

Small Signal Transistors

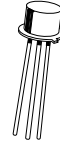
TO-18 Case



| TYPE NO. | DESCRIPTION | BV _{CBO} | BV _{CEO} | BV _{EBO} | I _{CBO} @ | V _{CB} | h _{FE} | | @ I _C | @ V _{CE} | V _{CE(SAT)} @ I _C | | C _{ob} | f _T | NF | t _{on} | t _{off} |
|----------|-----------------|-------------------|-------------------|-------------------|--------------------|-----------------|-----------------|-----|------------------|-------------------|---------------------------------------|------|-----------------|----------------|------|-----------------|------------------|
| | | (V) | (V) | (V) | (mA) | (V) | MIN | MAX | (mA) | (V) | (V) | (mA) | (pF) | (MHz) | (dB) | (ns) | (ns) |
| | | MIN | MIN | MIN | MAX | | | | | | MAX | | MAX | MIN | MAX | MAX | MAX |
| 2N703 | NPN AMPL/SWITCH | 25 | 25 | 5.0 | -- | -- | 40 | 100 | 10 | 10 | 0.5 | 10 | 5.0 | 70 | -- | -- | -- |
| 2N706C | NPN SAT SWITCH | 40 | 15 | 5.0 | 0.5 | 15 | 20 | 60 | 10 | 5.0 | 0.3 | 30 | 5.0 | 200 | -- | 40 | 75 |
| 2N708 | NPN SAT SWITCH | 40 | 15 | 5.0 | 0.025 | 20 | 30 | 120 | 10 | 1.0 | 0.4 | 10 | 6.0 | 400 | -- | 40 | 70 |
| 2N709A | NPN SAT SWITCH | 15 | 6.0 | 4.0 | 0.005 | 5.0 | 30 | 90 | 10 | 0.5 | 0.3 | 3.0 | 3.0 | 900 | -- | 15 | 15 |
| 2N717 | NPN AMPL/SWITCH | 60 | 40 | 5.0 | -- | -- | 20 | 60 | 150 | 10 | 1.5 | 150 | 35 | 40 | -- | -- | -- |
| 2N718A | NPN AMPL/SWITCH | 75 | 32 | 7.0 | 0.01 | 60 | 40 | 120 | 150 | 10 | 1.5 | 150 | 25 | 60 | -- | -- | -- |
| 2N719A | NPN AMPL/SWITCH | 120 | 60 | 7.0 | 0.01 | 75 | 20 | 60 | 150 | 10 | 5.0 | 150 | 15 | 40 | -- | -- | -- |
| 2N720A | NPN AMPL/SWITCH | 120 | 80 | 7.0 | 0.01 | 90 | 40 | 120 | 150 | 10 | 5.0 | 150 | 15 | 50 | -- | -- | -- |
| 2N721 | PNP AMPL/SWITCH | 50 | 35 | 5.0 | 1.0 | 30 | 20 | 45 | 150 | 10 | 1.5 | 150 | 45 | 50 | -- | -- | -- |
| 2N722A | PNP AMPL/SWITCH | 50 | 35 | 5.0 | 0.10 | 30 | 30 | 90 | 150 | 10 | 1.5 | 150 | 45 | 60 | -- | -- | -- |
| 2N726 | PNP AMPL/SWITCH | 25 | 20 | 5.0 | 1.0 | 25 | 15 | 45 | 10 | 1.0 | 0.6 | 10 | 5.0 | 140 | -- | -- | -- |
| 2N727 | PNP AMPL/SWITCH | 25 | 20 | 5.0 | 1.0 | 25 | 30 | 120 | 10 | 1.0 | 0.6 | 10 | 5.0 | 140 | -- | -- | -- |
| 2N730 | NPN AMPL/SWITCH | 60 | 35 | 5.0 | -- | -- | 20 | 60 | 150 | 10 | 1.5 | 150 | 35 | 40 | -- | -- | -- |
| 2N731 | NPN AMPL/SWITCH | 60 | 35 | 5.0 | -- | -- | 40 | 120 | 150 | 10 | 1.5 | 150 | 35 | 50 | -- | -- | -- |
| 2N743A | NPN SAT SWITCH | 40 | 15 | 5.0 | -- | -- | 20 | 60 | 10 | 5.0 | 0.6 | 100 | 4.0 | 500 | -- | 12 | 15 |
| 2N744A | NPN SAT SWITCH | 40 | 15 | 5.0 | -- | -- | 40 | 120 | 10 | 5.0 | 0.6 | 100 | 4.0 | 500 | -- | 12 | 15 |
| 2N753 | NPN SAT SWITCH | 25 | 20 | 5.0 | 0.05 | 15 | 40 | 120 | 10 | 1.0 | 0.6 | 10 | 5.0 | 200 | -- | 40 | 75 |
| 2N760A | NPN LOW NOISE | 60 | 60 | 8.0 | 0.10 | 30 | 76 | 333 | 1.0 | 5.0 | 1.0 | 10 | 8.0 | 50 | -- | -- | -- |
| 2N783 | NPN SAT SWITCH | 40 | 15 | 5.0 | 0.25 | 25 | 20 | 60 | 10 | 1.0 | 0.25 | 10 | 3.5 | 200 | -- | 16 | 30 |
| 2N784A | NPN SAT SWITCH | 40 | 15 | 5.0 | -- | -- | 25 | 150 | 10 | 5.0 | 0.19 | 10 | 3.5 | 300 | -- | 20 | 40 |
| 2N834A | NPN SAT SWITCH | 40 | 25 | 5.0 | 0.50 | 20 | 25 | -- | 10 | 1.0 | 0.25 | 10 | 4.0 | 500 | -- | 16 | 24 |
| 2N835 | NPN SAT SWITCH | 25 | 20 | 5.0 | 0.50 | 20 | 20 | -- | 10 | 1.0 | 0.3 | 10 | 4.0 | 300 | -- | 20 | 35 |
| 2N864 | PNP AMPL/SWITCH | 6.0 | 6.0 | 6.0 | 0.10 | 10 | 25 | 125 | 1.0 | 6.0 | 0.1 | 5.0 | 9.0 | -- | -- | -- | -- |
| 2N865 | PNP AMPL/SWITCH | 10 | 6.0 | 6.0 | 0.10 | 10 | 100 | 350 | 1.0 | 6.0 | 0.1 | 5.0 | 9.0 | -- | -- | -- | -- |
| 2N869A | PNP AMPL/SWITCH | 25 | 18 | 5.0 | 0.01 | 15 | 40 | 120 | 10 | 5.0 | 0.15 | 10 | 6.0 | 400 | -- | -- | -- |
| 2N870 | NPN AMPL/SWITCH | 100 | 60 | 7.0 | 0.01 | 75 | 20 | 120 | 150 | 10 | 5.0 | 150 | 15 | 50 | -- | -- | -- |
| 2N871 | NPN AMPL/SWITCH | 100 | 60 | 7.0 | 0.01 | 75 | 100 | 300 | 150 | 10 | 5.0 | 150 | 15 | 60 | -- | -- | -- |
| 2N909 | NPN AMPL SWITCH | 30 | 25 | 5.0 | -- | -- | 110 | 350 | 50 | 10 | 2.0 | 50 | 25 | 50 | -- | -- | -- |
| 2N910 | NPN AMPL/SWITCH | 100 | 60 | 7.0 | 0.025 | 75 | 75 | -- | 10 | 10 | 1.2 | 50 | 15 | 60 | -- | -- | -- |
| 2N911 | NPN AMPL/SWITCH | 100 | 60 | 7.0 | 0.025 | 75 | 35 | -- | 10 | 10 | 1.2 | 50 | 15 | 50 | -- | -- | -- |
| 2N912 | NPN AMPL/SWITCH | 100 | 60 | 7.0 | 0.025 | 75 | 15 | -- | 10 | 10 | 1.2 | 50 | 15 | 40 | -- | -- | -- |
| 2N914 | NPN SAT SWITCH | 40 | 15 | 5.0 | 0.025 | 20 | 30 | 120 | 10 | 1.0 | 0.7 | 200 | 6.0 | 60 | -- | 40 | 40 |
| 2N915 | NPN RF/IF OSC | 70 | 50 | 5.0 | -- | -- | 50 | 200 | 10 | 10 | -- | -- | 3.5 | 250 | -- | -- | -- |
| 2N916 | NPN RF/IF OSC | 45 | 45 | 5.0 | -- | -- | 50 | 200 | 10 | 10 | -- | -- | 6.0 | 300 | -- | -- | -- |
| 2N929A | NPN LOW NOISE | 60 | 45 | 6.0 | 0.02 | 45 | 40 | 120 | 0.01 | 5.0 | 0.5 | 10 | 6.0 | 45 | 4.0 | -- | -- |
| 2N930B | NPN LOW NOISE | 60 | 45 | 6.0 | 0.20 | 45 | 100 | 300 | 0.01 | 5.0 | 0.5 | 10 | 6.0 | 45 | 3.0 | -- | -- |
| 2N947 | NPN SAT SWITCH | 15 | 12 | 3.0 | -- | -- | 30 | -- | 10 | 1.0 | 0.4 | 5.0 | 8.0 | 200 | -- | -- | 50 |
| 2N956 | NPN AMPL/SWITCH | 75 | 50 | 7.0 | 0.01 | 60 | 100 | 300 | 150 | 10 | 1.5 | 150 | 25 | 70 | -- | -- | -- |

