

TO-92 Plastic Package Transistors (NPN)

| Maximum Ratings | | | | | | | Electrical Characteristics (Ta=25°C, Unless Otherwise Specified) | | | | | | | | | | | | | | | | | | | |
|-----------------|----------------------|----------------------|----------------------|--------------------|--------------------|-----------------------|--|-----------------------|---------------------|-----------------|------|-----------------------|---------------------|--------------------------|--------------------------|-----------------------|----------------------|----------------------|-----|---------------------|-----------------------|---------------------|--------------|----------------------|-----------------|---------|
| Type No. | V _{CBO} (V) | V _{CEO} (V) | V _{EB0} (V) | P _D (W) | I _C (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) | N _F (dB) | @ Freq (MHz) | C _{tr} (pF) | CDIL Case Style | |
| | Min | Min | Min | @ Tc=25°C | Max | Max | Max | Max | Min | Max | Min | Max | Max | Max | Min | Max | Typ | Max | Min | Typ | Max | Max | Max | Max | Max | |
| BC337-25 | 50 | 45 | 5 | 0.625 | 0.5 | 0.1 | 20 | | | 40 | 500 | 1 | | 0.7 | | 500 | 5 | 200 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 160 | 400 | 100 | 1 | | | | | | | | | | | | | |
| BC337-40 | 50 | 45 | 5 | 0.625 | 0.5 | 0.1 | 20 | | | 40 | 500 | 1 | | 0.7 | | 500 | 5 | 200 | | | | | 35 | | | TO-92-4 |
| | | | | | | | | | | 250 | 600 | 100 | 1 | | | | | | | | | | | | | |
| BC337A | 60 | 60 | 5 | 0.625 | 0.5 | 0.1 | 20 | | | 100 | 400 | 100 | 1 | 0.7 | | 500 | 5 | 200 | | | | | 35 | | | TO-92-4 |
| | | | | | | | | | | 40 | 500 | 1 | | | | | | | | | | | | | | |
| BC338 | 30 | 25 | 5 | 0.625 | 0.5 | 0.1 | 20 | | | 40 | 500 | 1 | | 0.7 | | 500 | 5 | 200 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 100 | 630 | 100 | 1 | | | | | | | | | | | | | |
| BC338-16 | 30 | 25 | 5 | 0.625 | 0.5 | 0.1 | 20 | | | 40 | 500 | 1 | | 0.7 | | 500 | 5 | 200 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 100 | 250 | 100 | 1 | | | | | | | | | | | | | |
| BC338-25 | 30 | 25 | 5 | 0.625 | 0.5 | 0.1 | 20 | | | 40 | 500 | 1 | | 0.7 | | 500 | 5 | 200 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 160 | 400 | 100 | 1 | | | | | | | | | | | | | |
| BC338-40 | 30 | 25 | 5 | 0.625 | 0.1 | 0.1 | 20 | | | 40 | 500 | 1 | | 0.7 | | 500 | 5 | 200 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 250 | 600 | 100 | 1 | | | | | | | | | | | | | |
| BC368 | 25 | 20 | 5 | 0.8 | 1 | 10 | 25 | | | 50 | 5 | 10 | | 0.5 | | 1000 | 27 | 65 | | | | | | | | TO-92-1 |
| | | | | | | | | | | 85 | 375 | 500 | 1 | | | | | | | | | | | | | |
| | | | | | | | | | | 60 | 1000 | 1 | | | | | | | | | | | | | | |
