

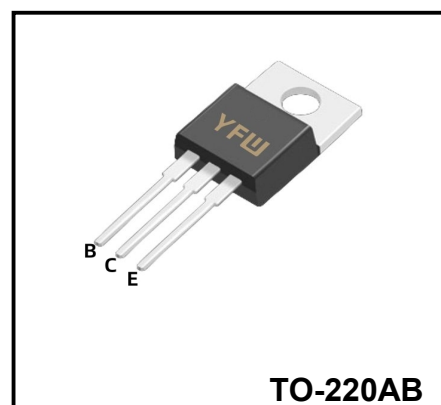
**PNP Plastic-Encapsulate Transistors**

**Applications**

- General purpose circuits
- Audio amplifier
- Power linear and switching

**Features**

- High switching speed
- Complementary to TIP41C



**TO-220AB**

**Absolute Maximum Rating (Ta=25℃)**

| Parameter                 |          | Symbol     | Value   | Unit |
|---------------------------|----------|------------|---------|------|
| Collector-Base Voltage    |          | $BV_{CBO}$ | -100    | V    |
| Collector-Emitter Voltage |          | $BV_{CEO}$ | -100    | V    |
| Emitter-Base Voltage      |          | $BV_{EBO}$ | -5      | V    |
| Collector Current(DC)     |          | $I_C$      | -6      | A    |
| Collector peak current    |          | $I_{CM}$   | -10     | A    |
| Base Current              |          | $I_B$      | -2      | A    |
| Collector Dissipation     | Ta =25 ℃ | $P_C$      | 2       | W    |
|                           | Tc =25 ℃ |            | 65      |      |
| Junction Temperature      |          | $T_j$      | 150     | ℃    |
| Storage Temperature       |          | $T_{stg}$  | -65~150 | ℃    |

**Electrical Characteristics (Ta=25℃)**

| Parameter                             | Symbol         | Conditions                   | Value |     |      | Unit |
|---------------------------------------|----------------|------------------------------|-------|-----|------|------|
|                                       |                |                              | Min   | Typ | Max  |      |
| Collector-Emitter Sustaining Voltage  | $V_{CEO(sus)}$ | $I_C = -10mA, I_B = 0$       | -100  |     |      | V    |
| Collector cut-off current             | $I_{CES}$      | $V_{CE} = -100V, I_E = 0$    |       |     | -0.4 | mA   |
| Collector cut-off current             | $I_{CEO}$      | $V_{CB} = -60V, I_E = 0$     |       |     | -0.7 | mA   |
| Emitter cut-off current               | $I_{EBO}$      | $V_{EB} = -5V, I_C = 0$      |       |     | -1   | mA   |
| DC current gain*                      | $h_{FE}$       | $V_{CE} = -4V, I_C = -0.3A$  | 30    |     |      |      |
|                                       |                | $V_{CE} = -4V, I_C = -3A$    | 15    |     | 75   |      |
| Collector-emitter saturation voltage* | $V_{CE(sat)}$  | $I_C = -6A, I_B = -0.6A$     |       |     | -1.5 | V    |
| Base-emitter saturation voltage*      | $V_{BE(sat)}$  | $I_C = -6A, I_B = -0.6A$     |       |     | -2.0 | V    |
| Current Gain Bandwidth Product        | $f_T$          | $V_{CE} = -10V, I_C = -0.5A$ | 3.0   |     |      | MHz  |