Small Signal Transistors

TO-18 Case (Continued)



| TYPE NO. | DESCRIPTION | BV _{CBO} | BV _{CEO} | BV _{EBO} | I _{CBO} @ V _{CB} *I _{CES} **I _{CEV} (mA) | V _{CB} (V) | h _{FE} | | @ I _C | @ V _{CE} | V _{CE} (SAT) @ I _C | | C _{ob} (pF) | f _T (MHz) | NF (dB) | t _{on} (ns) | t _{off} (ns) |
|----------|-----------------|-------------------|-------------------|-------------------|---|------------------------|-----------------|-----|------------------|-------------------|--|------|-------------------------|-------------------------|------------|-------------------------|--------------------------|
| | | (V) | (V) | (V) | | | (mA) | (V) | (V) | (mA) | (V) | (mA) | | | | | |
| | | MIN | MIN | MIN | | | MAX | MIN | MAX | MAX | MAX | MAX | | | | | |
| 2N957 | NPN RF/IF OSC | 40 | 20 | 5.0 | -- | -- | 45 | -- | 10 | 10 | -- | -- | 6.0 | 200 | -- | -- | -- |
| 2N978 | PNP AMPL/SWITCH | 30 | 20 | 5.0 | 5.0 | 10 | 15 | 60 | 150 | 10 | 1.5 | 150 | 45 | 40 | -- | -- | -- |
| 2N995 | PNP SAT SWITCH | 20 | 15 | 4.0 | 0.005 | 15 | 35 | 140 | 20 | 1.0 | 0.2 | 20 | 10 | 100 | -- | 65 | 125 |
| 2N996 | PNP SAT SWITCH | 15 | 12 | 4.0 | 0.005 | 10 | 35 | -- | 20 | 1.0 | 0.3 | 60 | 10 | 100 | -- | -- | -- |
| 2N1991 | PNP AMPL/SWITCH | 30 | 20 | 5.0 | 5.0 | 10 | 15 | 60 | 150 | 10 | 1.5 | 150 | 45 | 40 | -- | -- | -- |
| 2N2205 | NPN SAT SWITCH | 25 | 12 | 3.0 | 0.025 | 15 | 20 | -- | 10 | 1.0 | 0.22 | 10 | 6.0 | 200 | -- | 40 | 75 |
| 2N2220 | NPN AMPL/SWITCH | 60 | 35 | 5.0 | 0.01 | 50 | 20 | 60 | 150 | 10 | 0.4 | 150 | 8.0 | 250 | -- | -- | -- |
| 2N2221A | NPN AMPL/SWITCH | 75 | 40 | 6.0 | 0.01 | 60 | 40 | 120 | 150 | 10 | 0.3 | 150 | 8.0 | 250 | -- | -- | 285 |
| 2N2222A | NPN AMPL/SWITCH | 75 | 40 | 6.0 | 0.01 | 60 | 100 | 300 | 150 | 10 | 0.3 | 150 | 8.0 | 250 | -- | -- | 285 |
| 2N2242 | NPN SAT SWITCH | 15 | 15 | 5.0 | -- | -- | 40 | 120 | 10 | 1.0 | 0.3 | 10 | 6.0 | 250 | -- | -- | 25 |
| 2N2368 | NPN SAT SWITCH | 40 | 15 | 4.5 | 0.4 | 20 | 20 | 60 | 10 | 1.0 | 0.25 | 10 | 4.0 | 400 | -- | 12 | 15 |
| 2N2369A | NPN SAT SWITCH | 40 | 15 | 4.5 | 0.4 | 20 | 40 | 120 | 10 | 0.35 | 0.25 | 30 | 4.0 | 500 | -- | 12 | 18 |
| 2N2377 | PNP AMPL/SWITCH | 25 | 25 | 10 | 1.0 | 25 | 15 | 120 | 1.0 | 6.0 | -- | -- | 12 | -- | -- | -- | -- |
| 2N2378 | PNP AMPL/SWITCH | 10 | 10 | 10 | 0.1 | 10 | 15 | -- | 5.0 | 0.5 | 0.15 | 5.0 | 12 | -- | -- | -- | -- |
| 2N2411 | PNP SAT SWITCH | 25 | 20 | 5.0 | 0.01 | 25 | 20 | 60 | 10 | 0.5 | 0.2 | 10 | 5.0 | 200 | -- | 25 | 100 |
| 2N2412 | PNP SAT SWITCH | 25 | 20 | 5.0 | 0.01 | 25 | 40 | 120 | 10 | 0.5 | 0.2 | 10 | 5.0 | 200 | -- | 25 | 100 |
