

**Plastic TO-3PBL**  
Pin: 1 — Base, 2 — Collector, 3 — Emitter, 4 — Collector (Style 2, Case 340G-01)

| Mir.'s Type |          | Ic Cont (A) Max. | Vce(sat) <sup>(b)</sup> (V) Min. | hFE Min./Max. | @ Ic (A) | Resistive Switching      |                          |          | f <sub>r</sub> (MHz) Typ. | P <sub>D</sub> (Case) Watts @ 25°C |
|-------------|----------|------------------|----------------------------------|---------------|----------|--------------------------|--------------------------|----------|---------------------------|------------------------------------|
| NPN         | PNP      |                  |                                  |               |          | t <sub>s</sub> (μs) Max. | t <sub>r</sub> (μs) Max. | @ Ic (A) |                           |                                    |
| MJL32281A   | MJL1302A | 15.0             | 200                              | 60/175        | 7.00     | —                        | —                        | —        | 30.0 Typ.                 | 200.0                              |
| MJL21194    | MJL21193 | 16.0             | 250                              | 25/75         | 8.00     | —                        | —                        | —        | 4.0 Min.                  | 200.0                              |

**Plastic TO-225 Type (Formerly TO-126 Type)**  
**Pin: 1 — Emitter, 2 — Collector, 3 — Base (Style 1, Case 77-07 (TO-225AA))**  
**Pin: 1 — Base, 2 — Collector, 3 — Emitter (Style 3, Case 77-07 (TO-225AA))**

| Plastic TO-225 Type (Formerly TO-126 Type)                                |         |     |     |          |      |           |            |      |      |      |
|---------------------------------------------------------------------------|---------|-----|-----|----------|------|-----------|------------|------|------|------|
| Pin 1 — Emitter, 2 — Collector, 3 — Base (Style 1, Case 77-07 (TO-225AA)) |         |     |     |          |      |           |            |      |      |      |
| Pin 1 — Base, 2 — Collector, 3 — Emitter (Style 3, Case 77-07 (TO-225AA)) |         |     |     |          |      |           |            |      |      |      |
| MJE3439                                                                   | —       | 0.3 | 350 | 40/160   | 0.02 | —         | —          | —    | 15.0 | 15.0 |
| MJE344                                                                    | —       | 0.5 | 200 | 30/100   | 0.05 | —         | —          | —    | 20.8 | —    |
| MJE3490                                                                   | MJE350  | 0.5 | 300 | 30/240   | 0.05 | —         | —          | —    | —    | 20.8 |
| 2N4921                                                                    | 2N4918  | 1.0 | 40  | 20/100   | 0.50 | 0.60 Typ. | 0.300 Typ. | 0.5  | 3.0  | 30.0 |
| 2N4922                                                                    | 2N4919  | 1.0 | 60  | 20/100   | 0.50 | 0.60 Typ. | 0.300 Typ. | 0.5  | 3.0  | 30.0 |
| 2N4923                                                                    | 2N4920  | 1.0 | 60  | 0.50     | 0.50 | 0.60 Typ. | 0.300 Typ. | 0.5  | 3.0  | 30.0 |
| MJE181                                                                    | MJE172  | 3.0 | 60  | 50/250   | 0.10 | 0.60 Typ. | 0.1 Typ.   | 0.1  | 50.0 | 2.5  |
| MJE182                                                                    | MJE173  | 3.0 | 80  | 50/250   | 0.10 | 0.60 Typ. | 0.120 Typ. | 0.1  | 50.0 | 12.5 |
| —                                                                         | MJE371  | 4.0 | 40  | 40 Min.  | 1.00 | —         | —          | —    | —    | 40.0 |
| 2N5191                                                                    | 2N5194  | 4.0 | 60  | 25/100   | 1.50 | 0.40 Typ. | 0.400 Typ. | 0.5  | 2.0  | 40.0 |
| MJE800*                                                                   | MJE700* | 4.0 | 60  | 750 Min. | 1.50 | —         | —          | —    | 1.0* | 40.0 |
| 2N6038*                                                                   | 2N6035* | 4.0 | 60  | 750/18 K | 2.00 | 1.70 Typ. | 1.200 Typ. | 2.0  | 25.0 | 40.0 |
| 2N5192                                                                    | MJE195  | 4.0 | 80  | 25/100   | 1.50 | 0.40 Typ. | 0.400 Typ. | 1.5  | 2.0  | 40.0 |
| MJE802*                                                                   | MJE702* | 4.0 | 80  | 750 Min. | 1.50 | —         | —          | —    | 1.0* | 40.0 |
| MJE803*                                                                   | —       | 4.0 | 80  | 750 Min. | 2.00 | —         | —          | —    | 1.0* | 40.0 |
| 2N6039*                                                                   | 2N6036* | 4.0 | 80  | 750/18 K | 2.00 | 1.70 Typ. | 1.200 Typ. | 2.0  | 25.0 | 40.0 |
| MJE243                                                                    | MJE253  | 4.0 | 100 | 40/120   | 0.20 | 0.15 Typ. | 0.070 Typ. | 0.20 | 40.0 | 15.0 |
| MJE200*                                                                   | MJE210* | 5.0 | 25  | 45/180   | 2.00 | 0.13 Typ. | 0.035 Typ. | 2.0  | 65.0 | 15.0 |