\* Pulse Test :  $PW \leq 300\mu s$ , Duty cycle  $\leq 2\%$

Electrical Characteristics

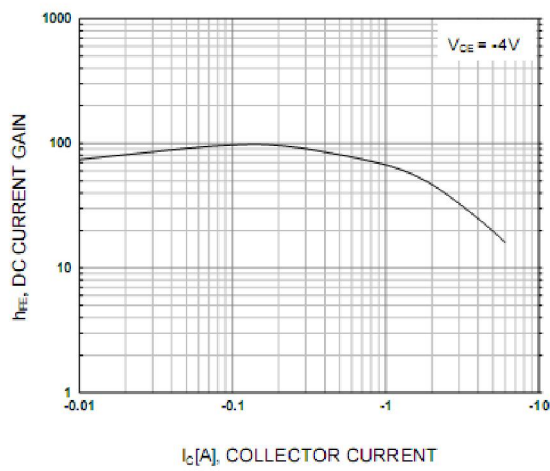


Figure 1. DC current Gain

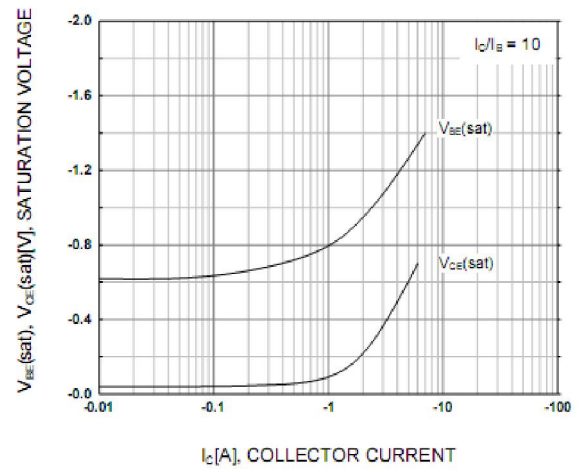


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

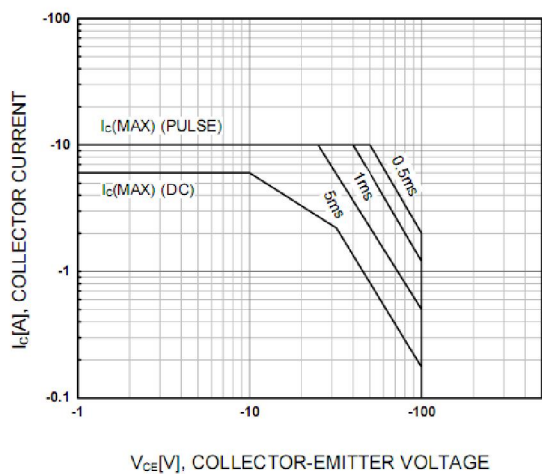


Figure 3. Safe Operating Area

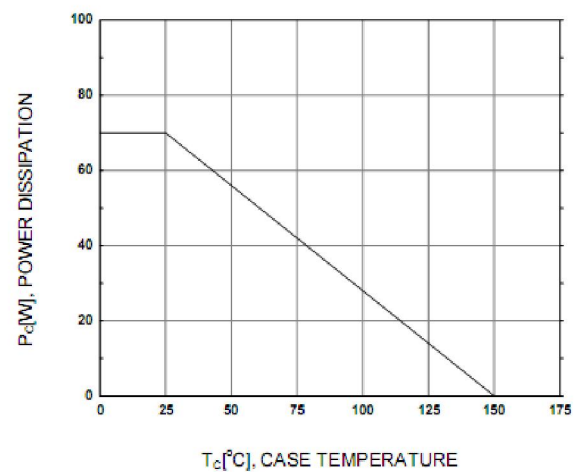
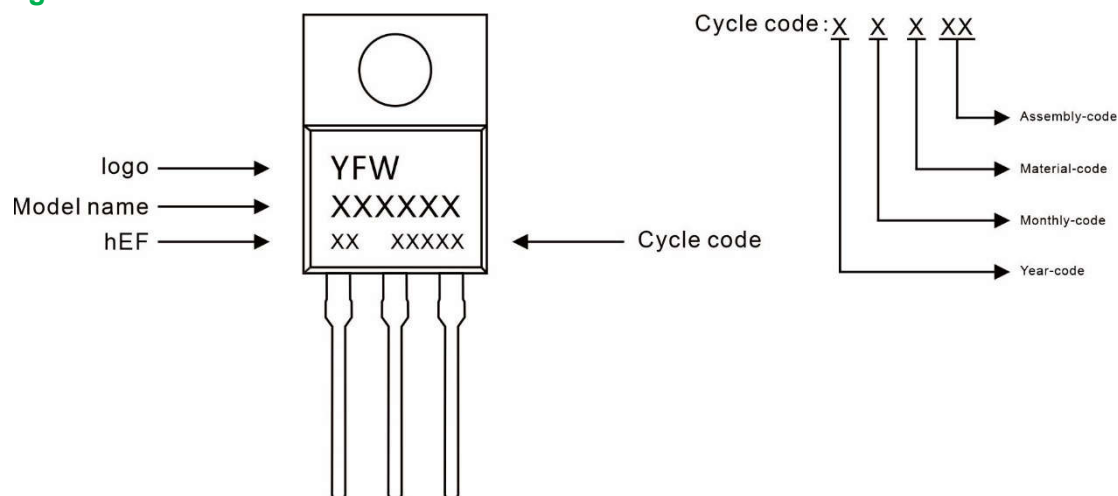


Figure 4. Power derating

## Marking Diagram



## Ordering information

| Model name | Package  | Unit Weight   | Base Quantity | Packing Quantity           |
|------------|----------|---------------|---------------|----------------------------|
| TIP42C     | TO-220AB | 0.07oz(1.96g) | 50pcs/tube    | 1000PCS/Box 5000PCS/Carton |

## Package Dimensions

### TO-220AB

| Symbol | Millimeter |       | Inches |       |
|--------|------------|-------|--------|-------|
|        | Min.       | Max.  | Min.   | Max.  |
| A      | 4.30       | 4.70  | 0.169  | 0.185 |
| A1     | 2.52       | 2.82  | 0.099  | 0.111 |
| b      | 0.71       | 0.91  | 0.028  | 0.036 |
| b1     | 1.17       | 1.37  | 0.046  | 0.054 |
| c      | 0.30       | 0.50  | 0.012  | 0.020 |
| c1     | 1.17       | 1.37  | 0.046  | 0.054 |
| D      | 9.90       | 10.20 | 0.390  | 0.402 |
| E      | 8.50       | 8.90  | 0.335  | 0.350 |
| E1     | 12.00      | 12.50 | 0.472  | 0.492 |
| e      | 2.44       | 2.64  | 0.096  | 0.104 |
| e1     | 4.88       | 5.28  | 0.192  | 0.208 |
| F      | 2.60       | 2.80  | 0.102  | 0.110 |
| L      | 13.20      | 13.80 | 0.520  | 0.543 |
| L1     | 3.80       | 4.20  | 0.150  | 0.165 |
| Φ      | 3.60       | 3.96  | 0.142  | 0.156 |

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