| 2N2475 | NPN SAT SWITCH | 15 | 6.0 | 4.0 | 0.5 | 5.0 | 30 | 150 | 20 | 0.4 | 0.4 | 1.0 | 3.0 | 600 | -- | 20 | 15 |
| 2N2483 | NPN LOW NOISE | 60 | 60 | 6.0 | 0.01 | 45 | 40 | 120 | 0.01 | 5.0 | 0.35 | 1.0 | 6.0 | 60 | 4.0 | -- | -- |
| 2N2484 | NPN LOW NOISE | 60 | 60 | 6.0 | 0.01 | 45 | 100 | 500 | 0.01 | 5.0 | 0.35 | 1.0 | 6.0 | 60 | 2.0 | -- | -- |
| 2N2501 | NPN SAT SWITCH | 40 | 20 | 6.0 | -- | -- | 50 | 150 | 10 | 1.0 | 0.2 | 10 | 4.0 | 350 | -- | -- | -- |
| 2N2509 | NPN LOW NOISE | 124 | 80 | 7.0 | 0.005 | 100 | 25 | -- | 0.01 | 5.0 | 1.0 | 5.0 | 6.0 | 45 | 7.0 | -- | -- |
| 2N2510 | NPN LOW NOISE | 100 | 65 | 7.0 | 0.005 | 80 | 150 | 500 | 10 | 5.0 | 1.0 | 5.0 | 6.0 | 45 | 4.0 | -- | -- |
| 2N2511 | NPN LOW NOISE | 80 | 50 | 7.0 | 0.005 | 60 | 240 | 750 | 10 | 5.0 | 1.0 | 5.0 | 6.0 | 45 | 4.0 | -- | -- |
| 2N2539 | NPN SAT SWITCH | 60 | 30 | 5.0 | 0.25 | 40 | 50 | 150 | 150 | 10 | 0.45 | 150 | 8.0 | 250 | -- | 40 | 40 |
| 2N2540 | NPN SAT SWITCH | 60 | 30 | 5.0 | 0.25 | 40 | 100 | 300 | 150 | 10 | 0.45 | 150 | 8.0 | 250 | -- | 40 | 40 |
| 2N2586 | NPN LOW NOISE | 60 | 45 | 6.0 | 0.200 | 45 | 120 | 360 | 0.01 | 5.0 | 0.5 | 10 | 7.0 | 45 | 3.0 | -- | -- |
| 2N2645 | NPN AMPL/SWITCH | 75 | 40 | 7.0 | 0.01 | 60 | 100 | 300 | 150 | 10 | 0.4 | 10 | 25 | 50 | -- | -- | -- |
| 2N2651 | NPN SAT SWITCH | 40 | 20 | 5.0 | 0.03 | 20 | 25 | -- | 10 | 1.0 | 0.25 | 10 | 4.0 | 350 | -- | 35 | 75 |
| 2N2710 | NPN SAT SWITCH | 40 | 20 | 5.0 | 0.03 | 20 | 40 | -- | 10 | 1.0 | 0.25 | 10 | 4.0 | 500 | -- | 20 | 35 |
| 2N2837 | PNP AMPL/SWITCH | 50 | 35 | 5.0 | 0.1 | 30 | 30 | -- | 150 | 10 | 1.0 | 150 | 25 | 120 | -- | -- | -- |
| 2N2838 | PNP AMPL/SWITCH | 50 | 35 | 5.0 | 0.1 | 30 | 75 | -- | 150 | 10 | 1.0 | 150 | 25 | 120 | -- | -- | -- |
| 2N2845 | NPN SAT SWITCH | 60 | 30 | 5.0 | 0.2 | 30 | 30 | 120 | 150 | 10 | 1.0 | 500 | 8.0 | 250 | -- | 40 | 40 |
| 2N2847 | NPN SAT SWITCH | 60 | 20 | 5.0 | 0.2 | 30 | 40 | 140 | 150 | 10 | 0.75 | 500 | 8.0 | 250 | -- | 25 | 40 |
| 2N2861 | PNP LOW NOISE | 25 | 20 | 5.0 | -- | -- | 30 | 120 | 0.01 | 5.0 | 0.2 | 10 | 6.0 | 200 | 3.0 | -- | -- |
| 2N2862 | PNP LOW NOISE | 25 | 20 | 5.0 | -- | -- | 12 | 120 | 0.01 | 5.0 | 0.2 | 10 | 6.0 | 150 | 4.0 | -- | -- |
| 2N2894 | PNP SAT SWITCH | 12 | 12 | 4.0 | 0.08* | 6.0 | 40 | 150 | 30 | 0.5 | 0.5 | 100 | 6.0 | 400 | -- | 60 | 90 |
| 2N2894A | PNP SAT SWITCH | 12 | 12 | 4.0 | 0.05 | 10 | 30 | -- | 10 | 0.3 | 0.13 | 10 | 4.5 | 800 | -- | 20 | 25 |
| 2N2895 | NPN AMPL/SWITCH | 120 | 65 | 7.0 | -- | -- | 40 | 120 | 150 | 10 | 0.5 | 500 | 15 | 120 | -- | -- | -- |