| <b>DPAK — Surface Mount Power Package</b><br><b>Pin: 1 — Base, 2 — Collector, 3 — Emitter, 4 — Collector (Style 1, Case 39A-10')</b> |          |     |     |           |      |      |       |     |                   |      |
|--------------------------------------------------------------------------------------------------------------------------------------|----------|-----|-----|-----------|------|------|-------|-----|-------------------|------|
| MJD112 <sup>2</sup>                                                                                                                  | —        | 2.0 | 100 | 1000 Min. | 2.00 | 1.70 | 1.300 | 2.0 | 25.0 <sup>2</sup> | 20.0 |
| MJD31C                                                                                                                               | —        | 3.0 | 100 | 10 Min.   | 1.00 | 0.60 | 0.300 | 1.0 | 3.0               | 15.0 |
| —                                                                                                                                    | MJD45H11 | 8.0 | 80  | 40 Min.   | 4.00 | 0.50 | 0.140 | 5.0 | 50.0 Typ.         | 20.0 |

|                      |                      |      |         |          |       |           |            |      |                         |
|----------------------|----------------------|------|---------|----------|-------|-----------|------------|------|-------------------------|
| MJ3441               | —                    | 10.0 | 140     | 2070     | 4.00  | —         | —          | —    | 117.0                   |
| MJ15011              | —                    | 10.0 | 250     | 20100    | 2.00  | —         | —          | —    | 200.0                   |
| MJ423                | —                    | 10.0 | 325     | 3090     | 1.00  | —         | —          | 2.5  | 125.0                   |
| MJ10012 <sup>2</sup> | —                    | 10.0 | 400     | 1002 K   | 6.00  | 15.00     | 6.0        | —    | 175.0                   |
| 2N6058 <sup>3</sup>  | —                    | 12.0 | 80      | 750/18 K | 6.00  | 1.60 Typ. | 1.500 Typ. | 6.0  | 4.0 <sup>1</sup> 150.0  |
| 2N6059 <sup>3</sup>  | 2N6052 <sup>3</sup>  | 12.0 | 100     | 750/18 K | 6.00  | 1.60 Typ. | 1.500 Typ. | 6.0  | 4.0 <sup>1</sup> 150.0  |
| 2N3055 <sup>3</sup>  | —                    | 15.0 | 60      | 2070     | 4.00  | 0.70 Typ. | 0.300 Typ. | 4.0  | 2.5 115.0               |
| 2N3056A <sup>3</sup> | —                    | 15.0 | 60      | 2070     | 4.00  | —         | —          | —    | 115.0                   |
| MJ15015 <sup>3</sup> | —                    | 15.0 | 120     | 2070     | 4.00  | —         | —          | —    | 180.0                   |
| MJ15001              | MJ15016              | 15.0 | 140     | 25150    | 4.00  | 0.70 Typ. | 0.300 Typ. | 4.0  | 1.0 200.0               |
| —                    | MJ15002              | 15.0 | 300     | —        | —     | —         | —          | 2.0  | 200.0                   |
| —                    | MJ11021 <sup>1</sup> | 15.0 | 300     | 6/30     | 10.00 | 4.00      | 0.700      | 10.0 | 6.0-24 175.0            |
| 2N6547               | —                    | 15.0 | 400/850 | 6/30     | 10.00 | 4.00      | 0.700      | 10.0 | 6.0-24 175.0            |
| MJ16010              | —                    | 15.0 | 450/850 | 5 Min.   | 15.00 | 1.20 Typ. | 0.200 Typ. | 10.0 | — 175.0                 |
| MJ16012              | —                    | 15.0 | 450/850 | 7 Min.   | 15.00 | 0.90 Typ. | 0.150 Typ. | 10.0 | — 175.0                 |
