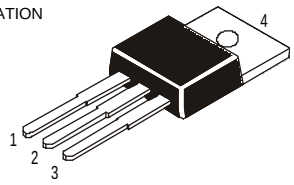
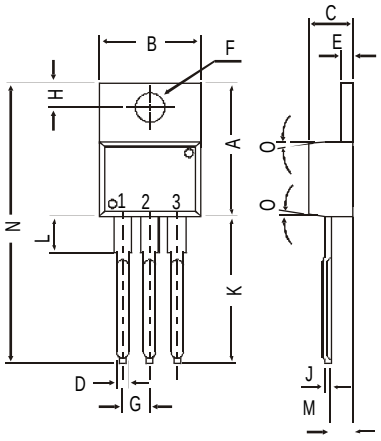
**TO-220 Plastic Package**

**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




All diminsions in mm.

| 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 | |

***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°C* | $P_{tot}$ | *max.* | | *75* | | *W* |
| *Junction temperature* | $T_j$ | *max.* | | *150* | | *°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* | | |
| | | *max.* | | *150* | | |

***RATINGS*** *(at $T_A$=25°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* |

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

***THERMAL RESISTANCE***

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

***CHARACTERISTICS***

*$T_{amb}$ = 25°C unless otherwise specified*

| | | | ***6486*** | ***6487*** | ***6488 6489 6490 6491*** | |
|---|---|---|---|---|---|---|
| *Collector cutoff current* | | | | | | |
| *$I_B$ = 0; $V_{CE}$ = 20 V* | $I_{CEO}$ | *max.* | *1.0* | *–* | *–* | *mA* |
| *$I_B$ = 0; $V_{CE}$ = 30 V* | $I_{CEO}$ | *max.* | *–* | *1.0* | *–* | *mA* |
| *$I_B$ = 0; $V_{CE}$ = 40 V* | $I_{CEO}$ | *max.* | *–* | *–* | *1.0* | *mA* |
| *$V_{EB(off)}$ = 1.5 V; $V_{CE}$ = 45 V* | $I_{CEX}$ | *max.* | *500* | *–* | *–* | *µA* |
| *$V_{EB(off)}$ = 1.5 V; $V_{CE}$ = 65 V* | $I_{CEX}$ | *max.* | *–* | *500* | *–* | *µA* |
| *$V_{EB(off)}$ = 1.5 V; $V_{CE}$ = 85 V* | $I_{CEX}$ | *max.* | *–* | *–* | *500* | *µA* |
| *$V_{EB(off)}$ = 1.5 V; $V_{CE}$ = 40 V; $T_C$=150°C* | $I_{CEX}$ | *max.* | *5.0* | *–* | *–* | *mA* |
| *$V_{EB(off)}$ = 1.5 V; $V_{CE}$ = 60 V; $T_C$=150°C* | $I_{CEX}$ | *max.* | *–* | *5.0* | *–* | *mA* |
| *$V_{EB(off)}$ = 1.5 V; $V_{CE}$ = 80 V; $T_C$=150°C* | $I_{CEX}$ | *max.* | *–* | *–* | *5.0* | *mA* |
| *Emitter cut-off current* | | | | | | |
| *$I_C$ = 0; $V_{EB}$ = 5 V* | $I_{EBO}$ | *max.* | | *1.0* | | *mA* |
| *Breakdown voltages* | | | | | | |
| *$I_C$ = 200 mA; $I_B$ = 0* | $V_{CEO(sus)}$* | *min.* | *40* | *60* | *80* | *V* |
| *$I_C$ = 1 mA; $I_E$ = 0* | $V_{CBO}$ | *min.* | *50* | *70* | *90* | *V* |
| *$I_C$ = 200 mA; $V_{BE}$ = 1.5 V* | $V_{CEX(sus)}$* | *min.* | *50* | *70* | *90* | *V* |
| *$I_E$ = 1 mA; $I_C$ = 0* | $V_{EBO}$ | *min.* | | *5.0* | | *V* |
| *Saturation voltages* | | | | | | |
| *$I_C$ = 5 A; $I_B$ = 0.5 A* | $V_{CEsat}$* | *max.* | | *1.3* | | *V* |
| *$I_C$ = 15 A; $I_B$ = 5 A* | $V_{CEsat}$* | *max.* | | *3.5* | | *V* |
| *Base-emitter on voltage* | | | | | | |
| *$I_C$ = 5 A; $V_{CE}$ = 4 V* | $V_{BE(on)}$* | *max.* | | *1.3* | | *V* |
| *$I_C$ = 15 A; $V_{CE}$ = 4 V* | $V_{BE(on)}$* | *max.* | | *3.5* | | *V* |
| *D.C. current gain* | | | | | | |
| *$I_C$ = 5 A; $V_{CE}$ = 4 V* | $h_{FE}$* | *min.* | | *20* | | |
| | | *max.* | | *150* | | |
| *$I_C$ = 15 A; $V_{CE}$ = 4 V* | $h_{FE}$* | *min.* | | *5.0* | | |
| *Transition frequency* | | | | | | |
| *$I_C$ = 1 A; $V_{CE}$ = 4 V; f = 1 MHz* | $f_{T(1)}$ | *min.* | | *5.0* | | *MHz* |
| *Small signal current gain* | | | | | | |
| *$I_C$ = 1.0A; $V_{CE}$ = 4V; f = 1.0 KHz* | $h_{fe}$ | *min.* | | *25* | | |

** Pulse test: pulse width ≤ 300 µs; duty cycle ≤ 2%*

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

## Notes

## Disclaimer

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