(17-March 2011)

Small Signal Transistors

TO-18 Case (Continued)



| TYPE NO. | DESCRIPTION | BV _{CB0} | BV _{CEO} | BV _{EBO} | I _{CBO} @ | V _{CB} | h _{FE} | | @ I _C | @ V _{CE} | V _{CE(SAT)} @ I _C | | C _{ob} | f _T | NF | t _{on} | t _{off} |
|----------|-----------------|-------------------|-------------------|-------------------|--|-----------------|-----------------|-----|------------------|-------------------|---------------------------------------|-----|-----------------|----------------|-------|-----------------|------------------|
| | | (V) | (V) | (V) | (mA) | | (V) | MIN | MAX | (mA) | (V) | (V) | (mA) | (pF) | (MHz) | (dB) | (ns) |
| | | MIN | MIN | MIN | MAX *I _{CE(S)} **I _{CE(V)} | | | | | | MAX | MAX | MAX | MIN | MAX | MAX | MAX |
| 2N2896 | NPN AMPL/SWITCH | 140 | 90 | 7.0 | -- | -- | 60 | 200 | 150 | 10 | 0.5 | 500 | 15 | 120 | -- | -- | -- |
| 2N2897 | NPN AMPL/SWITCH | 60 | 45 | 7.0 | -- | -- | 50 | 200 | 150 | 10 | 0.5 | 500 | 15 | 100 | -- | -- | -- |
| 2N2906 | PNP AMPL/SWITCH | 60 | 60 | 5.0 | 0.01 | 50 | 40 | 120 | 150 | 10 | 0.4 | 150 | 8.0 | 200 | -- | -- | 100 |
| 2N2906A | PNP AMPL/SWITCH | 60 | 60 | 5.0 | 0.01 | 50 | 40 | 120 | 150 | 10 | 0.4 | 150 | 8.0 | 200 | -- | -- | 100 |
| 2N2907 | PNP AMPL/SWITCH | 60 | 60 | 5.0 | 0.01 | 50 | 100 | 300 | 150 | 10 | 0.4 | 150 | 8.0 | 200 | -- | -- | 100 |
| 2N2907A | PNP AMPL/SWITCH | 60 | 60 | 5.0 | 0.01 | 50 | 100 | 300 | 150 | 10 | 0.4 | 150 | 8.0 | 200 | -- | -- | 100 |
| 2N2952 | NPN AMPL/SWITCH | 60 | 20 | 5.0 | 0.1 | 50 | 20 | -- | 150 | 10 | 0.5 | 150 | 8.0 | 200 | -- | -- | -- |
| 2N3009 | NPN SAT SWITCH | 40 | 15 | 4.0 | 0.5* | 20 | 30 | 120 | 30 | 0.4 | 0.5 | 300 | 5.0 | 350 | -- | 15 | 25 |
| 2N3011 | NPN SAT SWITCH | 30 | 12 | 5.0 | 0.4* | 20 | 30 | 120 | 10 | 0.35 | 0.5 | 100 | 4.0 | 400 | -- | 15 | 20 |
| 2N3012 | PNP SAT SWITCH | 12 | 12 | 4.0 | 0.08* | 6.0 | 30 | 120 | 30 | 0.5 | 0.2 | 30 | 6.0 | 400 | -- | 60 | 75 |
| 2N3013 | NPN SAT SWITCH | 40 | 15 | 5.0 | 0.3* | 20 | 30 | 120 | 30 | 0.4 | 0.5 | 300 | 5.0 | 350 | -- | 15 | 25 |
| 2N3014 | NPN SAT SWITCH | 40 | 20 | 5.0 | 0.3* | 20 | 30 | 120 | 30 | 0.4 | 0.35 | 100 | 5.0 | 350 | -- | 16 | 25 |
| 2N3073 | PNP AMPL/SWITCH | 60 | 60 | 4.0 | 0.01* | 30 | 30 | 130 | 50 | 1.0 | 0.25 | 50 | 10 | 130 | -- | 40 | 100 |
| 2N3115 | NPN AMPL/SWITCH | 20 | 20 | 5.0 | -- | -- | 40 | 120 | 150 | 10 | 0.5 | 150 | 8.0 | 250 | -- | -- | -- |
| 2N3116 | NPN AMPL/SWITCH | 20 | 20 | 5.0 | -- | -- | 100 | 300 | 150 | 10 | 0.5 | 150 | 8.0 | 250 | -- | -- | -- |
| 2N3117 | NPN AMPL/SWITCH | 60 | 60 | 6.0 | 0.01 | 45 | 250 | 500 | 0.01 | 10 | 0.35 | 1.0 | 4.5 | 60 | -- | -- | -- |
| 2N3121 | PNP AMPL/SWITCH | 45 | 45 | 4.0 | 0.01 | 30 | 30 | -- | 150 | 10 | 0.5 | 150 | 10 | 130 | -- | -- | -- |