| 2N3773               | 2N6609               | 16.0 | 140     | 8/50     | 8.00  | 1.10 Typ. | 0.500 Typ. | 8.0  | 4.0 150.0               |
| —                    | 2N6031 <sup>1</sup>  | 16.0 | 140     | 15/60    | 8.00  | 1.20 Typ. | 1.200 Typ. | 8.0  | 1.0 200.0               |
| MJ15022              | MJ15023              | 16.0 | 200     | 15/60    | 8.00  | —         | —          | 5.0  | 250.0                   |
| MJ15024              | MJ15025              | 16.0 | 250     | 15/60    | 8.00  | —         | —          | 5.0  | 250.0                   |
| 2N3772               | —                    | 20.0 | 60      | 15/60    | 10.00 | —         | —          | 5.0  | 250.0                   |
| 2N6282 <sup>2</sup>  | —                    | 20.0 | 60      | 750/18 K | 10.00 | 2.50 Typ. | 2.500 Typ. | 10.0 | 4.0 <sup>1</sup> 160.0  |
| —                    | 2N6286 <sup>2</sup>  | 20.0 | 80      | 750/18 K | 10.00 | 2.50 Typ. | 2.500 Typ. | 10.0 | 4.0 <sup>1</sup> 160.0  |
| 2N5038 <sup>3</sup>  | —                    | 20.0 | 80      | 750/18 K | 10.00 | 1.50      | 0.500 Typ. | 12.0 | 60.0                    |
| 2N6284 <sup>3</sup>  | 2N6287 <sup>3</sup>  | 20.0 | 100     | 750/18 K | 10.00 | 2.50 Typ. | 2.500 Typ. | 10.0 | 4.0 <sup>1</sup> 160.0  |
| MJ15003 <sup>3</sup> | MJ15004 <sup>4</sup> | 20.0 | 140     | 25150    | 5.00  | —         | —          | 2.0  | 250.0                   |
| MJ10005 <sup>2</sup> | —                    | 20.0 | 400     | 40/400   | 10.00 | 1.50      | 0.500      | 10.0 | 10.0 <sup>1</sup> 175.0 |
| MJ13333              | —                    | 20.0 | 400     | 10/60    | 5.00  | 4.00      | 0.700      | 10.0 | — 175.0                 |
| MJ10009 <sup>3</sup> | —                    | 20.0 | 500     | 30/300   | 10.00 | 2.00      | 0.600      | 10.0 | 8.0 <sup>1</sup> 175.0  |
| 2N5885               | —                    | 25.0 | 60      | 20/100   | 10.00 | 1.00      | 0.800      | 10.0 | 4.0 200.0               |
| 2N5886 <sup>1</sup>  | 2N5884 <sup>1</sup>  | 25.0 | 60      | 20/100   | 10.00 | 1.00      | 0.800      | 10.0 | 4.0 200.0               |
| 2N6344 <sup>1</sup>  | —                    | 25.0 | 150     | 30/120   | 10.00 | 1.00      | 0.250      | 10.0 | 4.0 200.0               |
| 2N3771               | —                    | 30.0 | 40      | 15/60    | 15.00 | —         | —          | 2.0  | 150.0                   |
| MJ11012 <sup>2</sup> | —                    | 30.0 | 60      | 1 K Min. | 20.00 | —         | —          | 2.0  | 200.0                   |
| MJ802                | MJ4502               | 30.0 | 100     | 25/100   | 7.50  | —         | —          | 2.0  | 200.0                   |
| MJ11016 <sup>3</sup> | MJ11015 <sup>3</sup> | 30.0 | 120     | 1 K Min. | 20.00 | —         | —          | 4.0  | 200.0                   |
| MJ10023 <sup>2</sup> | —                    | 40.0 | 400     | 50/600   | 10.00 | 2.50      | 0.900      | 20.0 | — 250.0                 |
| 2N5686               | 2N5684 <sup>1</sup>  | 50.0 | 80      | 15/60    | 15.00 | 0.50 Typ. | 0.300 Typ. | 20.0 | 2.0 300.0               |
| MJ11030 <sup>2</sup> | —                    | 50.0 | 90      | 400/80   | 50.00 | —         | —          | —    | 300.0                   |
| MJ11032 <sup>2</sup> | MJ11033 <sup>2</sup> | 50.0 | 120     | 400 Min. | 50.00 | —         | —          | —    | 300.0                   |
| MJ10016 <sup>2</sup> | —                    | 50.0 | 500     | 10 Min.  | 40.00 | 2.50      | 1.000      | 20.0 | — 25                    |

