

**DESCRIPTION**

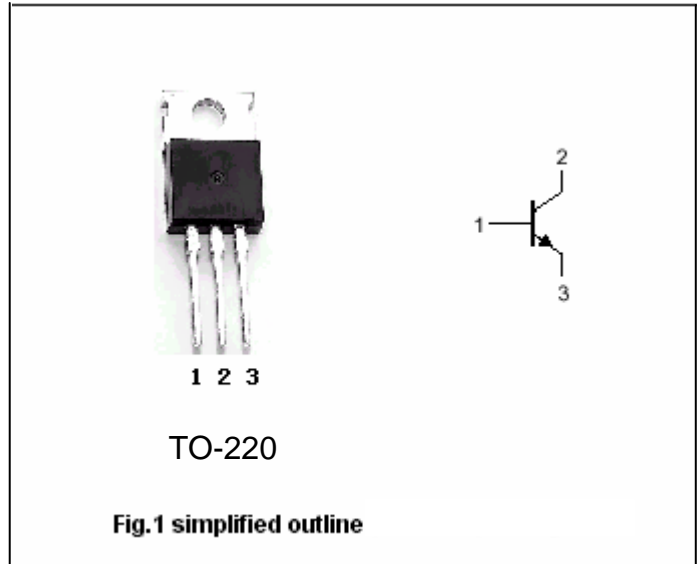
- With TO-220 package
- Complement to type TIP32/32A/32B/32C

**APPLICATIONS**

- Medium power linear switching applications

**PINNING**

| PIN | DESCRIPTION                          |
|-----|--------------------------------------|
| 1   | Base                                 |
| 2   | Collector;connected to mounting base |
| 3   | Emitter                              |


**Absolute maximum ratings(Ta=25 )**

| SYMBOL           | PARAMETER                   | CONDITIONS         | VALUE   | UNIT |
|------------------|-----------------------------|--------------------|---------|------|
| V <sub>CBO</sub> | Collector-base voltage      | TIP31              | 40      | V    |
|                  |                             | TIP31A             | 60      |      |
|                  |                             | TIP31B             | 80      |      |
|                  |                             | TIP31C             | 100     |      |
| V <sub>CEO</sub> | Collector-emitter voltage   | TIP31              | 40      | V    |
|                  |                             | TIP31A             | 60      |      |
|                  |                             | TIP31B             | 80      |      |
|                  |                             | TIP31C             | 100     |      |
| V <sub>EBO</sub> | Emitter-base voltage        | Open collector     | 5       | V    |
| I <sub>C</sub>   | Collector current (DC)      |                    | 3       | A    |
| I <sub>CM</sub>  | Collector current-Pulse     |                    | 5       | A    |
| I <sub>B</sub>   | Base current                |                    | 1       | A    |
| P <sub>C</sub>   | Collector power dissipation | T <sub>C</sub> =25 | 40      | w    |
|                  |                             | T <sub>a</sub> =25 | 2       |      |
| T <sub>j</sub>   | Junction temperature        |                    | 150     |      |
| T <sub>stg</sub> | Storage temperature         |                    | -65~150 |      |

