 15 | | | A |
| I_B | Base-current | 5 | | | A |
| P_{Tot} | Total Power Dissipation at $T_{case} \leq 25^\circ C$ $T_{case} \leq 25^\circ C$ | 75 | | | W |
| | | 1.8 | | | W |
| T_{stg} | Storage Temperature | - 65 to 150 | | | $^\circ C$ |
| T_j | Junction Temperature | 150 | | | $^\circ C$ |

* For NPN types voltage and current values are negative.

THERMAL DATA

| | | | | |
|------------------|-------------------------------------|-----|------|------|
| $R_{th(j-case)}$ | Thermal Resistance Junction-case | Max | 1.67 | °C/W |
| $R_{th(j-amb)}$ | Thermal Resistance Junction-ambient | Max | 70 | °C/W |

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------|--|---|----------------|------|----------------------------------|----------------------------------|
| I_{CEO} | Collector-cutoff Current ($I_B = 0$) | for 2N6486/89 $V_{CE} = 20V$ for 2N6487/90 $V_{CE} = 30V$ for 2N6488/91 $V_{CE} = 40V$ | | | 1 1 1 | mA mA mA |
| I_{CEX} | Collector-cutoff Current ($V_{BE} = -1.5V$, $R_{BE} = 100\Omega$) | for 2N6486/89 $V_{CE} = 45V$ for 2N6487/90 $V_{CE} = 65V$ for 2N6488/91 $V_{CE} = 85V$ $T_{case} = 150^{\circ}C$ for 2N6486/89 $V_{CE} = 40V$ for 2N6487/90 $V_{CE} = 60V$ for 2N6488/91 $V_{CE} = 80V$ | | | 0.5 0.5 0.5 5 5 5 | mA mA mA mA mA mA |
| I_{CER} | Collector-cutoff Current ($R_{BE} = 100\Omega$) | for 2N6486/89 $V_{CE} = 35V$ for 2N6487/90 $V_{CE} = 55V$ for 2N6488/91 $V_{CE} = 75V$ | | | 0.5 0.5 0.5 | mA mA mA |
| I_{EBO} | Emitter-cutoff Current ($I_C = 0$) | $V_{EB} = 5V$ | | | 1 | mA |
| $V_{CEO(sus)}^*$ | Collector-emitter Sustaining Voltage ($I_B = 0$) | $I_C = 200mA$ for 2N6486/89 for 2N6487/90 for 2N6488/91 | 40 60 80 | | | V V V |
| $V_{CER(sus)}^*$ | Collector-emitter Sustaining Voltage ($R_{BE} = 100\Omega$) | $I_C = 200mA$ for 2N6486/89 for 2N6487/90 for 2N6488/91 | 45 65 85 | | | V V V |
| $V_{CEX(sus)}^*$ | Collector-emitter Sustaining Voltage ($V_{BE} = -1.5V$, $R_{BE} = 100\Omega$) | $I_C = 200mA$ for 2N6486/89 for 2N6487/90 for 2N6488/91 | 50 70 90 | | | V V V |
| $V_{CE(sat)}^*$ | Collector-emitter Saturation Voltage | $I_C = 5A$ $I_B = 0.5A$ $I_C = 15A$ $I_B = 5A$ | | | 1.3 3.5 | V V |
| V_{BE}^* | Base-emitter Voltage | $I_C = 5A$ $V_{CE} = 4V$ $I_C = 15A$ $V_{CE} = 4V$ | | | 1.3 3.5 | V V |
| h_{FE}^* | DC Current Gain | $I_C = 5A$ $V_{CE} = 4V$ $I_C = 15A$ $V_{CE} = 4V$ | 20 5 | | 150 | |
| h_{ie} | Small Signal Current Gain | $I_C = 1A$ $V_{CE} = 4V$ $f = 1MHz$ $I_C = 1A$ $V_{CE} = 4V$ $f = 1KHz$ | 5 25 | | | |

* Pulsed : pulse duration = 300us, duty cycle $\leq 2\%$.
For PNP types voltage and current values are negative.