| 2N3135 | PNP AMPL/SWITCH | 50 | 35 | 4.0 | 0.05 | 30 | 40 | -- | 150 | 10 | 0.5 | 150 | 10 | 200 | -- | -- | -- |
| 2N3136 | PNP AMPL/SWITCH | 50 | 35 | 4.0 | 0.05 | 30 | 100 | 300 | 150 | 10 | 0.6 | 150 | 10 | 200 | -- | -- | -- |
| 2N3209 | PNP SAT SWITCH | 20 | 20 | 4.0 | 0.08 | 10 | 25 | -- | 10 | 0.3 | 0.15 | 10 | 5.0 | 400 | -- | 60 | 90 |
| 2N3210 | NPN SAT SWITCH | 40 | 15 | 5.0 | -- | -- | 30 | 120 | 10 | 5.0 | 0.5 | 100 | 4.0 | 400 | -- | 15 | 20 |
| 2N3241A | NPN AMPL/SWITCH | 30 | 25 | 7.5 | 100 | 25 | 100 | 200 | 10 | 10 | 0.25 | 200 | 20 | 50 | 10 | -- | -- |
| 2N3242A | NPN AMPL/SWITCH | 40 | 40 | 8.0 | 10 | 25 | 125 | 300 | 10 | 10 | 0.3 | 300 | 20 | 50 | 6.0 | -- | -- |
| 2N3246 | NPN LOW NOISE | 60 | 40 | 10 | 0.10 | 40 | 400 | -- | 1.0 | 5.0 | 0.5 | 5.0 | 5.0 | 60 | 2.0 | -- | -- |
| 2N3248 | PNP SAT SWITCH | 15 | 12 | 5.0 | 0.05 | 10 | 50 | 150 | 10 | 1.0 | 0.125 | 10 | 8.0 | 250 | -- | 15 | 20 |
| 2N3249 | PNP SAT SWITCH | 15 | 12 | 5.0 | 0.05** | 10 | 100 | 300 | 0.1 | 1.0 | 0.25 | 50 | 8.0 | 300 | -- | 90 | 100 |
| 2N3250A | PNP AMPL/SWITCH | 60 | 60 | 5.0 | 0.02 | 40 | 50 | 150 | 10 | 1.0 | 0.25 | 10 | 6.0 | 250 | -- | 35 | 50 |
| 2N3251A | PNP AMPL/SWITCH | 60 | 60 | 5.0 | 0.02 | 40 | 100 | 300 | 10 | 1.0 | 0.25 | 10 | 6.0 | 300 | -- | 35 | 50 |
| 2N3301 | NPN AMPL/SWITCH | 60 | 30 | 5.0 | 0.01 | 50 | 40 | 120 | 150 | 10 | 0.22 | 150 | 8.0 | 250 | -- | -- | -- |
| 2N3302 | NPN AMPL/SWITCH | 60 | 30 | 5.0 | 0.01 | 50 | 100 | 300 | 150 | 10 | 0.22 | 150 | 8.0 | 250 | -- | -- | -- |
| 2N3496 | PNP AMPL/SWITCH | 80 | 80 | 4.0 | 0.1 | 50 | 40 | -- | 10 | 10 | 0.3 | 10 | 7.0 | 200 | -- | -- | -- |
| 2N3497 | PNP AMPL/SWITCH | 120 | 120 | 4.0 | 0.1 | 90 | 40 | -- | 10 | 10 | 0.35 | 10 | 6.0 | 150 | -- | -- | -- |
| 2N3504 | PNP AMPL/SWITCH | 45 | 45 | 5.0 | -- | -- | 100 | 300 | 150 | 10 | 0.25 | 50 | 8.0 | 200 | -- | -- | -- |
| 2N3505 | PNP AMPL/SWITCH | 60 | 60 | 5.0 | 0.01 | 30 | 100 | 300 | 150 | 10 | 0.4 | 150 | 8.0 | 200 | -- | -- | -- |
| 2N3545 | PNP SAT SWITCH | 20 | 20 | 5.0 | -- | -- | 40 | 120 | 10 | 1.0 | 0.5 | 100 | 8.0 | 250 | -- | 60 | 90 |
| 2N3546 | PNP SAT SWITCH | 15 | 12 | 4.5 | 0.01 | 10 | 30 | 120 | 10 | 1.0 | 0.5 | 100 | 6.0 | 700 | -- | 40 | 30 |
| 2N3547 | PNP LOW NOISE | 60 | 60 | 6.0 | 0.025 | 45 | 100 | 500 | 1.0 | 5.0 | 1.0 | 10 | 8.0 | 45 | 5.0 | -- | -- |
| 2N3548 | PNP LOW NOISE | 60 | 45 | 6.0 | 0.01 | 45 | 100 | 300 | 0.01 | 5.0 | 1.0 | 10 | 8.0 | 60 | 4.0 | -- | -- |
| 2N3549 | PNP LOW NOISE | 60 | 60 | 6.0 | 0.01 | 45 | 100 | 500 | 0.01 | 5.0 | 1.0 | 10 | 8.0 | 60 | 4.0 | -- | -- |
| 2N3550 | PNP LOW NOISE | 60 | 45 | 8.0 | 0.01 | 45 | 200 | 600 | 0.01 | 5.0 | 0.5 | 5.0 | 8.0 | 60 | 4.0 | -- | -- |

