multicomp



SPC-F005.DWG

REVISIONS

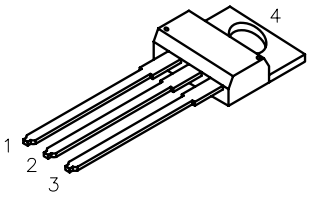
DOC. NO. SPC-F005 • Effective: 7/8/02 • DCP No: 1398

| DCP # | REV | DESCRIPTION | DRAWN | DATE | CHECKD | DATE | APPRVD | DATE |
|---|---|---|---|---|---|---|---|---|
| 1885 | A | RELEASED | EO | 02/03/06 | HO | 2/6/06 | JWM | 2/6/06 |

**Description:** Plastic NPN TO-220 silicon power transistor Is designed for various specific and general purpose applications such as output and driver stages of amplifiers operating at frequencies from DC to greater than 1.0MHz series shunt and switching regulators low and high frequency inverters/converters and many others.

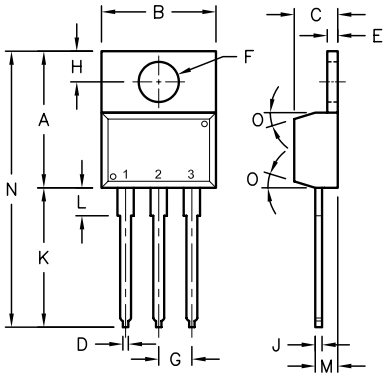
**Features:**
- Very low collector saturation voltage
- Excellent linearity
- Fast switching

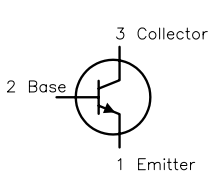
**Absolute Maximum Ratings:**
- Collector-Base Voltage, $V_{CES}$ = 80V
- Collector-Emitter Voltage, $V_{CEO}$ = 80V
- Emitter-Base Voltage, $V_{EBO}$ = 5V
- Continuous Collector Current, $I_C$ = 10A
- Base Current, $I_B$ = 2A
- Total Device Dissipation ($T_C$ = +25°C), $P_D$ = 50W
  Derate above 25°C = 0.4W/°C
- Operating Junction Temperature Range, $T_J$ = −55° to +150°C
- Storage Temperature Range, $T_{stg}$ = −55° to +150°C




RoHS Compliant

**Pin Configuration:**
1. Base
2. Collector
3. Emitter
4. Collector




| Dimensions | A | B | C | D | E | F | G | H | J | K | L | M | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min. | 14.42 | 9.63 | 3.65 | – | 1.15 | 3.75 | 2.29 | 2.54 | – | 12.70 | 2.80 | 2.03 | – | 7° |
| Max. | 16.51 | 10.67 | 4.83 | 0.90 | 1.40 | 3.88 | 2.79 | 3.43 | 0.56 | 14.73 | 4.07 | 2.92 | 31.24 | |

**Electrical Characteristics: ($T_A$ = +25°C unless otherwise specified)**

| Parameter | Symbol | Test Conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| OFF Characteristics | | | | | |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$ = 30mA, $I_B$ = 0 | 80 | – | V |
| Collector Cut-Off Current | $I_{CES}$ | $V_{CE}$ = 80V, $V_{BE}$ = 0 | – | 10 | µA |
| Emitter Cut-Off Current | $I_{EBO}$ | $V_{EB}$ = 5V, $I_C$ = 0 | – | 100 | µA |
| ON Characteristics | | | | | |
| DC Current Gain | $h_{FE}$ | $V_{CE}$ = 1V, $I_C$ = 2A, | 60 | – | – |
| | | $V_{CE}$ = 1V, $I_C$ = 4A | 40 | – | – |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$ = 8A, $I_B$ = 400mA | – | 1 | V |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$ = 8A, $I_B$ = 800mA | | 1.5 | V |
| Small-Signal Characteristics | | | | | |
| Current Gain-Bandwidth Product | $f_T$ | $V_{CE}$ = 10V, $I_C$ = 500mA, f = 0.5MHz | 15 | – | MHz |
| Output Capacitance | $C_{obo}$ | $V_{CB}$ = 10V, $I_E$ = 0, f = 1MHz | 220 | – | pF |
| Switching Characteristics | | | | | |
| Rise Time | $t_r$ | $I_C$ = 5A, $I_{B1}$ = $I_{B2}$ = 500mA | – | 0.5 | µA |
| Storage Time | $t_s$ | | – | 1 | |
| Fall Time | $t_f$ | | – | 0.5 | |



TOLERANCES:
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.

| | |
|---|---|
| DRAWN BY: | DATE: |
| EKLAS ODISH | 02/03/06 |
| CHECKED BY: | DATE: |
| HISHAM ODISH | 2/6/06 |
| APPROVED BY: | DATE: |
| JEFF MCVICKER | 2/6/06 |

DRAWING TITLE: Transistor, Bipolar, Plastic, TO-220, NPN

| SIZE | DWG. NO. | ELECTRONIC FILE | REV |
|---|---|---|---|
| A | D44H11 | 01H0545.DWG | A |

SCALE: NTS | U.O.M.: Millimeters | SHEET: 1 OF 1