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SPC-F005.DWG

REVISIONS

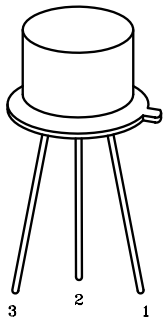
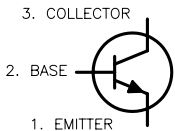
DOC. NO. SPC-F005 * Effective: 7/8/02 * DCP No: 1398

| DCP # | REV | DESCRIPTION | DRAWN | DATE | CHECKD | DATE | APPRVD | DATE |
|-------|-----|----------------------------|-------|----------|--------|---------|--------|---------|
| 1262 | A | RELEASED | HO | 12/5/02 | JWM | 12/5/02 | DJC | 12/5/02 |
| 1885 | B | UPDATED TO ROHS COMPLIANCE | EO | 02/03/06 | HO | 2/6/06 | HO | 2/6/06 |

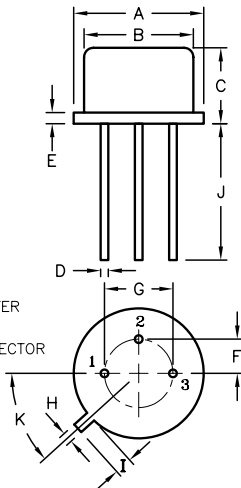
| Dimensions | A | B | C | D | E | F | G | H | I | J | K |
|------------|------|------|------|------|------|------|------|------|------|------|-----|
| Min. | 8.5 | 7.74 | 6.09 | 0.40 | - | 2.41 | 4.82 | 0.71 | 0.73 | 12.7 | 42' |
| Max. | 9.39 | 8.5 | 6.6 | 0.53 | 0.88 | 2.66 | 5.33 | 0.86 | 1.02 | - | 48' |



NPN



1. EMITTER
2. BASE
3. COLLECTOR



Description: A silicon NPN transistor in a TO-39 case intended for high voltage switching and linear amplifier applications.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|-----|-----|-----|---------------|
| OFF Characteristics | | | | | | |
| Collector-Emitter Sustaining Voltage | $V_{CE(sus)}$ | $I_C = 50\text{mA}, I_B = 0$, Note 1 | 250 | - | - | V |
| Collector Cutoff Current | I_{CEO} | $V_{CE} = 200\text{V}, I_B = 0$ | - | - | 50 | μA |
| | I_{CEX} | $V_{CE} = 300\text{V}, V_{BE} = -1.5\text{V}$ | - | - | 500 | μA |
| | I_{CBO} | $V_{CB} = 250\text{V}, I_E = 0$ | - | - | 20 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 6\text{V}, I_C = 0$ | - | - | 20 | μA |
| ON Characteristics (Note 1) | | | | | | |
| DC Current Gain | h_{FE} | $I_C = 20\text{mA}, V_{CE} = 10\text{V}$ | 40 | - | 160 | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 50\text{mA}, I_B = 4\text{mA}$ | - | - | 0.5 | V |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = 50\text{mA}, I_B = 4\text{mA}$ | - | - | 1.3 | V |
| Small-Signal Characteristics | | | | | | |
| Current Gain-Bandwidth Product | f_T | $I_C = 10\text{mA}, V_{CE} = 10\text{V}, f = 5\text{MHz}$ | 15 | - | - | MHz |
| Output Capacitance | C_{obo} | $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$ | - | - | 10 | pF |
| Input Capacitance | C_{ibo} | $V_{CB} = 5\text{V}, I_C = 0, f = 1\text{MHz}$ | - | - | 75 | pF |
| Small-Signal Current Gain | h_{fe} | $I_C = 5\text{mA}, V_{CE} = 10\text{V}, f = 1\text{kHz}$ | 25 | - | - | |
| Real Part of Input Impedance | $Re(h_{ie})$ | $V_{CE} = 10\text{V}, I_C = 5\text{mA}, f = 1\text{MHz}$ | - | - | 300 | Ohm |

Absolute Maximum Ratings:

- Collector-Emitter Voltage, $V_{CEO} = 250\text{V}$
- Collector-Base Voltage, $V_{CBO} = 300\text{V}$
- Emitter-Base Voltage, $V_{EBO} = 7\text{V}$
- Continuous Collector Current, $I_C = 1\text{A}$
- Base Current, $I_B = 500\text{mA}$
- Total Device Dissipation ($T_A = +25^\circ\text{C}$, Note 1), $P_D = 1\text{W}$
Derate above $25^\circ\text{C} = 5.7\text{mW}/^\circ\text{C}$
- Total Device Dissipation ($T_C = +25^\circ\text{C}$, Note 1), $P_D = 5\text{W}$
Derate above $25^\circ\text{C} = 28.6\text{mW}/^\circ\text{C}$
- Operating Junction Temperature Range, $T_J = -65^\circ\text{C} \sim +200^\circ\text{C}$
- Storage Temperature Range, $T_{stg} = -65^\circ\text{C} \sim +200^\circ\text{C}$
- Thermal Resistance, Junction-to-Case, $R_{thJC} = 35^\circ\text{C}/\text{W}$
- Thermal Resistance, Junction-to-Ambient, $R_{thJA} = 175^\circ\text{C}/\text{W}$

Note 1:

Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
CAUTION: The sustaining voltage must not be measured on a curve tracer.

DISCLAIMER:
ALL STATEMENTS AND TECHNICAL INFORMATION CONTAINED HEREIN ARE BASED UPON INFORMATION AND/OR TESTS WE BELIEVE TO BE ACCURATE AND RELIABLE. SINCE CONDITIONS OF USE ARE BEYOND OUR CONTROL, THE USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR THE INTENDED USE AND ASSUME ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH.

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

| | |
|---------------|---------|
| DRAWN BY: | DATE: |
| HISHAM ODISH | 12/5/02 |
| CHECKED BY: | DATE: |
| JEFF MCVICKER | 12/5/02 |
| APPROVED BY: | DATE: |
| DANIEL CAREY | 12/5/02 |

| | | | |
|---|----------|---------------------|---------------|
| DRAWING TITLE: Transistor, Bipolar, TO-39, Silicon, NPN | | | |
| SIZE | DWG. NO. | ELECTRONIC FILE | REV |
| A | 2N3440 | 35C0703.DWG | B |
| SCALE: | NTS | U.O.M.: Millimeters | SHEET: 1 OF 1 |