|                       |                       |    |     |          |      |          |           |                  |                  |     |
|-----------------------|-----------------------|----|-----|----------|------|----------|-----------|------------------|------------------|-----|
| TIP140 <sup>1</sup>   | TIP145 <sup>1</sup>   | 10 | 60  | 500 Min. | 10.0 | 2.5 Typ. | 2.50 Typ. | 5.0              | 4.0 <sup>1</sup> | 125 |
| TIP141 <sup>1</sup>   | TIP146 <sup>1</sup>   | 10 | 80  | 500 Min. | 10.0 | 2.5 Typ. | 2.50 Typ. | 5.0              | 4.0 <sup>1</sup> | 125 |
| TIP142 <sup>1</sup>   | —                     | 10 | 100 | —        | 10.0 | 2.5 Typ. | 2.50 Typ. | 5.0              | 4.0 <sup>1</sup> | 125 |
| TIP3055               | TIP2955               | 15 | 60  | 5 Min.   | 10.0 | —        | —         | 2.5              | 80               | 125 |
| MJH11020 <sup>1</sup> | —                     | 15 | 200 | 400/15 K | 10.0 | —        | —         | 3.0 <sup>1</sup> | 150              | 125 |
| MJH11022 <sup>1</sup> | MJH11021 <sup>1</sup> | 15 | 250 | 400/15 K | 10.0 | —        | —         | 3.0 <sup>1</sup> | 150              | 125 |
| BUV48A                | —                     | 15 | 450 | 8 Min.   | 8.0  | 2.0      | 0.40      | 10.0             | —                | 150 |
| MEJ4343               | —                     | 16 | 160 | 15 Min.  | 8.0  | 1.2 Typ. | 1.20      | 8.0              | 1.0              | 125 |
| MJH6282 <sup>1</sup>  | MJH6287 <sup>1</sup>  | 20 | 100 | 750/18 K | 10.0 | —        | —         | 4.0 <sup>1</sup> | 125              | 125 |
| TIP35C                | TIP36C                | 25 | 100 | 10/75    | 15.0 | 0.6 Typ. | 0.30 Typ. | 10.0             | 3.0              | 125 |

<sup>1</sup>1HHz @ MHz. <sup>2</sup>Darlington. <sup>3</sup>Available as preferred chip. <sup>4</sup>Case 77, (Style 3). <sup>5</sup>When 2 voltages are given, the format is V<sub>CEO(sus)</sub>/V<sub>CEs</sub>. <sup>6</sup>Case 369A-10 may be ordered tape and reeled by adding a "T4" suffix; 2500 units/reel. <sup>7</sup>Case 197A-03 (TO-204AE).

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