**CHARACTERISTICS**

 T<sub>j</sub>=25 unless otherwise specified

| SYMBOL                | PARAMETER                            | CONDITIONS                                  | MIN                                       | TYP. | MAX | UNIT |    |
|-----------------------|--------------------------------------|---|---|------|-----|------|----|
| V <sub>CEO(SUS)</sub> | Collector-emitter sustaining voltage | TIP31                                       | 40  |      |     | V    |    |
|                       |                                      | TIP31A                                      | 60  |      |     |      |    |
|                       |                                      | TIP31B                                      | 80  |      |     |      |    |
|                       |                                      | TIP31C                                      | 100                                       |      |     |      |    |
| V <sub>CEsat</sub>    | Collector-emitter saturation voltage | I <sub>C</sub> =3A I <sub>B</sub> =0.375A   |   |      | 1.2 | V    |    |
| V <sub>BE</sub>       | Base-emitter on voltage              | I <sub>C</sub> =3A ; V <sub>CE</sub> =4V    |   |      | 1.8 | V    |    |
| I <sub>CES</sub>      | Collector cut-off current            | TIP31                                       | V <sub>CE</sub> =40V; V <sub>EB</sub> =0  |      |     | 0.2  | mA |
|                       |                                      | TIP31A                                      | V <sub>CE</sub> =60V; V <sub>EB</sub> =0  |      |     |      |    |
|                       |                                      | TIP31B                                      | V <sub>CE</sub> =80V; V <sub>EB</sub> =0  |      |     |      |    |
|                       |                                      | TIP31C                                      | V <sub>CE</sub> =100V; V <sub>EB</sub> =0 |      |     |      |    |
| I <sub>CEO</sub>      | Collector cut-off current            | TIP31/31A                                   | V <sub>CE</sub> =30V; I <sub>B</sub> =0   |      |     | 0.3  | mA |
|                       |                                      | TIP31B/31C                                  | V <sub>CE</sub> =60V; I <sub>B</sub> =0   |      |     |      |    |
| I <sub>EBO</sub>      | Emitter cut-off current              | V <sub>EB</sub> =5V; I <sub>C</sub> =0      |   |      | 1.0 | mA   |    |
| h <sub>FE-1</sub>     | DC current gain                      | I <sub>C</sub> =1A ; V <sub>CE</sub> =4V    | 25  |      |     |      |    |
| h <sub>FE-2</sub>     | DC current gain                      | I <sub>C</sub> =3A ; V <sub>CE</sub> =4V    | 10  |      | 50  |      |    |
| f <sub>T</sub>        | Transiton frequency                  | I <sub>C</sub> =0.5A ; V <sub>CE</sub> =10V | 3   |      |     | MHz  |    |



