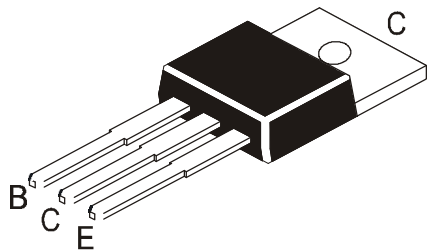


## PNP SILICON PLANAR DARLINGTON POWER TRANSISTOR

**BDW47**

**TO-220**

**Plastic Package**



**General Purpose and Low Speed Switching Application**

**Complementary BDW42**

### ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION                                       | SYMBOL         | VALUE        | UNIT                |
|---|----------------|--------------|---------------------|
| Collector-Emitter Voltage                         | $V_{CEO}$      | 100          | V                   |
| Collector-Base Voltage                            | $V_{CBO}$      | 100          | V                   |
| Emitter-Base Voltage                              | $V_{EBO}$      | 5.0          | V                   |
| Collector Current Continuous                      | $I_C$          | 15           | A                   |
| Base Current                                      | $I_B$          | 0.5          | A                   |
| Total Device Dissipation @ $T_c=25^\circ\text{C}$ | $P_D$          | 85           | W                   |
| Derate above $25^\circ\text{C}$                   |                | 0.68         | W/ $^\circ\text{C}$ |
| Operating And Storage Junction Temperature Range  | $T_j, T_{stg}$ | - 55 to +150 | $^\circ\text{C}$    |

### THERMAL RESISTANCE

|                  |               |      |                    |
|------------------|---------------|------|--------------------|
| Junction to Case | $R_{th(j-c)}$ | 1.47 | $^\circ\text{C/W}$ |
|------------------|---------------|------|--------------------|

### ELECTRICAL CHARACTERISTICS ( $T_c=25^\circ\text{C}$ unless specified otherwise )

| DESCRIPTION                          | SYMBOL          | TEST CONDITION  | MIN         | MAX        | UNIT |
|--------------------------------------|-----------------|---|-------------|------------|------|
| Collector Emitter Sustaining Voltage | $*V_{CEO(sus)}$ | $I_C=30\text{mA}, I_B=0$  | 100         |            | V    |
| Collector Cutoff Current             | $I_{CEO}$       | $V_{CE}=50\text{V}, I_B=0$  |             | 2.0        | mA   |
| Collector Cutoff Current             | $I_{CBO}$       | $V_{CB}=100\text{V}, I_E=0$   |             | 1.0        | mA   |
| Emitter Cutoff Current               | $I_{EBO}$       | $V_{BE}=5.0\text{V}, I_C=0$   |             | 2.0        | mA   |
| DC Current Gain                      | $*h_{FE}$       | $I_C=5.0\text{A}, V_{CE}=4.0\text{V}$<br>$I_C=10\text{A}, V_{CE}=4.0\text{V}$ | 1000<br>250 |            |      |
| Collector Emitter Saturation Voltage | $*V_{CE(sat)}$  | $I_C=5.0\text{A}, I_B=10\text{mA}$<br>$I_C=10\text{A}, I_B=50\text{mA}$       |             | 2.0<br>3.0 | V    |
| Base Emitter On Voltage              | $*V_{BE(on)}$   | $I_C=10\text{A}, V_{CE}=4.0\text{V}$  |             | 3.0        | V    |

### SECOND BREAKDOWN

|   |             |                         |     |  |   |
|---|-------------|-------------------------|-----|--|---|
| Second Breakdown Collector Current with Base Forward Biased | $**I_{S/b}$ | $V_{CE} = 22.5\text{V}$ | 3.8 |  | A |
|   |             | $V_{CE} = 36\text{V}$   | 1.2 |  | A |

### DYNAMIC CHARACTERISTICS

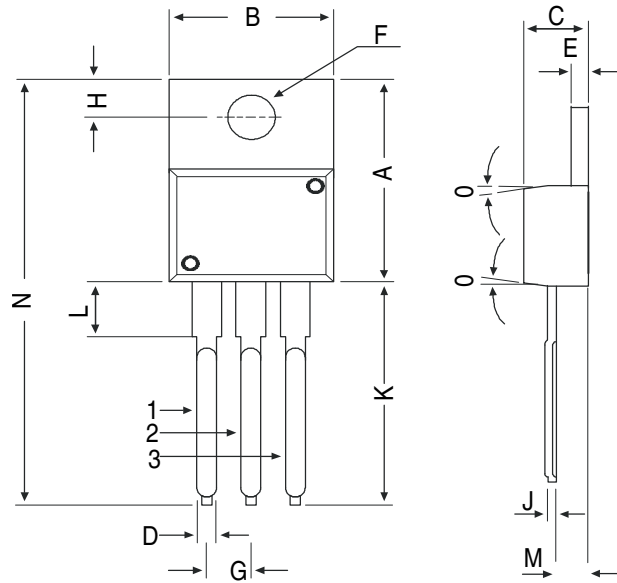
|                           |          |  |     |     |     |
|---------------------------|----------|--|-----|-----|-----|
| Transition Frequency      | $f_T$    | $I_C=3.0\text{A}, V_{CE}=3.0\text{V}, f=1\text{MHz}$ | 4.0 |     | MHz |
| Output Capacitance        | $C_{ob}$ | $V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$          |     | 300 | pF  |
| Small-Signal Current Gain | $h_{fe}$ | $I_C=3.0\text{A}, V_{CE}=3.0\text{V}, f=1\text{kHz}$ | 300 |     |     |

