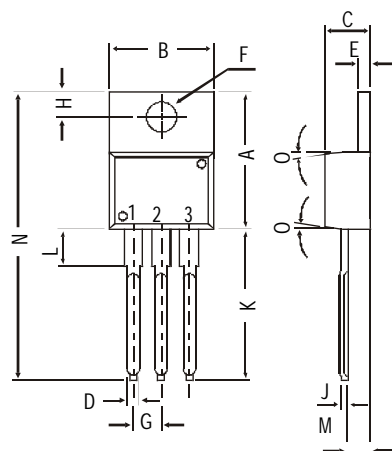
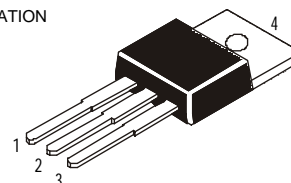


TO-220 Plastic Package

2N6486, 2N6487, 2N6488
2N6489, 2N6490, 2N6491

2N6486, 6487, 6488 NPN PLASTIC POWER TRANSISTORS
2N6489, 6490, 6491 PNP PLASTIC POWER TRANSISTORS
General Purpose Amplifier and Switching Applications

PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR



| DIM | MIN. | MAX. |
|-----|-------|-------|
| A | 14.42 | 16.51 |
| B | 9.63 | 10.67 |
| C | 3.56 | 4.83 |
| D | | 0.90 |
| E | 1.15 | 1.40 |
| F | 3.75 | 3.88 |
| G | 2.29 | 2.79 |
| H | 2.54 | 3.43 |
| J | | 0.56 |
| K | 12.70 | 14.73 |
| L | 2.80 | 4.07 |
| M | 2.03 | 2.92 |
| N | | 31.24 |
| O | | DEG 7 |

All dimensions in mm.

ABSOLUTE MAXIMUM RATINGS

| | | 6486 | 6487 | 6488 | |
|--|------------------|-------------|-------------|-------------|------------|
| | | 6489 | 6490 | 6491 | |
| Collector-base voltage (open emitter) | V_{CBO} max. | 50 | 70 | 90 | V |
| Collector-emitter voltage (open base) | V_{CEO} max. | 40 | 60 | 80 | V |
| Collector current | I_C max. | | 15 | | A |
| Total power dissipation up to $T_C = 25^\circ C$ | P_{tot} max. | | 75 | | W |
| Junction temperature | T_j max. | | 150 | | $^\circ C$ |
| Collector-emitter saturation voltage $I_C = 5 A; I_B = 0.5 A$ | V_{CEsat} max. | | 1.3 | | V |
| D.C. current gain $I_C = 5 A; V_{CE} = 4 V$ | h_{FE} min. | | 20 | | |
| | | | 150 | | |

RATINGS (at $T_A=25^\circ C$ unless otherwise specified)

| Limiting values | | 6486 | 6487 | 6488 | |
|---------------------------------------|----------------|-------------|-------------|-------------|---|
| | | 6489 | 6490 | 6491 | |
| Collector-base voltage (open emitter) | V_{CBO} max. | 50 | 70 | 90 | V |
| Collector-emitter voltage (open base) | V_{CEO} max. | 40 | 60 | 80 | V |
| Emitter-base voltage (open collector) | V_{EBO} max. | | 5.0 | | V |

**2N6486, 2N6487, 2N6488
2N6489, 2N6490, 2N6491**

| | | | | |
|--|-----------|------|-------------|--------------------------|
| Collector current | I_C | max. | 15 | A |
| Base current | I_B | max. | 5.0 | A |
| Total power dissipation up to $T_C = 25^\circ\text{C}$ | P_{tot} | max. | 75 | W |
| Derate above 25°C | | max. | 0.6 | W°C |
| Total power dissipation up to $T_A = 25^\circ\text{C}$ | P_{tot} | max. | 1.8 | W |
| Derate above 25°C | | max. | 0.014 | W°C |
| Junction temperature | T_j | max. | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | | -65 to +150 | $^\circ\text{C}$ |

