

TO-39 Metal-Can Package Transistors (NPN)

| Maximum Ratings | | | | | | | Electrical Characteristics (Ta=25°C, Unless Otherwise Specified) | | | | | | | | | | | | | | | | |
|-----------------|----------------------|----------------------|----------------------|--------------------|--------------------|---------------------|--|---------------------|-----------------------|---------------------|-----------------|---------------------|---------------------|--------------------------|--------------------------|---------------------|----------------------|----------------------|---------------------|-----------------------|---------|------------|-------|
| Type No. | V _{CBO} (V) | V _{CEO} (V) | V _{EBO} (V) | P _D (W) | I _C (A) | I _{CM} (A) | I _{CBO} (μA) | V _{CB} (V) | I _{CES} (μA) | V _{CE} (V) | h _{FE} | I _C (mA) | V _{CE} (V) | V _{CE(SAT)} (V) | V _{BE(SAT)} (V) | I _C (mA) | C _{ob} (pF) | f _t (MHz) | I _C (mA) | t _{off} (ns) | NF (dB) | Freq (MHz) | |
| | Min | Min | Min | @Tc=25°C | | | Max | @ (V) | Max | @ (V) | Min | Max | | Max | Min | Max | Min | Max | Typ | Min | Typ | Max | Max |
| 2N2243 | 120 | 80 | 7 | 0.8 | 1 | | 0.01 | 60 | | | 15 | 500 | 10 | 0.35 | 1.3 | 150 | 15 | 50 | | | | | |
| | | | | | | | | | | | 40 | 120 | 150 | 10 | | | | | | | | | |
| | | | | | | | | | | | 30 | | 10 | 10 | | | | | | | | | |
| | | | | | | | | | | | 30 | | 150 | 1 | | | | | | | | | |
| | | | | | | | | | | | 15 | | 0.1 | 10 | | | | | | | | | |
| 2N2270 | 60 | 45 | 7 | 1 | 1 | | 0.05 | 60 | | | 50 | 200 | 150 | 10 | 0.9 | 1.2 | 150 | 15 | 100 | | | 10 | 0.001 |
| | | | | | | | | | | | 30 | | 1 | 10 | | | | | | | | | |
| 2N2440 | 120 | 80 | 7 | 0.8 | 0.5 | | 0.001 | 90 | | | 35 | | 0.1 | 10 | 0.4 | 0.9 | 50 | 15 | | | | | |
| | | | | | | | | | | | 100 | 300 | 150 | 10 | 3 | 1.3 | 150 | | | | | | |
| 2N3019 | 140 | 80 | 7 | 0.8 | | 1 | 0.01 | 90 | | | 50 | | 0.1 | 10 | 0.2 | 1.1 | 150 | 12 | 100 | 400 | 50 | 4 | 0.001 |
| | | | | | | | | | | | 90 | | 10 | 10 | 0.5 | | 500 | | | | | | |
| | | | | | | | | | | | 100 | 300 | 150 | 10 | | | | | | | | | |
| | | | | | | | | | | | 50 | | 500 | 10 | | | | | | | | | |
| | | | | | | | | | | | 15 | | 1 | 10 | | | | | | | | | |
| 2N3020 | 140 | 80 | 7 | 0.8 | | 1 | 0.01 | 90 | | | 30 | 100 | 0.1 | 10 | 0.2 | 1.1 | 150 | 12 | 80 | | | | |
| | | | | | | | | | | | 40 | 120 | 10 | 10 | 0.5 | | 500 | | | | | | |
| | | | | | | | | | | | 40 | 120 | 150 | 10 | | | | | | | | | |
| | | | | | | | | | | | 30 | 100 | 500 | 10 | | | | | | | | | |