| BC413 | 45 | 30 | 5 | 0.35 | 0.1 | 0.015 | 30 | | | 180 | 800 | 2 | 5 | 0.25 | | 10 | 2.5 | 250 | | | | 2.5 | | | | TO-92-4 |
| | | | | | | | | | | | | | | 0.6 | | 100 | | | | | | | | | | |
| BC413B | 45 | 30 | 5 | 0.35 | 0.1 | 0.015 | 30 | | | 100 | | 0.01 | 5 | 0.25 | | 10 | 2.5 | 250 | | | | 2.5 | | | | TO-92-4 |
| | | | | | | | | | | 180 | 460 | 2 | 5 | 0.6 | | 100 | | | | | | | | | | |
| BC413C | 45 | 30 | 5 | 0.35 | 0.1 | 0.015 | 30 | | | 100 | | 0.01 | 5 | 0.25 | | 10 | 2.5 | 250 | | | | 2.5 | | | | TO-92-4 |
| | | | | | | | | | | 380 | 800 | 2 | 5 | 0.6 | | 100 | | | | | | | | | | |
| BC414 | 50 | 45 | 5 | 0.35 | 0.1 | 0.015 | 30 | | | 180 | 800 | 2 | 5 | 0.25 | | 10 | 2.5 | 250 | | | | 2.5 | | | | TO-92-4 |
| | | | | | | | | | | | | | | 0.6 | | 100 | | | | | | | | | | |
| BC414B | 50 | 45 | 5 | 0.35 | 0.1 | 0.015 | 30 | | | 100 | | 0.01 | 5 | 0.25 | | 10 | 2.5 | 250 | | | | 2.5 | | | | TO-92-4 |
| | | | | | | | | | | 180 | 460 | 2 | 5 | 0.6 | | 100 | | | | | | | | | | |
| BC414C | 50 | 45 | 5 | 0.35 | 0.1 | 0.015 | 30 | | | 100 | | 0.01 | 5 | 0.25 | | 10 | 2.5 | 250 | | | | 2.5 | | | | TO-92-4 |
| | | | | | | | | | | 380 | 800 | 2 | 5 | 0.6 | | 100 | | | | | | | | | | |
| BC445 | 60 | 60 | 5 | 0.625 | 0.3 | 0.1 | 40 | | | 50 | 460 | 2 | 5 | 0.25 | | 100 | | 100 | 250 | | | | | | | TO-92-4 |
| | | | | | | | | | | 50 | | 10 | 5 | | | | | | | | | | | | | |
| | | | | | | | | | | 50 | | 100 | 5 | | | | | | | | | | | | | |
| BC445A | 60 | 60 | 5 | 0.625 | 0.3 | 0.1 | 40 | | | 120 | 220 | 2 | 5 | 0.25 | | 100 | | 100 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 100 | | 10 | 5 | | | | | | | | | | | | | |
| | | | | | | | | | | 60 | | 100 | 5 | | | | | | | | | | | | | |
| BC447 | 80 | 80 | 5 | 0.625 | 0.3 | 0.1 | 60 | | | 50 | 460 | 2 | 5 | 0.25 | | 100 | | 100 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 50 | | 10 | 5 | | | | | | | | | | | | | |
| | | | | | | | | | | 50 | | 100 | 5 | | | | | | | | | | | | | |
| BC447A | 80 | 80 | 5 | 0.625 | 0.3 | 0.1 | 60 | | | 120 | 220 | 2 | 5 | 0.25 | | 100 | | 100 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 100 | | 10 | 5 | | | | | | | | | | | | | |
| | | | | | | | | | | 60 | | 100 | 5 | | | | | | | | | | | | | |
| BC447B | 80 | 80 | 5 | 0.625 | 0.3 | 0.1 | 60 | | | 180 | 460 | 2 | 5 | 0.25 | | 100 | | 100 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 160 | | 10 | 5 | | | | | | | | | | | | | |
| | | | | | | | | | | 90 | | 100 | 5 | | | | | | | | | | | | | |
| BC449 | 100 | 100 | 5 | 0.625 | 0.3 | 0.1 | 80 | | | 50 | 460 | 2 | 5 | 0.25 | | 100 | | 100 | | | | | | | | TO-92-4 |
| | | | | | | | | | | 50 | | 10 | 5 | | | | | | | | | | | | | |
| | | | | | | | | | | 50 | | 100 | 5 | | | | | | | | | | | | | |

§ NOTE : V_{CE(S)}
 * NOTE : HFE 1 kHz