

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

| Mir.'s Type |          | ICont (A) Max. | V <sub>GS(on)</sub> <sup>1)</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>ps</sub> (μs) Max. | t <sub>p</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                                                                    | —       | 0.5 | 300 | 30/240   | 0.05 | —         | —          | —    | 20.8 | —    |
| 2N4921                                                                     | MJE3508 | 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                                                                     | MJE172  | 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   | 0.20 | 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 |

|                       |                       |      |         |          |       |           |            |      |                  |       |       |
|-----------------------|-----------------------|------|---------|----------|-------|-----------|------------|------|------------------|-------|-------|
| 2N3442                | —                     | 10.0 | 140     | 20/70    | 4.00  | —         | —          | —    | —                | 117.0 |       |
| MJ15011               | —                     | 10.0 | 250     | 20/100   | 2.00  | —         | —          | —    | —                | 200.0 |       |
| MJ423                 | —                     | 10.0 | 325     | 30/90    | 1.00  | —         | —          | —    | 2.5              | 125.0 |       |
| MJ10012 <sup>2</sup>  | —                     | 10.0 | 400     | 100/2 K  | 6.00  | 15.00     | 15.000     | 6.0  | —                | 175.0 |       |
| 2N6058 <sup>1</sup>   | —                     | 12.0 | 8.0     | 750/18 K | 6.00  | 1.60 Typ. | 1.500 Typ. | 6.0  | 4.0 <sup>1</sup> | 150.0 |       |
| 2N6059 <sup>1,3</sup> | 2N6052 <sup>1,3</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>1</sup>   | —                     | 15.0 | 6.0     | 20/70    | 4.00  | 0.70 Typ. | 0.300 Typ. | 4.0  | 2.5              | 115.0 |       |
| 2N3055A               | —                     | 15.0 | 6.0     | 20/70    | 4.00  | —         | —          | —    | —                | 0.8   | 115.0 |
| MJ15016               | —                     | 15.0 | 120     | 20/70    | 4.00  | —         | —          | —    | —                | 1.0   | 200.0 |
| MJ15002               | —                     | 15.0 | 140     | 25/150   | 4.00  | 0.70 Typ. | 0.300 Typ. | 4.0  | —                | 2.0   | 200.0 |
| MJ15001               | —                     | 15.0 | 30.0    | 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 <sup>2</sup>   | —                     | 16.0 | 140     | 15/60    | 8.00  | 1.10 Typ. | 1.500 Typ. | 8.0  | 4.0              | 150.0 |       |

<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  $V_{CE(sat)}/V_{CE}$ . <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).

|                       |                       |    |     |          |      |          |           |                  |                  |     |
|-----------------------|-----------------------|----|-----|----------|------|----------|-----------|------------------|------------------|-----|
| 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 |

**Plastic TO-247 Type**  
Pin: 1 — Base, 2 — Collector, 3 — Emitter, 4 — Collector (Case 340F-03)

| Mfr.'s<br>Type | IcCont<br>(A)<br>Max. | VCE(sat)<br>(V)<br>Min. | VCEs<br>(V)<br>Min. | hFE<br>Min./Max. | @ Ic<br>(A) | Resistive Switching             |                                  |             | fT<br>(MHz)<br>Min. | Po (Case)<br>Watts<br>@ 25°C |
|----------------|-----------------------|-------------------------|---------------------|------------------|-------------|---------------------------------|----------------------------------|-------------|---------------------|------------------------------|
| NPN            |                       |                         |                     |                  |             | t <sub>ON</sub><br>(μs)<br>Max. | t <sub>OFF</sub><br>(μs)<br>Max. | @ Ic<br>(A) |                     |                              |
| MJW16018       | 10                    | 800                     | 1500                | 4 Min.           | 5.0         | 2.45 Typ.                       | 0.20 Typ.                        | 5.0         | 3.0 Typ.            | 150                          |
| MJW16206       | 12                    | 500                     | 1200                | 5/13             | 10.0        | 4.25 Typ.                       | 0.25 Typ.                        | 6.5         | 3.0 Typ.            | 150                          |