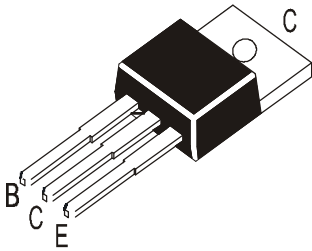


PLASTIC POWER TRANSISTORS

TIP31, A, B, C NPN
TIP32, A, B, C PNP

TO-220
Plastic Package



Complementary Silicon Transistors intended for a wide variety of Switching and Amplifier Applications, Series and Shunt Regulators, Driver and Output stages of Hi-Fi Amplifiers

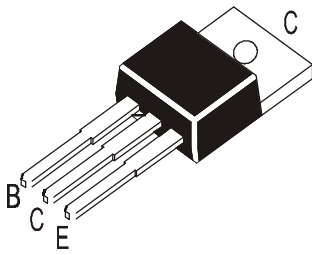
ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

| DESCRIPTION | SYMBOL | TIP31 | TIP31A | TIP31B | TIP31C | UNIT |
|---|-----------------------------------|--------------|--------|--------|--------|-------|
| | | TIP32 | TIP32A | TIP32B | TIP32C | |
| Collector Emitter Voltage | V _{CEO} | 40 | 60 | 80 | 100 | V |
| Collector Base Voltage | V _{CBO} | 40 | 60 | 80 | 100 | V |
| Emitter Base Voltage | V _{EBO} | 5 | | | | V |
| Collector Current Continuous | I _C | 3 | | | | A |
| Collector Current Peak | I _{CM} | 5 | | | | A |
| Base Current | I _B | 1 | | | | A |
| Power Dissipation upto T _c =25°C | P _D | 40 | | | | W |
| Derate above 25°C | | 320 | | | | mW/°C |
| Power Dissipation upto T _a =25°C | P _D | 2 | | | | W |
| Derate above 25°C | | 16 | | | | mW/°C |
| Unclamped Inductive Load Energy | *E | 32 | | | | mJ |
| Operating And Storage Junction Temperature | T _j , T _{stg} | - 65 to +150 | | | | °C |

THERMAL RESISTANCE

| | | | |
|---------------------------------|----------------------|-------|------|
| Junction to Case | R _{th(j-c)} | 3.125 | °C/W |
| Junction to Ambient in free air | R _{th(j-a)} | 62.5 | °C/W |

* I_c=1.8A, L=20mH, P.R.F.=10Hz, V_{cc}=10V, R_{BE}=100Ω



ELECTRICAL CHARACTERISTICS (T_c=25°C unless specified otherwise)

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | MAX | UNIT |
|--------------------------------------|------------------------|---|-----|-----|------|
| Collector Emitter (sus) Voltage | *V _{CEO(sus)} | I _C =30mA, I _B =0 | | | |
| | | TIP31/32 | 40 | | V |
| | | TIP31A/32A | 60 | | V |
| | | TIP31B/32B | 80 | | V |
| | | TIP31C/32C | 100 | | V |
| Collector Cut off Current | I _{CEO} | V _{CE} =30V, I _B =0 | | | |
| | | TIP31, A / 32, A | | 0.3 | mA |
| | | V _{CE} =60V, I _B =0 | | | |
| | | TIP31B, C / 32B, C | | 0.3 | mA |
| Collector Cut off Current | I _{CES} | V _{CE} =V _{CEO(max)} , V _{BE} =0 | | 0.2 | mA |
| Emitter Cut off Current | I _{EBO} | V _{EB} =5V, I _C =0 | | 1.0 | mA |
| DC Current Gain | *h _{FE} | I _C =1A, V _{CE} =4V | 25 | | |
| | | I _C =3A, V _{CE} =4V | 10 | 50 | |
| Collector Emitter Saturation Voltage | *V _{CE(sat)} | I _C =3A, I _B =375mA | | 1.2 | V |
| Base Emitter on Voltage | *V _{BE(on)} | I _C =3A, V _{CE} =4V | | 1.8 | V |

