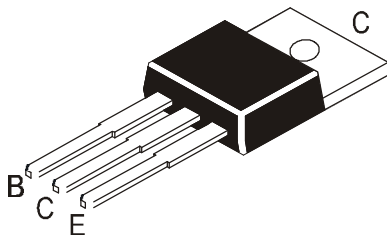


## NPN SILICON EPITAXIAL POWER TRANSISTORS

C44C8, C44C11

TO - 220  
Plastic Package



## Medium Power Switching and Amplifier Applications

Complementary C45C Series

### ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION                                    | SYMBOL         | C44C8       | C44C11 | UNIT             |
|------------------------------------------------|----------------|-------------|--------|------------------|
| Collector- Emitter Voltage                     | $V_{CES}$      | 70          | 90     | V                |
| Collector- Emitter Voltage                     | $V_{CEO}$      | 60          | 80     | V                |
| Emitter- Base Voltage                          | $V_{EBO}$      | 5           |        | V                |
| Collector Current Continuous                   | $I_C$          | 4           |        | A                |
| Peak *                                         | $I_{CM}$       | 6           |        |                  |
| Base Current Continuous                        | $I_B$          | 2           |        | A                |
| Power Dissipation $T_A=25^\circ\text{C}$       | $P_D$          | 1.67        |        | W                |
| $T_C=25^\circ\text{C}$                         |                | 30          |        |                  |
| Operating & Storage Junction Temperature Range | $T_j, T_{stg}$ | -55 to +150 |        | $^\circ\text{C}$ |

### Thermal Resistance

|                     |               |     |                    |
|---------------------|---------------|-----|--------------------|
| Junction to Ambient | $R_{th(j-a)}$ | 75  | $^\circ\text{C/W}$ |
| Junction to Case    | $R_{th(j-c)}$ | 4.2 | $^\circ\text{C/W}$ |

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

| DESCRIPTION                           | SYMBOL         | TEST CONDITION                      | MIN | TYP | MAX | UNIT          |
|---------------------------------------|----------------|-------------------------------------|-----|-----|-----|---------------|
| Collector- Emitter Sustaining Voltage | $V_{CEO(sus)}$ | $I_C=100\text{mA}, I_B=0$           |     |     |     |               |
|                                       |                | <b>C44C8</b>                        | 60  | -   | -   | V             |
|                                       |                | <b>C44C11</b>                       | 80  | -   | -   | V             |
| Collector Cut off Current             | $I_{CES}$      | $V_{CE}=\text{Rated } V_{CES}$      | -   | -   | 10  | $\mu\text{A}$ |
| Emitter Cut off Current               | $I_{EBO}$      | $V_{EB}=5\text{V}, I_C=0$           | -   | -   | 100 | $\mu\text{A}$ |
| DC Current Gain                       | $h_{FE}^*$     | $I_C=0.2\text{A}, V_{CE}=1\text{V}$ | 100 | -   | 220 |               |
|                                       |                | $I_C=2\text{A}, V_{CE}=1\text{V}$   | 20  | -   | -   |               |
| Collector Emitter Saturation Voltage  | $V_{CE(sat)}$  | $I_C=1\text{A}, I_B=50\text{mA}$    | -   | -   | 0.5 | V             |
| Base Emitter Saturation Voltage       | $V_{BE(sat)}$  | $I_C=1\text{A}, I_B=100\text{mA}$   | -   | -   | 1.3 | V             |

### Dynamic Characteristics

|                                |           |                                               |   |    |     |     |
|--------------------------------|-----------|-----------------------------------------------|---|----|-----|-----|
| Collector Capacitance          | $C_{cbo}$ | $V_{CB}=10\text{V}, I_E=0$<br>$f=1\text{MHz}$ | - | -  | 100 | pF  |
| Current Gain Bandwidth Product | $f_T$     | $V_{CE}=4\text{V}, I_C=20\text{mA}$           | - | 50 | -   | MHz |

