

**POWER TRANSISTORS — BIPOLAR METAL (continued)**

**TO-204AA (FORMERLY TO-3) (continued)**

| I <sub>C</sub> Cont<br>Amps Max | V <sub>CE0</sub> (sus)<br>Volts Min | Device Type                  |                       | h <sub>FE</sub><br>Min/Max | @ I <sub>C</sub><br>Amp | Resistive Switching    |                     |                  | f <sub>T</sub><br>MHz<br>Min | P <sub>D</sub> (Case)<br>Watts<br>@ 25°C |
|---------------------------------|-------------------------------------|------------------------------|-----------------------|----------------------------|-------------------------|------------------------|---------------------|------------------|------------------------------|--|
|                                 |                                     | NPN                          | PNP                   |                            |                         | t <sub>s</sub>         | t <sub>r</sub>      | @ I <sub>C</sub> |                              |  |
|                                 |                                     |                              |                       |                            |                         | μs<br>Max              | μs<br>Max           | Amp              |                              |  |
| 24                              | 1000                                | BUT36                        |                       | 5 min                      | 16                      | 4.5 typ                | 1.7 typ             | 16               |                              | 250                                      |
| 25                              | 60                                  | 2N5885                       | 2N5883                | 20/100                     | 10                      | 1                      | 0.8                 | 10               | 4                            | 200                                      |
|                                 | 80                                  | 2N5886                       | 2N5884<br>2N6436      | 20/100<br>30/120           | 10<br>10                | 1<br>1                 | 0.8<br>0.25         | 10<br>10         | 4<br>40                      | 200<br>200                               |
|                                 | 100                                 | 2N6338                       | 2N6437                | 30/120<br>30/120           | 10<br>10                | 1<br>1                 | 0.25<br>0.25        | 10<br>10         | 40<br>40                     | 200<br>200                               |
|                                 | 120                                 | 2N6339                       | 2N6438                | 30/120<br>30/120           | 10<br>10                | 1<br>1                 | 0.25<br>0.25        | 10<br>10         | 40<br>40                     | 200<br>200                               |
|                                 | 125                                 | BUV10<br>BUX10               |                       | 10 min<br>20/60            | 20<br>10                | 1.2<br>1.2             | .25<br>.25          | 20<br>20         | 8<br>8                       | 150<br>150                               |
|                                 | 140                                 | 2N6340                       |                       | 30/120                     | 10                      | 1                      | 0.25                | 10               | 40                           | 200                                      |
|                                 | 150                                 | 2N6341                       |                       | 30/120                     | 10                      | 1                      | 0.25                | 10               | 40                           | 200                                      |
|                                 | 500                                 | BUT14                        |                       | 15 min                     | 16                      | 1.3 typ                | .3 typ              | 16               |                              | 175                                      |
| 28                              | 400                                 | BUT13                        |                       | 20 min                     | 18                      | 1.1 typ                | .3 typ              | 18               |                              | 175                                      |
| 30                              | 40                                  | 2N3771<br>2N5301             | 2N4398                | 15/60<br>15/60             | 15<br>15                | 2                      | 1                   | 10               | 2<br>2                       | 150<br>200                               |
|                                 | 60                                  | 2N5302<br>MJ11012            | 2N4399<br>MJ11011     | 15/60<br>1k min            | 15<br>20                | 2                      | 1                   | 10               | 2<br>4#                      | 200<br>200                               |
|                                 | 90                                  | MJ11014<br>BUX39             | MJ11013               | 1k min<br>8 min            | 20<br>20                | 1                      | .25                 | 20               | 4#<br>8                      | 200<br>120                               |
|                                 | 100                                 | 2N6328<br>MJ802              | MJ4502                | 6/30<br>25/100             | 30<br>7.5               |                        |                     |                  | 3<br>2                       | 200<br>200                               |
|                                 | 120                                 | MJ11016                      | MJ11015               | 1k min                     | 20                      |                        |                     |                  | 4#                           | 200                                      |
|                                 | 325                                 | BUV23                        |                       | 8 min                      | 16                      | 1.8                    | .4                  | 16               | 8                            | 250                                      |
|                                 | 400V                                | BUS98                        |                       | 8 min                      | 20                      | 1.55 typ               | .2 typ              | 20               |                              | 250                                      |
|                                 | 450                                 | MJ16020<br>MJ16022<br>BUS98A |                       | 5 min<br>7 min<br>8 min    | 30<br>30<br>16          | 1.8<br>1.5<br>1.55 typ | .2<br>.15<br>.2 typ | 20<br>20<br>16   |                              | 250<br>250<br>250                        |
| 40                              | 160                                 | BUV21N                       |                       | 10 min                     | 40                      | 1                      | .2                  | 40               | 8                            | 250                                      |
|                                 | 200                                 | BUV21                        |                       | 10 min                     | 25                      | 1.8                    | .4                  | 25               | 8                            | 150                                      |
