



Micro Commercial Components

Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

## TIP31/31A/31B/31C

### Features

- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- The complementary PNP types are the TIP32 respectively
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL Rating 1
- Marking : Part Number

#### Absolute Maximum Ratings @ $T_J = 25^\circ\text{C}$ (unless otherwise noted)

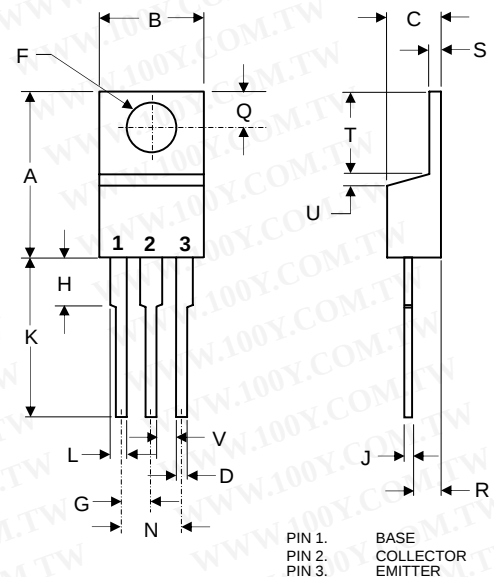
| Symbol                                           | Parameter                                          | Value                 | Unit             |
|--------------------------------------------------|----------------------------------------------------|-----------------------|------------------|
| $V_{CB0}$<br>TIP31<br>TIP31A<br>TIP31B<br>TIP31C | Collector-base voltage (Open emitter)              | 40<br>60<br>80<br>100 | V                |
| $V_{CE0}$<br>TIP31<br>TIP31A<br>TIP31B<br>TIP31C | Collector-emitter voltage (Open base)              | 40<br>60<br>80<br>100 | V                |
| $V_{EBO}$                                        | Emitter-base Voltage (Open collector)              | 5                     | V                |
| $I_C$                                            | Collector Current                                  | 3                     | A                |
| $I_{CM}$                                         | Collector Current Pulse                            | 5                     | A                |
| $I_B$                                            | Base Current                                       | 1                     | A                |
| $P_C$                                            | Total Device Dissipation( $T_a=25^\circ\text{C}$ ) | 2                     | W                |
|                                                  | Total Device Dissipation( $T_c=25^\circ\text{C}$ ) | 40                    | W                |
| $T_J$                                            | Junction Temperature                               | 150                   | $^\circ\text{C}$ |
| $T_{STG}$                                        | Storage Temperature Range                          | -65 to +150           | $^\circ\text{C}$ |

#### Electrical Characteristics @ $25^\circ\text{C}$ Unless Otherwise Specified

| Symbol                                               | Parameter                                                                                                                                                      | Min                   | Max | Units |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----|-------|
| $V_{CE(SUS)}$<br>TIP31<br>TIP31A<br>TIP31B<br>TIP31C | Collector-emitter sustaining voltage<br>( $I_C=30\text{mA}$ ; $I_B=0$ )                                                                                        | 40<br>60<br>80<br>100 |     | V     |
| $V_{CE(sat)}$                                        | Collector-emitter Saturation Voltage<br>( $I_C=3A$ ; $I_B=0.375A$ )                                                                                            |                       | 1.2 | V     |
| $V_{BE}$                                             | Base-emitter Voltage<br>( $I_C=3A$ ; $V_{CE}=4V$ )                                                                                                             |                       | 1.8 | V     |
| $I_{CES}$<br>TIP31<br>TIP31A<br>TIP31B<br>TIP31C     | Collector cut-off current<br>( $V_{CE}=40V$ ; $V_{EB}=0$ )<br>( $V_{CE}=60V$ ; $V_{EB}=0$ )<br>( $V_{CE}=80V$ ; $V_{EB}=0$ )<br>( $V_{CE}=100V$ ; $V_{EB}=0$ ) | 0.2                   |     | mA    |
| $I_{CEO}$<br>TIP31/31A<br>TIP31B/C                   | Collector cut-off current<br>( $V_{CE}=30V$ ; $V_{EB}=0$ )<br>( $V_{CE}=60V$ ; $V_{EB}=0$ )                                                                    | 0.3                   |     | mA    |
| $I_{EBO}$                                            | Emitter cut-off current<br>( $V_{EB}=5V$ ; $I_C=0$ )                                                                                                           |                       | 1.0 | mA    |
| $H_{fe}$                                             | DC current gain<br>( $I_C=1A$ ; $V_{CE}=4V$ )<br>( $I_C=3A$ ; $V_{CE}=4V$ )                                                                                    | 25<br>10              | 50  |       |
| $f_T$                                                | Transition frequency<br>( $I_C=0.5A$ ; $V_{CE}=10V$ )                                                                                                          | 3                     |     | MHZ   |

### Silicon NPN Power Transistors

#### TO-220AB



| DIMENSIONS |        |      |       |       |      |
|------------|--------|------|-------|-------|------|
| DIM        | INCHES |      | MM    |       | NOTE |
|            | MIN    | MAX  | MIN   | MAX   |      |
| A          | .560   | .625 | 14.22 | 15.88 |      |
| B          | .380   | .420 | 9.65  | 10.67 |      |
| C          | .140   | .190 | 3.56  | 4.82  |      |
| D          | .020   | .045 | 0.51  | 1.14  |      |
| F          | .139   | .161 | 3.53  | 4.09  | Ø    |
| G          | .190   | .110 | 2.29  | 2.79  |      |
| H          | ---    | .250 | ---   | 6.35  |      |
| J          | .012   | .025 | 0.30  | 0.64  |      |
| K          | .500   | .580 | 12.70 | 14.73 |      |
| L          | .045   | .060 | 1.14  | 1.52  |      |
| N          | .190   | .210 | 4.83  | 5.33  |      |
| Q          | .100   | .135 | 2.54  | 3.43  |      |
| R          | .080   | .115 | 2.04  | 2.92  |      |
| S          | .045   | .055 | 1.14  | 1.39  |      |
| T          | .230   | .270 | 5.84  | 6.86  |      |
| U          | ----   | .050 | ----  | 1.27  |      |
| V          | .045   | ---- | 1.15  | ----  |      |

Notes:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7.



Micro Commercial Components

勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-54151736  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

## Ordering Information

| Device           | Packing        |
|------------------|----------------|
| (Part Number)-BP | Bulk;1Kpcs/Box |

### \*\*\*IMPORTANT NOTICE\*\*\*

*Micro Commercial Components Corp.* reserve the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. *Micro Commercial Components Corp.* does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold *Micro Commercial Components Corp.* and all the companies whose products are represented on our website, harmless against all damages.

### \*\*\*APPLICATIONS DISCLAIMER\*\*\*

Products offer by *Micro Commercial Components Corp.* are not intended for use in Medical, Aerospace or Military Applications.

[www.mccsemi.com](http://www.mccsemi.com)