(15-March 2012)

Small Signal Transistors

TO-18 Case (Continued)



| TYPE NO. | DESCRIPTION | BV _{CBO} | BV _{CEO} | BV _{EBO} | I _{CBO} @ *I _{CES} **I _{CEV} (mA) | V _{CB} (V) | h _{FE} | | @ I _C | @ V _{CE} | V _{CE(SAT)} @ I _C | | C _{ob} (pF) | f _T (MHz) | NF (dB) | t _{on} (ns) | t _{off} (ns) |
|----------|-----------------------------|-------------------|-------------------|-------------------|---|------------------------|-----------------|-----|------------------|-------------------|---------------------------------------|------|-------------------------|-------------------------|------------|-------------------------|--------------------------|
| | | (V) MIN | (V) MIN | (V) MIN | | | MIN | MAX | (mA) | (V) | (V) MAX | (mA) | | | | | |
| 2N3576 | PNP SAT SWITCH | 20 | 15 | 5.0 | -- | -- | 40 | 120 | 10 | 1.0 | 0.5 | 100 | 4.5 | 400 | -- | 30 | 50 |
| 2N3672 | PNP AMPL/SWITCH | 60 | 50 | 5.0 | 0.01 | 30 | 75 | 275 | 150 | 10 | 0.4 | 150 | 9.0 | 200 | -- | -- | -- |
| 2N3700 | NPN AMPL/SWITCH | 140 | 80 | 7.0 | 0.01 | 90 | 100 | 300 | 150 | 10 | 0.2 | 150 | 12 | 100 | 4.0 | -- | -- |
| 2N3701 | NPN AMPL/SWITCH | 140 | 80 | 7.0 | 0.01 | 90 | 40 | 120 | 150 | 10 | 0.2 | 150 | 12 | 80 | 4.0 | -- | -- |
| 2N3798A | PNP LOW NOISE | 90 | 90 | 5.0 | 0.01 | 50 | 150 | 450 | 0.5 | 5.0 | 0.25 | 1.0 | 4.0 | 30 | 3.5 | -- | -- |
| 2N3799A | PNP LOW NOISE | 90 | 90 | 5.0 | 0.01 | 50 | 300 | 900 | 0.5 | 5.0 | 0.25 | 1.0 | 4.0 | 30 | 2.5 | -- | -- |
| 2N3829 | PNP AMPL/SWITCH | 35 | 20 | 5.0 | 0.3* | 20 | 30 | 120 | 30 | 0.4 | 0.18 | 30 | 6.0 | 350 | -- | 35 | 65 |
| 2N3946 | NPN AMPL/SWITCH | 60 | 40 | 6.0 | 0.01 | 40 | 20 | -- | 50 | 1.0 | 0.3 | 50 | 4.0 | 250 | -- | -- | -- |
| 2N3947 | NPN AMPL/SWITCH | 60 | 40 | 6.0 | 0.01 | 40 | 40 | -- | 50 | 1.0 | 0.3 | 50 | 4.0 | 300 | -- | -- | -- |
| 2N3962 | PNP LOW NOISE | 60 | 60 | 6.0 | 0.01 | 50 | 100 | 450 | 1.0 | 5.0 | 0.25 | 10 | 6.0 | 40 | 3.0 | -- | -- |
| 2N3963 | PNP LOW NOISE | 80 | 80 | 6.0 | 0.01 | 70 | 100 | 450 | 1.0 | 5.0 | 0.25 | 10 | 6.0 | 40 | 3.0 | -- | -- |
| 2N3964 | PNP LOW NOISE | 45 | 45 | 6.0 | 0.01 | 40 | 250 | 600 | 1.0 | 5.0 | 0.25 | 10 | 6.0 | 40 | 2.0 | -- | -- |
| 2N3965 | PNP LOW NOISE | 60 | 60 | 6.0 | 0.01 | 50 | 250 | 600 | 1.0 | 5.0 | 0.25 | 10 | 6.0 | 40 | 2.0 | -- | -- |
| 2N4013 | NPN HIGH CURRENT SWITCH | 50 | 30 | 6.0 | 1.7 | 40 | 60 | 150 | 100 | 1.0 | 0.42 | 500 | 12 | 300 | -- | 35 | 60 |
| 2N4014 | NPN HIGH CURRENT SWITCH | 80 | 50 | 6.0 | 1.7 | 60 | 60 | 150 | 100 | 1.0 | 0.52 | 500 | 10 | 300 | -- | 35 | 60 |
| 2N4026 | PNP AMPL/SWITCH | 70 | 60 | 5.0 | -- | -- | 40 | 200 | 100 | 5.0 | 0.15 | 150 | 20 | 100 | -- | -- | -- |
