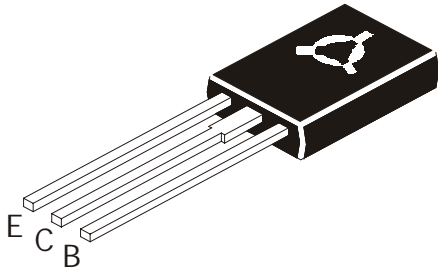


PNP DARLINGTON POWER SILICON TRANSISTORS



**BD676, 676A
BD678, 678A
BD680, 680A
BD682, 684**

**TO126
Plastic Package**

For Use As Output Devices In Complementary General Purpose Amplifier Applications.

**COMPLEMENTARY TO BD675, 675A, 677, 677A, 679, 679A, 681 & 683
BD678, 678A, 680, 680A ARE EQUIVALENT TO MJE700, 702, 703.**

ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless specified otherwise)

| DESCRIPTION | SYMBOL TEST CONDITION | BD676 | BD678 | BD680 | BD682 | BD684 | UNIT |
|--|-----------------------|--------|--------|-------------|-------|-------|------|
| | | BD676A | BD678A | BD680A | | | |
| Collector -Base Voltage | V_{CBO} | 45 | 60 | 80 | 100 | 120 | V |
| Collector -Emitter Voltage | V_{CEO} | 45 | 60 | 80 | 100 | 120 | V |
| Emitter Base Voltage | V_{EBO} | | | 5.0 | | | V |
| Collector Current | I_C | | | 4.0 | | | A |
| Base Current | I_B | | | 0.1 | | | A |
| Collector Power Dissipation @ Tc=25°C | P_D | | | 40 | | | W |
| Derate above 25°C | | | | 0.32 | | | W/°C |
| Operation and Storage Junction Temperature Range | T_j, T_{stg} | | | -55 to +150 | | | °C |

THERMAL RESISTANCE

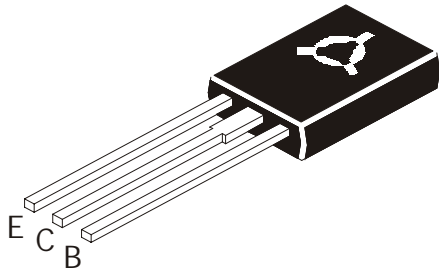
| | | | | | | | |
|------------------|---------------|--|--|------|--|--|------|
| Junction to Case | $R_{th(j-c)}$ | | | 3.13 | | | °C/W |
|------------------|---------------|--|--|------|--|--|------|

ELECTRICAL CHARACTERISTICS (Ta=25°C unless specified otherwise)

| DESCRIPTION | SYMBOL TEST CONDITION | BD676 | BD678 | BD680 | BD682 | BD684 | UNIT |
|---------------------------|--|--|-------------------|--------|-------|-------|------|
| | | BD676A | BD678A | BD680A | | | |
| Collector Emitter Voltage | BV_{CEO}^* $I_C=50mA, I_B=0$ | >45 | >60 | >80 | >100 | >120 | V |
| Collector Cut off Current | I_{CEO} $V_{CE}=\text{Half Rated } V_{CEO}, I_B=0$ | <500 | <500 | <500 | <500 | >120 | μA |
| Collector Cut off Current | I_{CBO} $V_{CB}=\text{Rated } V_{CBO}, I_E=0$ | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | mA |
| | $V_{CB}=\text{Rated } V_{CBO}, I_E=0$ Ta=100°C | <2 | <2 | <2 | <2 | <2 | mA |
| Emitter Cut off Current | I_{EBO} $V_{EB}=5V, I_C=0$ | <2 | <2 | <2 | <2 | <2 | mA |
| DC Current Gain | h_{FE}^* | | | | | | |
| | NON A A | $I_C=1.5A, V_{CE}=3V$ $I_C=2A, V_{CE}=3V$ | <----- >750-----> | | | | |