|                                 | 250                                 | BUS52<br>BUV22               |                       | 15 min<br>10 min           | 40<br>20                | 2<br>1.1               | .3<br>.35           | 40<br>20         | 8                            | 250                                      |
|                                 | 250                                 | BUX12CECCL                   |                       | 20/60                      | 5                       | 2.0                    | 0.5                 | 10               |                              | 150                                      |
|                                 | 350                                 | MJ10022 ●                    |                       | 50/600                     | 10                      | 2.5                    | 0.9                 | 20               |                              | 250                                      |
|                                 | 400                                 | MJ10023 ●                    |                       | 50/600                     | 10                      | 2.5                    | 0.9                 | 20               |                              | 250                                      |
|                                 | 700                                 | BUT35                        |                       | 15 min                     | 24                      | 2.8 typ                | .65 typ             | 24               |                              | 250                                      |
| 50                              | 60                                  | 2N5685 ●<br>MJ11028 ●        | 2N5683 ●<br>MJ11029 ● | 15/60<br>400 min           | 25<br>50                | 0.5 typ                | 0.3 typ             | 25               | 2                            | 300<br>300                               |
|                                 | 80                                  | 2N5686 ●                     | 2N5684 ●<br>2N6377 ●  | 15/60<br>30/120            | 25<br>20                | 0.5 typ<br>0.8         | 0.3 typ<br>0.25     | 25<br>20         | 2<br>30                      | 300<br>250                               |
|                                 | 90                                  | MJ11030                      | MJ11031               | 400 min                    | 50                      |                        |                     |                  |                              | 300                                      |
|                                 | 100                                 | 2N6274 ●                     | 2N6378 ●              | 30/120                     | 20                      | 0.8                    | 0.25                | 20               | 30                           | 250                                      |
|                                 | 120                                 | 2N6275 ●<br>MJ11032 ●        | 2N6379 ●<br>MJ11033 ● | 30/120<br>400 min          | 20<br>50                | 0.8                    | 0.25                | 20               | 30                           | 250<br>300                               |
|                                 | 125                                 | BUX10CECCL                   |                       | 20/60                      | 10                      | 1.2                    | 0.3                 | 20               |                              | 150                                      |
|                                 | 125                                 | BUV20                        |                       | 10 min                     | 50                      | 1.2                    | .25                 | 50               | 8                            | 250                                      |
|                                 | 140                                 | 2N6276 ●                     |                       | 30/120                     | 20                      | 0.8                    | 0.25                | 20               | 30                           | 250                                      |
|                                 | 150                                 | 2N6277 ●                     |                       | 30/120                     | 20                      | 0.8                    | 0.25                | 20               | 30                           | 250                                      |
|                                 | 200                                 | BUS51                        |                       | 15 min                     | 50                      | 2                      | .3                  | 5                |                              |  |
|                                 | 400                                 | MJ10015 ●                    |                       | 10 min                     | 40                      | 2.5                    | 1.0                 | 20               |                              | 250                                      |
|                                 | 500                                 | MJ10016 ●<br>BUT34           |                       | 10 min<br>15 min           | 40<br>32                | 2.5<br>1.8 typ         | 1.0<br>.7 typ       | 20<br>32         |                              | 250<br>250                               |
| 56                              | 400                                 | BUT33                        |                       | 20 min                     | 36                      | 2 typ                  | .8 typ              | 36               |                              | 250                                      |
| 60                              | 200                                 | MJ10020 ●                    |                       | 75 min                     | 15                      | 3.5                    | 0.5                 | 30               |                              | 250                                      |
|                                 | 250                                 | MJ10021 ●                    |                       | 75 min                     | 15                      | 3.5                    | 0.5                 | 30               |                              | 250                                      |
| 70                              | 60                                  | MJ14000 ●                    | MJ14001 ●             | 15/100                     | 50                      |                        |                     |                  |                              | 300                                      |
|                                 | 80                                  | MJ14002 ●                    | MJ14003 ●             | 15/100                     | 50                      |                        |                     |                  |                              | 300                                      |
|                                 | 125                                 | BUS50                        |                       | 15 min                     | 40                      | 2                      | .3                  | 40               |                              |  |

● Modified TO-3, 60 mil pins  
#/h<sub>FE</sub> @ 1 MHz