\* Pulse test : Pulse Width =300 $\mu\text{s}$ , Duty Cycle = 2.0%

\*\* Pulse test non repetitive : Pulse Width = 250 ms

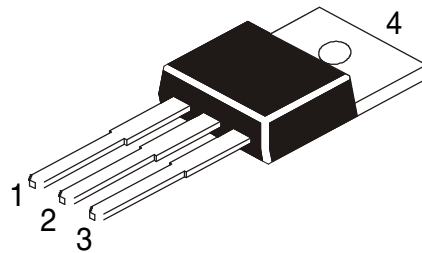
# TO-220 Plastic Package

## TO-220 Plastic Package



| DIM | MIN   | MAX   |
|-----|-------|-------|
| A   | 14.42 | 16.51 |
| B   | 9.63  | 10.67 |
| C   | 3.56  | 4.83  |
| D   | —     | 0.90  |
| E   | 1.15  | 1.40  |
| F   | 3.75  | 3.88  |
| G   | 2.29  | 2.79  |
| H   | 2.54  | 3.43  |
| J   | —     | 0.56  |
| K   | 12.70 | 14.73 |
| L   | 2.80  | 4.07  |
| M   | 2.03  | 2.92  |
| N   | —     | 31.24 |
| O   | 7 DEG |       |

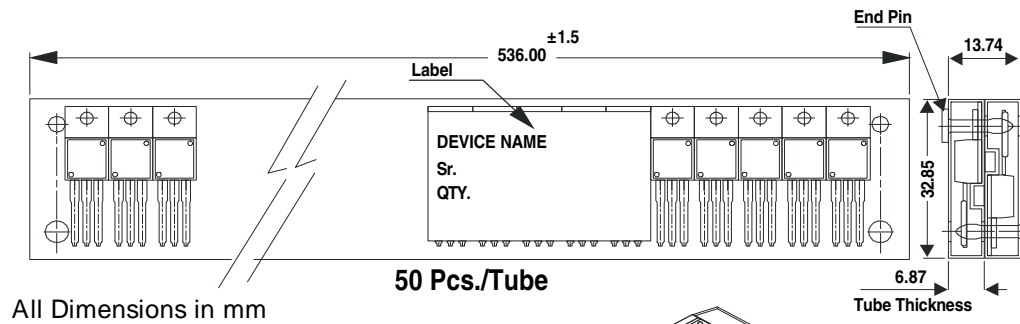
All diminsions in mm.



### Pin Configuration

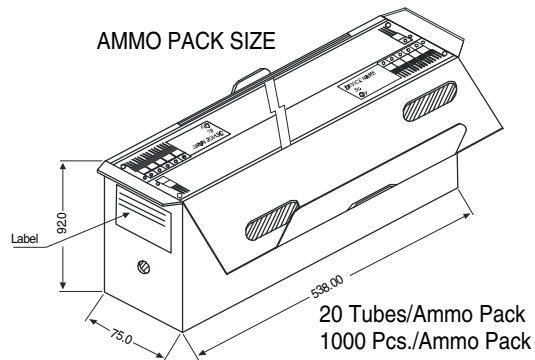
1. Base
2. Collector
3. Emitter
4. Collector

## TO-220 Tube Packing



50 Pcs./Tube

AMMO PACK SIZE



20 Tubes/Ammo Pack  
1000 Pcs./Ammo Pack

## Packing Detail

| PACKAGE | STANDARD PACK   |                | INNER CARTON BOX    |      | OUTER CARTON BOX  |       |        |
|---------|-----------------|----------------|---------------------|------|-------------------|-------|--------|
|         | Details         | Net Weight/Qty | Size                | Qty  | Size              | Qty   | Gr Wt  |
| TO-220  | 200 pcs/polybag | 396 gm/200 pcs | 3" x 7.5" x 7.5"    | 1.0K | 17" x 15" x 13.5" | 16.0K | 36 kgs |
|         | 50 pcs/tube     | 120 gm/50 pcs  | 3.5" x 3.7" x 21.5" | 1.0K | 19" x 19" x 19"   | 10.0K | 29 kgs |

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