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TO126
 Plastic Package

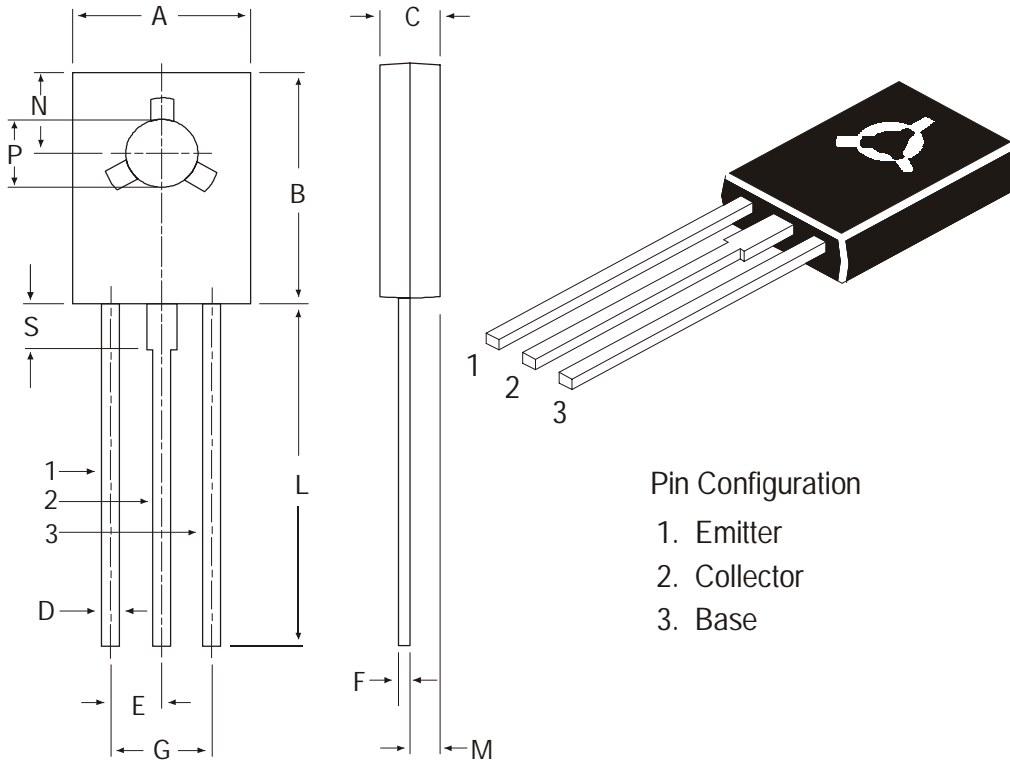
| DESCRIPTION | SYMBOL | TEST CONDITION | BD676 | BD678 | BD680 | BD682 | BD684 | UNIT |
|---|--------------|-----------------------------------|-------------------|--------|--------|-------|-------|------|
| | | | BD676A | BD678A | BD680A | | | |
| Collector Emitter Saturation Voltage | | $V_{CE(sat)}^*$ | | | | | | |
| | NON A | $I_C=1.5A, I_B=30mA$ | <-----<2.5-----> | | | | | V |
| | A | $I_C=2.0A, I_B=40mA$ | <-----<2.8-----> | | | | | V |
| Base Emitter on Voltage | | $V_{BE(on)}^*$ | | | | | | |
| | NON A | $I_C=1.5A, V_{CE}=3V$ | <-----<2.5-----> | | | | | V |
| | A | $I_C=2A, V_{CE}=3V$ | <-----<2.5-----> | | | | | V |
| Small Signal Current Gain | lhfe1 | $I_C=1.5A, V_{CE}=3V$ $f=1MHz$ | <----- >1.0-----> | | | | | |

*Pulse Condition: Width = 300μs, Duty Cycle < 2%.

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TO126
 Plastic Package

TO-126 (SOT-32) Plastic Package



| DIM | MIN | MAX |
|-----|-----------|------|
| A | 7.4 | 7.8 |
| B | 10.5 | 10.8 |
| C | 2.4 | 2.7 |
| D | 0.7 | 0.9 |
| E | 2.25 TYP. | |
| F | 0.49 | 0.75 |
| G | 4.5 TYP. | |
| L | 15.7 TYP. | |
| M | 1.27 TYP. | |
| N | 3.75 TYP. | |
| P | 3.0 | 3.2 |
| S | 2.5 TYP. | |

All dimensions in mm.

Packing Detail

| PACKAGE | STANDARD PACK | | INNER CARTON BOX | | OUTER CARTON BOX | | |
|-------------|-----------------|----------------|-------------------|-----|-------------------|-----|--------|
| | Details | Net Weight/Qty | Size | Qty | Size | Qty | Gr Wt |
| TO-126 Bulk | 500 pcs/polybag | 340 gm/500 pcs | 3" x 7.5" x 7.5" | 2K | 17" x 15" x 13.5" | 32K | 31 kgs |
| TO-126 Tube | 50 pcs/tube | 73 gm/50 pcs | 3" x 3.7" x 21.5" | 1K | 19" x 19" x 19" | 10K | 15 kgs |