| 2N4027 | PNP AMPL/SWITCH | 80 | 80 | 5.0 | 0.05 | 60 | 40 | 200 | 100 | 5.0 | 0.5 | 500 | 20 | 150 | -- | -- | -- |
| 2N4028 | PNP AMPL/SWITCH | 60 | 60 | 5.0 | 0.05 | 50 | 100 | 300 | 100 | 5.0 | 0.5 | 500 | 20 | 100 | -- | -- | -- |
| 2N4029 | PNP AMPL/SWITCH | 80 | 80 | 5.0 | 0.05 | 60 | 100 | 300 | 100 | 5.0 | 0.5 | 500 | 20 | 150 | -- | -- | -- |
| 2N4034 | PNP SAT SWITCH | 40 | 40 | 5.0 | 0.015 | 30 | 70 | 200 | 10 | 1.0 | 0.3 | 50 | 2.2 | 400 | -- | 40 | 150 |
| 2N4035 | PNP SAT SWITCH | 40 | 40 | 5.0 | 0.015 | 30 | 150 | 300 | 10 | 1.0 | 0.3 | 50 | 2.2 | 450 | -- | 40 | 150 |
| 2N4068 | NPN AMPL/SWITCH | 150 | 150 | 5.0 | 50 | 120 | 30 | -- | 30 | 10 | 3.0 | 30 | 3.5 | 50 | -- | -- | -- |
| 2N4137 | NPN SAT SWITCH | 40 | 15 | 4.0 | -- | -- | 40 | -- | 10 | 1.0 | 0.35 | 10 | 4.0 | 500 | -- | -- | -- |
| 2N4207 | PNP ULTRA HIGH SPEED SWITCH | 6.0 | 6.0 | 4.0 | 0.01 | 3.0 | 50 | 120 | 10 | 0.03 | 0.15 | 10 | 3.0 | 650 | -- | -- | 15 |
| 2N4208 | PNP SAT SWITCH | 12 | 12 | 4.0 | 0.01 | 6.0 | 30 | 120 | 10 | 0.3 | 0.15 | 10 | 3.0 | 700 | -- | -- | 20 |
| 2N4209 | PNP SAT SWITCH | 15 | 15 | 4.0 | 0.01 | 8.0 | 50 | 120 | 10 | 0.3 | 0.18 | 10 | 3.0 | 850 | -- | -- | 20 |
| 2N4269 | NPN AMPL/SWITCH | 200 | 140 | 15 | 1.0 | 150 | 40 | 200 | 10 | 10 | 1.0 | 10 | 5.0 | -- | -- | -- | -- |
| 2N4359 | PNP LOW NOISE | 60 | 45 | 5.0 | -- | -- | 50 | 500 | 0.01 | 5.0 | -- | -- | -- | 5.0 | -- | -- | -- |
| 2N4384 | NPN LOW NOISE | 40 | 30 | 5.0 | 0.01 | 30 | 100 | 500 | 0.01 | 5.0 | 0.2 | 10 | 8.0 | -- | 2.0 | -- | -- |
| 2N4386 | NPN LOW NOISE | 40 | 30 | 5.0 | 0.01 | 30 | 40 | 500 | 0.01 | 5.0 | 0.2 | 10 | 8.0 | -- | 3.0 | -- | -- |
| 2N4390 | NPN AMPL/SWITCH | 120 | 120 | 6.0 | 1.0** | 70 | 20 | -- | 2.0 | 1.0 | 0.2 | 2.0 | 6.0 | 50 | -- | -- | -- |
| 2N4413A | PNP LOW NOISE | 60 | 60 | 5.0 | 0.01 | 30 | 100 | 500 | 0.01 | 5.0 | 0.2 | 10 | 8.0 | -- | 2.0 | -- | -- |
| 2N4415A | PNP LOW NOISE | 60 | 60 | 5.0 | 0.01 | 30 | 40 | 500 | 0.01 | 5.0 | 0.2 | 10 | 8.0 | -- | 2.0 | -- | -- |
| 2N4962 | NPN AMPL/SWITCH | 60 | 60 | 6.0 | 0.01 | 50 | 100 | 300 | 150 | 10 | 0.5 | 500 | 15 | 250 | -- | -- | -- |
| 2N4963 | NPN AMPL/SWITCH | 80 | 80 | 6.0 | 0.01 | 50 | 100 | 300 | 150 | 10 | 0.5 | 500 | 15 | 250 | -- | -- | -- |
| 2N5056 | PNP FAST SWITCH | 15 | 15 | 4.5 | 50* | 10 | 30 | 100 | 30 | 0.5 | 0.19 | 30 | 4.5 | 600 | -- | -- | 35 |
| 2N5057 | PNP FAST SWITCH | 15 | 15 | 4.5 | 50* | 10 | 40 | 100 | 30 | 0.5 | 0.19 | 30 | 4.5 | 800 | -- | -- | 35 |
| CM4209 | PNP SAT SWITCH | 15 | 15 | 4.5 | 0.01* | 8.0 | 50 | 120 | 10 | 0.3 | 0.18 | 10 | 7.0 | 850 | -- | 20 | 20 |