*Pulse Test : Pulse width ≤300μs, Duty Cycle ≤2%

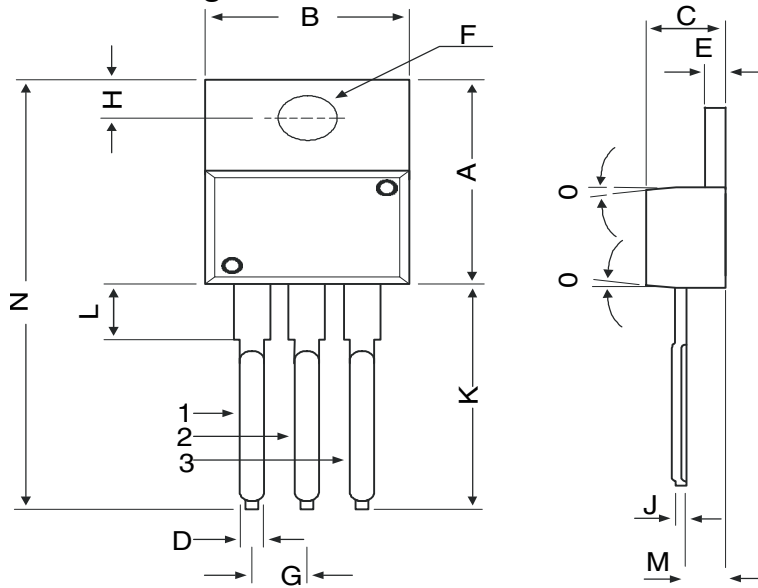
DYNAMIC CHARACTERISTIC

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | MAX | UNIT |
|---------------------------|-----------------|--|-----|-----|------|
| Small Signal Current Gain | h _{fe} | I _C =0.5A, V _{CE} =10V, f=1KHz | 20 | | |
| Transition Frequency | f _T | I _C =0.5A, V _{CE} =10V, f=1MHz | 3 | | MHz |

TIP31, A, B, C NPN
TIP32, A, B, C PNP

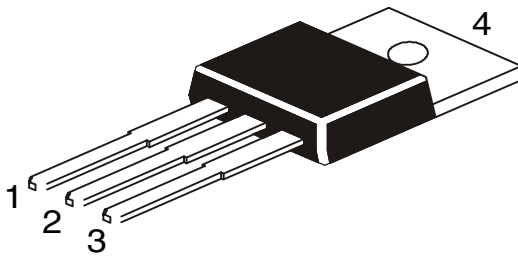
**TO-220
Plastic Package**

TO-220 Plastic Package



| 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 | 7 DEG | |

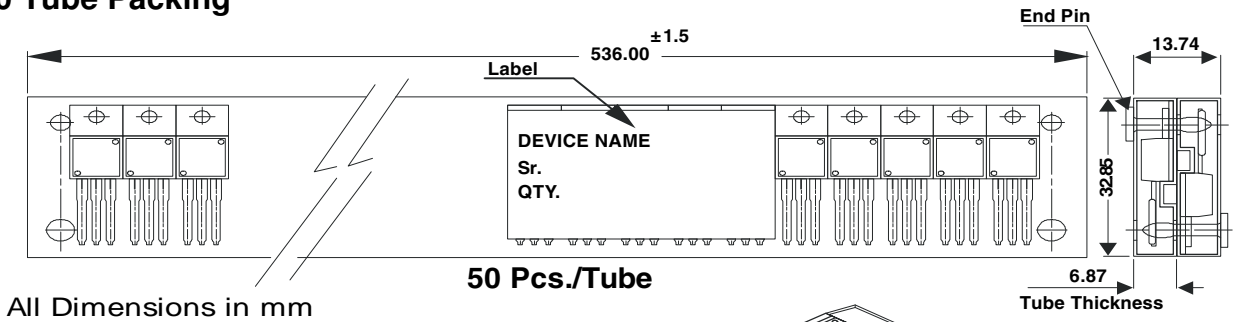
All dimensions in mm.



Pin Configuration

1. Base
2. Collector
3. Emitter
4. Collector

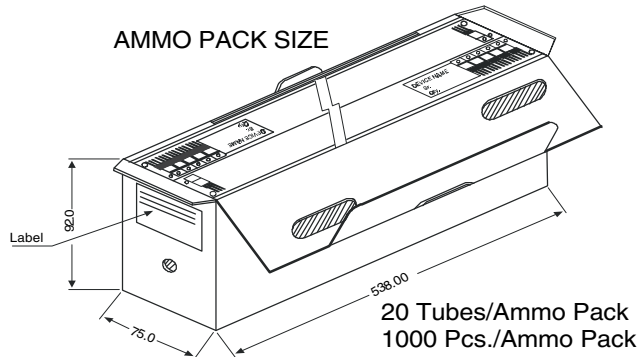
TO-220 Tube Packing



All Dimensions in mm

50 Pcs./Tube

AMMO PACK SIZE



20 Tubes/ Ammo Pack
1000 Pcs./ Ammo Pack

Packing Detail

| PACKAGE | STANDARD PACK | | INNER CARTON BOX | | OUTER CARTON BOX | | |
|-------------|-----------------|----------------|---------------------|------|-------------------|-------|--------|
| | Details | Net Weight/Qty | Size | Qty | Size | Qty | Gr Wt |
| TO-220 / FP | 200 pcs/polybag | 396 gm/200 pcs | 3" x 7.5" x 7.5" | 1.0K | 17" x 15" x 13.5" | 16.0K | 36 kgs |
| | 50 pcs/tube | 120 gm/50 pcs | 3.5" x 3.7" x 21.5" | 1.0K | 19" x 19" x 19" | 10.0K | 29 kgs |

Disclaimer

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