THERMAL RESISTANCE

| | | | | |
|--------------------------|---------------|--|------|--------------------|
| From junction to ambient | $R_{th\ j-a}$ | | 70 | $^\circ\text{C/W}$ |
| From junction to case | $R_{th\ j-c}$ | | 1.67 | $^\circ\text{C/W}$ |

CHARACTERISTICS

$T_{amb} = 25^\circ\text{C}$ unless otherwise specified

**6486 6487 6488
6489 6490 6491**

| | | | | |
|---|------------------|------|----------|---------------|
| Collector cutoff current | | | | |
| $I_B = 0; V_{CE} = 20\text{ V}$ | I_{CEO} | max. | 1.0 | mA |
| $I_B = 0; V_{CE} = 30\text{ V}$ | I_{CEO} | max. | - 1.0 | mA |
| $I_B = 0; V_{CE} = 40\text{ V}$ | I_{CEO} | max. | - - 1.0 | mA |
| $V_{EB(off)} = 1.5\text{ V}; V_{CE} = 45\text{ V}$ | I_{CEX} | max. | 500 | μA |
| $V_{EB(off)} = 1.5\text{ V}; V_{CE} = 65\text{ V}$ | I_{CEX} | max. | - 500 | μA |
| $V_{EB(off)} = 1.5\text{ V}; V_{CE} = 85\text{ V}$ | I_{CEX} | max. | - - 500 | μA |
| $V_{EB(off)} = 1.5\text{ V}; V_{CE} = 40\text{ V}; T_C = 150^\circ\text{C}$ | I_{CEX} | max. | 5.0 | mA |
| $V_{EB(off)} = 1.5\text{ V}; V_{CE} = 60\text{ V}; T_C = 150^\circ\text{C}$ | I_{CEX} | max. | - 5.0 | mA |
| $V_{EB(off)} = 1.5\text{ V}; V_{CE} = 80\text{ V}; T_C = 150^\circ\text{C}$ | I_{CEX} | max. | - - 5.0 | mA |
| Emitter cut-off current | | | | |
| $I_C = 0; V_{EB} = 5\text{ V}$ | I_{EBO} | max. | 1.0 | mA |
| Breakdown voltages | | | | |
| $I_C = 200\text{ mA}; I_B = 0$ | $V_{CEO(sus)}^*$ | min. | 40 60 80 | V |
| $I_C = 1\text{ mA}; I_E = 0$ | V_{CBO} | min. | 50 70 90 | V |
| $I_C = 200\text{ mA}; V_{BE} = 1.5\text{ V}$ | $V_{CEX(sus)}^*$ | min. | 50 70 90 | V |
| $I_E = 1\text{ mA}; I_C = 0$ | V_{EBO} | min. | 5.0 | V |
| Saturation voltages | | | | |
| $I_C = 5\text{ A}; I_B = 0.5\text{ A}$ | V_{CEsat}^* | max. | 1.3 | V |
| $I_C = 15\text{ A}; I_B = 5\text{ A}$ | V_{CEsat}^* | max. | 3.5 | V |
| Base-emitter on voltage | | | | |
| $I_C = 5\text{ A}; V_{CE} = 4\text{ V}$ | $V_{BE(on)}^*$ | max. | 1.3 | V |
| $I_C = 15\text{ A}; V_{CE} = 4\text{ V}$ | $V_{BE(on)}^*$ | max. | 3.5 | V |
| D.C. current gain | | | | |
| $I_C = 5\text{ A}; V_{CE} = 4\text{ V}$ | h_{FE}^* | min. | 20 | |
| | | max. | 150 | |
| $I_C = 15\text{ A}; V_{CE} = 4\text{ V}$ | h_{FE}^* | min. | 5.0 | |
| Transition frequency | | | | |
| $I_C = 1\text{ A}; V_{CE} = 4\text{ V}; f = 1\text{ MHz}$ | $f_{T(1)}$ | min. | 5.0 | MHz |
| Small signal current gain | | | | |
| $I_C = 1.0\text{ A}; V_{CE} = 4\text{ V}; f = 1.0\text{ KHz}$ | h_{fe} | min. | 25 | |

* Pulse test: pulse width $\leq 300\ \mu\text{s}$; duty cycle $\leq 2\%$

(1) $f_T = |h_{FE}| \cdot f_{test}$