### Switching Characteristics

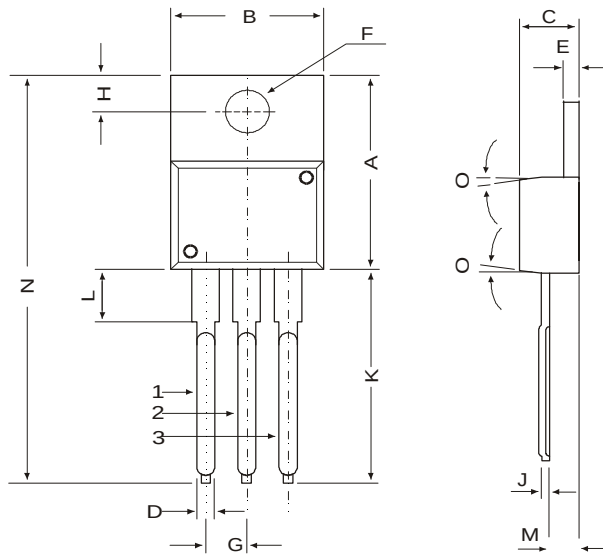
| DESCRIPTION            | SYMBOL      | TEST CONDITION                             | MIN | TYP | MAX | UNIT |
|------------------------|-------------|--------------------------------------------|-----|-----|-----|------|
| Delay Time + Rise Time | $t_d + t_r$ | $I_C=1\text{A}, I_{B1}=I_{B2}=0.1\text{A}$ | -   | 100 | -   | ns   |
| Storage Time           | $t_s$       | $V_{CC}=30\text{V}, t_p=25\mu\text{s}$     | -   | 500 | -   | ns   |
| Fall Time              | $t_f$       |                                            | -   | 75  | -   | ns   |

\* Pulse Test Pulse Width =300ms, Duty Cycle  $\leq 2\%$

C44C8, C44C11

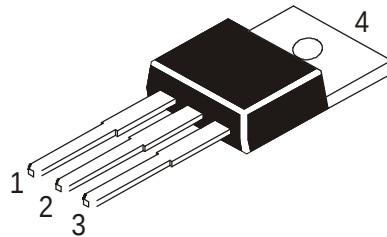
**TO - 220  
Plastic Package**

**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 |       |

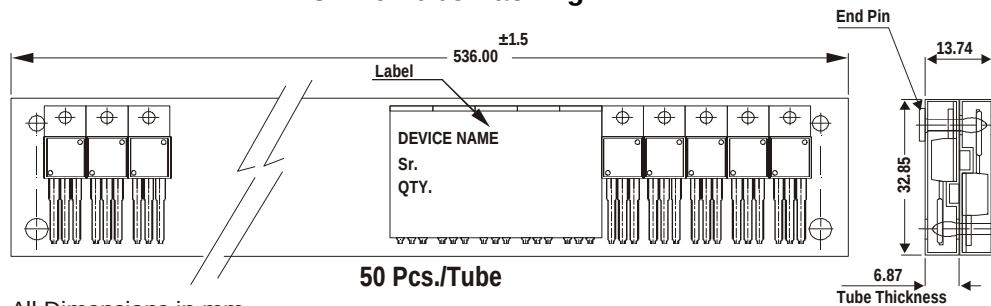
All dimensions in mm.



**Pin Configuration**

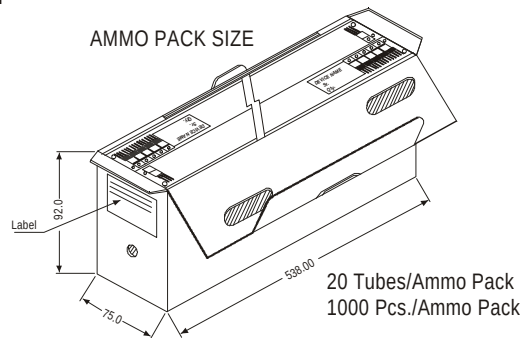
1. Base
2. Collector
3. Emitter
4. Collector

**TO-220 Tube Packing**



All Dimensions in mm

**AMMO PACK SIZE**



**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"    | 1K  | 17" x 15" x 13.5" | 16K | 36 kgs |
|         | 50 pcs/tube     | 135 gm/50 pcs  | 3.5" x 3.7" x 21.5" | 1K  | 19" x 19" x 19"   | 10K | 28 kgs |

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