(20-June 2011)

Small Signal Transistors

TO-18 Case (Continued)



| TYPE NO. | DESCRIPTION | V_{CB0} | V_{CEO} | V_{EBO} | I_{CBO} @ (mA) MAX *ICES **ICEV | V_{CB} (V) | h_{FE} | | @ I_C (mA) | @ V_{CE} (V) | $V_{CE(SAT)}$ @ I_C | | C_{OB} (pF) MAX | f_T (MHz) MIN | NF (dB) MAX | t_{on} (ns) MAX | t_{off} (ns) MAX |
|----------|------------------|-----------|-----------|-----------|---|-----------------|----------|------|-----------------|-------------------|-----------------------|-----|-------------------------|-----------------------|-------------------|-------------------------|--------------------------|
| | | MIN | MIN | MIN | | | MIN | MAX | | | MAX | MAX | | | | | |
| 2N5183 | NPN AMPL/SWITCH | 18 | 18 | 7.0 | 0.5 | 12 | 75 | 400 | 10 | 10 | 0.5 | 300 | 20 | 125 | -- | -- | -- |
| 2N6430 | NPN HIGH VOLTAGE | 200 | 200 | 6.0 | 0.1 | 160 | 50 | 200 | 30 | 10 | 0.5 | 20 | 4.0 | 50 | -- | -- | -- |
| 2N6431 | NPN HIGH VOLTAGE | 300 | 300 | 6.0 | 0.1 | 200 | 50 | 200 | 30 | 10 | 0.5 | 20 | 4.0 | 50 | -- | -- | -- |
| 2N6432 | PNP HIGH VOLTAGE | 200 | 200 | 5.0 | 0.25 | 160 | 30 | 150 | 30 | 10 | 0.5 | 20 | 6.0 | 50 | -- | -- | -- |
| 2N6433 | PNP HIGH VOLTAGE | 300 | 300 | 5.0 | 0.25 | 200 | 30 | 150 | 30 | 10 | 0.5 | 20 | 6.0 | 50 | -- | -- | -- |
| BC110 | NPN AMPL/SWITCH | 80 | 80 | 8.0 | 0.1 | 80 | 30 | -- | 2.0 | 5.0 | 0.6 | 50 | 5.0 | 50 | -- | -- | -- |
| BC187 | PNP AMPL/SWITCH | 30 | 25 | 5.0 | 0.1 | 30 | 140 | -- | 2.0 | 5.0 | -- | -- | -- | -- | -- | -- | -- |
| BC393 | PNP AMPL/SWITCH | 180 | 180 | 6.0 | 0.05 | 100 | 50 | -- | 10 | 10 | 0.3 | 10 | 7.0 | 5.0 | -- | 100 | 400 |
| BC394 | NPN AMPL/SWITCH | 180 | 180 | 6.0 | 0.05 | 100 | 50 | 100 | 10 | 10 | 0.3 | 10 | 7.0 | 5.0 | -- | 100 | 400 |
| BC477 | PNP AMPL/SWITCH | 90 | 80 | 6.0 | 0.01* | 70 | 70 | 250 | 2.0 | 5.0 | 0.25 | 10 | 6.0 | 150 | 10 | -- | -- |
| BCX22 | NPN AMPL/SWITCH | 125 | 125 | 5.0 | 0.1* | 100 | 40 | -- | 200 | 1.0 | 0.9 | 300 | 12 | 50 | -- | -- | -- |
| BCX23 | PNP AMPL/SWITCH | 125 | 125 | 5.0 | 0.1* | 100 | 40 | -- | 200 | 1.0 | 0.9 | 300 | 12 | 50 | -- | -- | -- |
| BCX24 | NPN AMPL/SWITCH | 100 | 100 | 7.0 | 0.03* | 0.03* | 20 | -- | 10 | 1.0 | 0.9 | 300 | 12 | 30 | -- | -- | -- |
| BCX39 | PNP AMPL/SWITCH | 100 | 100 | 5.0 | 0.1* | 100 | 40 | -- | 200 | 1.0 | 0.9 | 300 | 12 | 50 | -- | -- | -- |
| BCX94 | NPN AMPL/SWITCH | 100 | 100 | 5.0 | 100* | 100 | 63 | -- | 100 | 1.0 | 0.9 | 300 | 8.0 | 50 | -- | -- | -- |
| BCY70 | PNP AMPL/SWITCH | 50 | 40 | 5.0 | 0.5 | 50 | 15 | -- | 50 | 1.0 | 0.25 | 10 | 6.0 | 250 | 6.0 | 65 | 420 |
| BCY71 | PNP AMPL/SWITCH | 45 | 45 | 5.0 | 0.5 | 45 | 100 | 600 | 10 | 1.0 | 0.25 | 10 | 6.0 | 250 | 2.0 | -- | -- |
| BCY79 | PNP AMPL/SWITCH | 45 | 45 | 5.0 | 0.1* | 45 | 80 | 1.0K | 10 | 1.0 | 0.25 | 10 | 7.0 | 180 | 6.0 | 150 | 800 |
| BFR16 | NPN LOW NOISE | 60 | 60 | 8.0 | 0.01* | 50 | 150 | 490 | 1.0 | 5.0 | 5.0 | 10 | 6.0 | 70 | 4.0 | -- | -- |
| BFW68 | NPN AMPL/SWITCH | 50 | 40 | 5.0 | 0.01 | 30 | 45 | -- | 1.0 | 10 | 0.15 | 10 | 4.0 | 250 | 6.0 | 30 | 240 |
| BFX65 | PNP AMPL/SWITCH | 45 | 45 | 6.0 | 0.01* | 40 | 100 | -- | 1.0 | 5.0 | 0.25 | 10 | 6.5 | 100 | 3.0 | -- | -- |
| BFY18 | NPN AMPL/SWITCH | 40 | 25 | 3.0 | 0.01 | 20 | 25 | -- | 10 | 9.0 | 1.5 | 10 | 5.5 | 200 | -- | -- | -- |
| BFY74 | NPN AMPL/SWITCH | 60 | 45 | 5.0 | 0.01 | 45 | 40 | 180 | 10 | 5.0 | 1.0 | 10 | 4.0 | 250 | -- | -- | -- |
| BFY76 | NPN LOW NOISE | 60 | 60 | 8.0 | 0.02* | 50 | 150 | 300 | 1.0 | 5.0 | 0.35 | 1.0 | 6.0 | 70 | 4.0 | -- | -- |
| BSV68 | PNP AMPL/SWITCH | 110 | 100 | 6.0 | 10 | 110 | 30 | -- | 10 | 5.0 | 0.25 | 25 | 5.0 | 50 | -- | -- | -- |
| BSX19 | NPN AMPL/SWITCH | 40 | 15 | -- | 0.4 | 20 | 20 | 60 | 10 | 1.0 | 0.25 | 10 | 4.0 | 400 | -- | 12 | 15 |
| BSX20 | NPN AMPL/SWITCH | 40 | 15 | 4.5 | 0.4 | 20 | 40 | 120 | 10 | 1.0 | 0.25 | 10 | 4.0 | 500 | -- | 12 | 18 |
| BSX21 | NPN AMPL/SWITCH | 120 | 80 | 5.0 | 0.2 | 90 | 20 | -- | 4.0 | 1.0 | 0.70 | 4.0 | 4.5 | 60 | -- | -- | -- |
| BSX36 | PNP AMPL/SWITCH | 40 | 40 | 5.0 | 0.015 | 25 | 40 | -- | 10 | 10 | 1.8 | 500 | 8.0 | 100 | -- | 40 | 100 |
| BSX49 | NPN AMPL/SWITCH | 60 | 40 | 5.0 | 0.07 | 50 | 25 | -- | 100 | 1.0 | 1.0 | 500 | 6.0 | 250 | -- | 50 | 95 |
| BSX79 | NPN AMPL/SWITCH | 50 | 45 | 5.0 | 0.01 | 25 | 100 | 750 | 10 | 1.0 | 0.2 | 10 | 5.0 | 200 | -- | 150 | 800 |
| BSY18 | NPN AMPL/SWITCH | 20 | 12 | 5.0 | 1.0 | 20 | 40 | 120 | 10 | 0.35 | 0.28 | 10 | 5.0 | 280 | -- | 16 | 24 |
| BSY62 | NPN AMPL/SWITCH | 25 | 15 | 5.0 | 0.5 | 15 | 20 | 300 | 10 | 1.0 | 0.6 | 10 | 5.0 | 280 | -- | 40 | 75 |
| BSY79 | NPN AMPL/SWITCH | 120 | -- | 5.0 | 0.05 | 90 | 30 | -- | 1.0 | 1.0 | 0.5 | 2.0 | 4.0 | 50 | -- | -- | -- |
| BSY95A | NPN AMPL/SWITCH | 20 | 15 | 5.0 | 0.05 | 16 | 50 | 200 | 10 | 0.35 | 0.35 | 10 | 6.0 | 200 | -- | -- | -- |
| MM4257 | PNP FAST SWITCH | 6.0 | 6.0 | 4.5 | 0.01* | 6.0 | 30 | 120 | 10 | 0.3 | 0.15 | 10 | 3.0 | 500 | -- | 25 | 25 |
| MM4258 | PNP FAST SWITCH | 12 | 12 | 4.5 | 0.01* | 6.0 | 30 | 120 | 10 | 0.3 | 0.15 | 10 | 3.0 | 700 | -- | 25 | 30 |