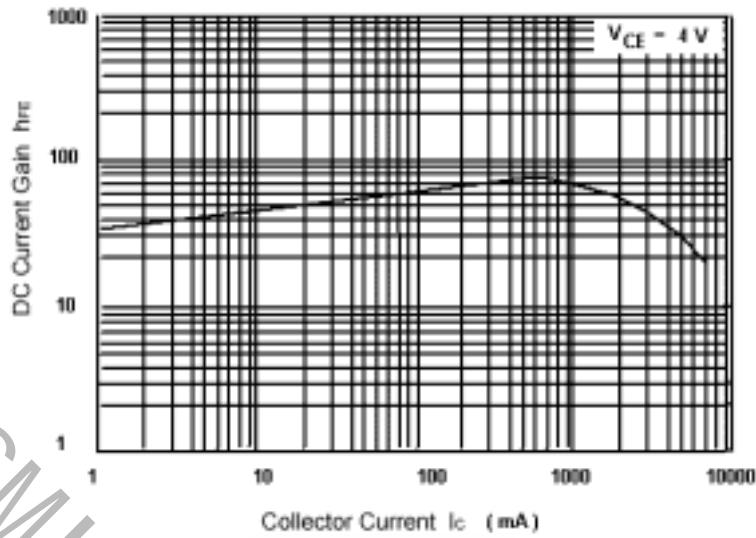


Fig.3 DC current Gain

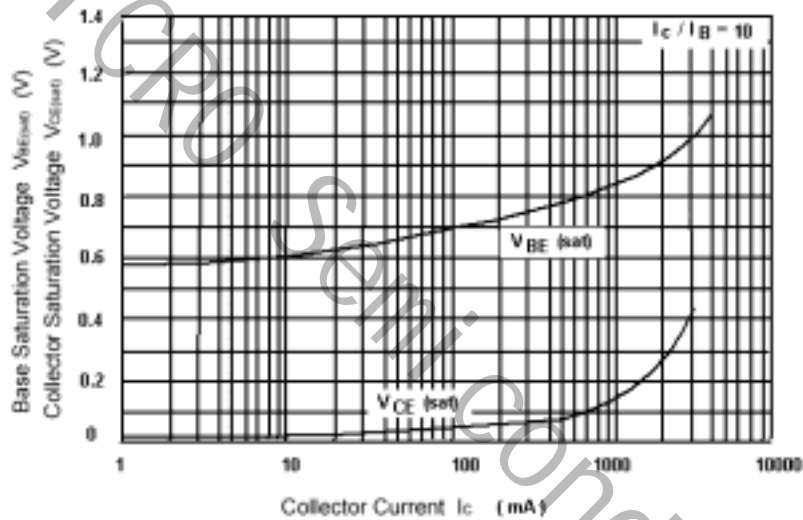


Fig.4 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

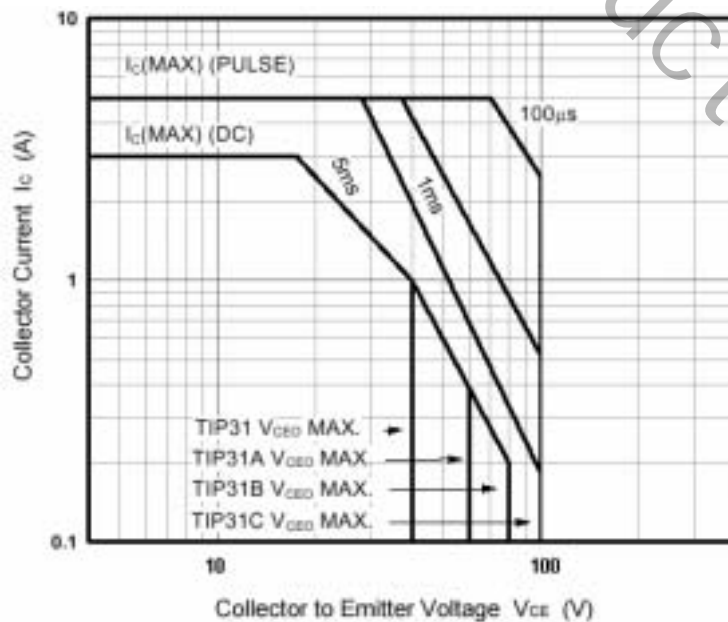


Fig.5 Safe Operating Area

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Bipolar Transistors - BJT category](#):*

*Click to view products by [JSMSEMI manufacturer](#):*

Other Similar products are found below :

[619691C](#) [MCH4017-TL-H](#) [MMBT-2369-TR](#) [BC546/116](#) [BC557/116](#) [BSW67A](#) [NJVMJD148T4G](#) [NTE123AP-10](#) [NTE153MCP](#) [NTE16](#)  
[NTE195A](#) [NTE92](#) [C4460](#) [2N4401-A](#) [2N6728](#) [2SA1419T-TD-H](#) [2SA2126-E](#) [2SB1204S-TL-E](#) [2SC2712S-GR,LF](#) [2SC5488A-TL-H](#)  
[2SD2150T100R](#) [SP000011176](#) [2N2907A](#) [2N3904-NS](#) [2N5769](#) [2SC2412KT146S](#) [2SD1816S-TL-E](#) [CPH6501-TL-E](#) [MCH4021-TL-E](#)  
[MJE340](#) [US6T6TR](#) [NJL0281DG](#) [732314D](#) [CPH3121-TL-E](#) [CPH6021-TL-H](#) [873787E](#) [IMZ2AT108](#) [UMX21NTR](#) [MCH6102-TL-E](#) [FP204-](#)  
[TL-E](#) [NJL0302DG](#) [2N3583](#) [2SA2014-TD-E](#) [2SC2812-5-TB-E](#) [30A02MH-TL-E](#) [NSV40301MZ4T1G](#) [NTE13](#) [NTE26](#) [NTE282](#) [NTE323](#)