| | | | | | | | | | | | 15 | | 1000 | 10 | | | | | | | | | |
| 2N3053 | 60 | 40 | 5 | 5 | 0.7 | | | | 0.25 | 30 | 50 | 250 | 150 | 10 | 1.4 | 1.7 | 150 | 15 | | 100 | | | |
| | | | | | | | | | | | 25 | | 150 | 2.5 | | | | | | | | | |
| 2N3300 | 60 | 30 | 5 | 0.8 | 0.5 | | | | 0.01 | 50 | 50 | 500 | 10 | 0.22 | 1.1 | 150 | 8 | 250 | | 50 | 150 | | |
| | | | | | | | | | | | 50 | | 150 | 1 | 0.6 | 1.5 | 500 | | | | | | |
| | | | | | | | | | | | 100 | 300 | 150 | 10 | | | | | | | | | |
| | | | | | | | | | | | 75 | | 10 | 10 | | | | | | | | | |
| | | | | | | | | | | | 50 | | 1 | 10 | | | | | | | | | |
| | | | | | | | | | | | 35 | | 0.1 | 10 | | | | | | | | | |
| 2N3440 | 300 | 250 | 7 | 1 | 1 | | 20 | 360 | | | 40 | 160 | 20 | 10 | 0.5 | 1.3 | 50 | 10 | | 15 | 10 | | |
| 2N3498 | 100 | 100 | 6 | 1.0 | 0.5 | | 0.05 | 50 | | | 20 | | 0.1 | 10 | 0.6 | 1.4 | 300 | 10 | 150 | | 20 | | |
| | | | | | | | | | | | 25 | | 1 | 10 | 0.2 | 0.8 | 10 | | | | | | |
| | | | | | | | | | | | 35 | | 10 | 10 | 0.25 | 0.9 | 50 | | | | | | |
| | | | | | | | | | | | 40 | 120 | 150 | 10 | | | | | | | | | |
| | | | | | | | | | | | 15 | | 500 | 10 | | | | | | | | | |
| | | | | | | | | | | | 95 | | 300 | 10 | | | | | | | | | |
| 2N3499 | 100 | 100 | 6 | 1 | 0.5 | | 0.05 | 50 | | | 35 | | 0.1 | 10 | 0.2 | 0.8 | 10 | 10 | 150 | | 20 | | |
| | | | | | | | | | | | 50 | | 1 | 10 | 0.25 | 0.9 | 50 | | | | | | |
| | | | | | | | | | | | 75 | | 10 | 10 | 0.6 | 1.4 | 300 | | | | | | |
| | | | | | | | | | | | 100 | 300 | 150 | 10 | | | | | | | | | |
| | | | | | | | | | | | 20 | | 500 | 10 | | | | | | | | | |
| | | | | | | | | | | | 20 | | 300 | 10 | | | | | | | | | |
| 2N3500 | 150 | 150 | 6 | 1 | 0.3 | | 0.05 | 75 | | | 20 | | 0.1 | 10 | 0.2 | 0.8 | 10 | 8 | 150 | | 20 | | |
| | | | | | | | | | | | 25 | | 1 | 10 | 0.25 | 0.9 | 50 | | | | | | |
| | | | | | | | | | | | 35 | | 10 | 10 | 0.4 | 1.2 | 150 | | | | | | |
| | | | | | | | | | | | 40 | 120 | 150 | 10 | | | | | | | | | |
| | | | | | | | | | | | 15 | | 300 | 10 | | | | | | | | | |
| | | | | | | | | | | | 15 | | 500 | 10 | | | | | | | | | |
| 2N3501 | 150 | 150 | 6 | 1 | 0.3 | | 0.05 | 75 | | | 35 | | 0.1 | 10 | 0.4 | 1.2 | 150 | 8 | 150 | | 20 | | |
| | | | | | | | | | | | 50 | | 1 | 10 | 0.2 | 0.8 | 10 | | | | | | |
| | | | | | | | | | | | 100 | 300 | 150 | 10 | 0.25 | 0.9 | 50 | | | | | | |
| | | | | | | | | | | | 20 | | 300 | 10 | | | | | | | | | |
| | | | | | | | | | | | 75 | | 10 | 10 | | | | | | | | | |
| | | | | | | | | | | | 20 | | 500 | 10 | | | | | | | | | |

* NOTE: I_{CEX}