

TO-220 Power Package Transistors (NPN)

| Maximum Ratings | | | | | | Electrical Characteristics (Ta=25°C, Unless Otherwise Specified) | | | | | | | | | | | | |
|-----------------|----------------------|----------------------|----------------------|--------------------|--------------------|--|---------------------|-----------------------|---------------------|-----------------|--------------------|---------------------|--------------------------|--------------------------|--------------------|----------------------|----------------------|---------------------|
| Type No. | V _{CEO} (V) | V _{CE0} (V) | V _{EBO} (V) | P _D (W) | I _C (A) | I _{CBO} (μA) | V _{CB} (V) | I _{CES} (μA) | V _{CE} (V) | h _{FE} | I _C (A) | V _{CE} (V) | V _{CE(SAT)} (V) | V _{BE(SAT)} (V) | I _C (A) | C _{ob} (pF) | f _i (MHz) | I _C (mA) |
| | Min | Min | Min | @Tc=25°C | | Max | ⊖ | Max | ⊖ | Min | Max | Max | Max | Min | Max | Max | Typ | Max |
| TIP120 | 60 | 60 | 5 | 65 | 5 | 200 | 60 | | | 1000 | 0.5 | 3 | 2 | | 3 | 200 | | |
| | | | | | | | | | | 1000 | 3 | 3 | 4 | | 5 | | | |
| TIP121 | 80 | 80 | 5 | 65 | 5 | 200 | 80 | | | 1000 | 3 | 3 | 2 | | 3 | 200 | | |
| | | | | | | | | | | 1000 | 0.5 | 3 | 4 | | 5 | | | |
| TIP122 | 100 | 100 | 5 | 65 | 5 | 200 | 100 | | | 1000 | 3 | 3 | 2 | | 3 | 200 | | |
| | | | | | | | | | | 1000 | 0.5 | 3 | 4 | | 5 | | | |
| TIP29 | 40 | 40 | 5 | 30 | 1 | | | 200 | 40 | 40 | 0.2 | 4 | 0.7 | | 1 | | 3 | 200 |
| | | | | | | | | | | 15 | 1 | 4 | | | | | | |
| TIP29A | 60 | 60 | 5 | 30 | 1 | | | 200 | 60 | 40 | 0.2 | 4 | 0.7 | | 1 | | 3 | 200 |
| | | | | | | | | | | 15 | 1 | 4 | | | | | | |
| TIP29B | 80 | 80 | 5 | 30 | 1 | | | 200 | 80 | 40 | 0.2 | 4 | 0.7 | | 1 | | 3 | 200 |
| | | | | | | | | | | 15 | 1 | 4 | | | | | | |
| TIP29C | 100 | 100 | 5 | 30 | 1 | | | 200 | 100 | 40 | 0.2 | 4 | 0.7 | | 1 | | 3 | 200 |
| | | | | | | | | | | 15 | 1 | 4 | | | | | | |
| TIP31 | 40 | 40 | 5 | 40 | 3 | | | 200 | 40 | 10 | 50 | 3 | 4 | 1.2 | 3 | | 3 | 500 |
| | | | | | | | | | | 25 | 1 | 4 | | | | | | |
| TIP31A | 60 | 60 | 5 | 40 | 3 | | | 200 | 60 | 10 | 50 | 3 | 4 | 1.2 | 3 | | 3 | 500 |
| | | | | | | | | | | 25 | 1 | 4 | | | | | | |
| TIP31B | 80 | 80 | 5 | 40 | 3 | | | 200 | 80 | 10 | 50 | 3 | 4 | 1.2 | 3 | | 3 | 500 |
| | | | | | | | | | | 25 | 1 | 4 | | | | | | |
| TIP31C | 100 | 100 | 5 | 40 | 3 | | | 200 | 100 | 10 | 50 | 3 | 4 | 1.2 | 3 | | 3 | 500 |
| | | | | | | | | | | 25 | 1 | 4 | | | | | | |
| TIP41 | 40 | 40 | 5 | 65 | 6 | | | 400 | 40 | 15 | 75 | 3 | 4 | 1.5 | 6 | | 3 | 500 |
| | | | | | | | | | | 30 | 0.3 | 4 | | | | | | |
| TIP41A | 60 | 60 | 5 | 65 | 6 | | | 400 | 60 | 15 | 75 | 3 | 4 | 1.5 | 6 | | 3 | 500 |
| | | | | | | | | | | 30 | 0.3 | 4 | | | | | | |
| TIP41B | 80 | 80 | 5 | 65 | 6 | | | 400 | 80 | 15 | 75 | 3 | 4 | 1.5 | 6 | | 3 | 500 |
| | | | | | | | | | | 30 | 0.3 | 4 | | | | | | |
| TIP41C | 100 | 100 | 5 | 65 | 6 | | | 400 | 100 | 15 | 75 | 3 | 4 | 1.5 | 6 | | 3 | 500 |
| | | | | | | | | | | 30 | 0.3 | 4 | | | | | | |
| TIP47 | 350 | 250 | 5 | 40 | 1 | | | 1000 | 350 | 30 | 150 | 0.3 | 10 | 1 | 1 | | 10 | 200 |
| | | | | | | | | | | 10 | 1 | 10 | | | | | | |
| TIP48 | 400 | 300 | 5 | 40 | 1 | | | 1000 | 400 | 30 | 150 | 0.3 | 10 | 1 | 1 | | 10 | 200 |
| | | | | | | | | | | 10 | 1 | 10 | | | | | | |
| TIP49 | 450 | 350 | 5 | 40 | 1 | | | 1000 | 450 | 30 | 150 | 0.3 | 10 | 1 | 1 | | 10 | 200 |
| | | | | | | | | | | 10 | 1 | 10 | | | | | | |
| TIP50 | 500 | 400 | 5 | 40 | 1 | | | 1000 | 500 | 30 | 150 | 0.3 | 10 | 1 | 1 | | 10 | 200 |
| | | | | | | | | | | 10 | 1 | 10 | | | | | | |