



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

## WBFBP-08A Plastic-Encapsulate Transistors

### FMQT4292 TRANSISTOR

#### DESCRIPTION

PNP and NPN Epitaxial Silicon Transistor

#### FEATURES

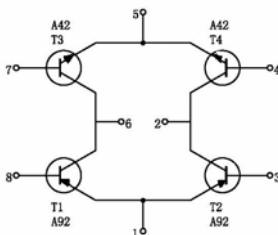
- Complementary Pair
- Tow A42-Type NPN, Tow A92-Type PNP
- Epitaxial Planar Die Construction

#### APPLICATION

IDEAL FOR LOW POWER AMPLIFICATION AND SWITCHING

For portable equipment:(i.e. Mobile phone,MP3, MD,CD-ROM, DVD-ROM, Note book PC, etc.)

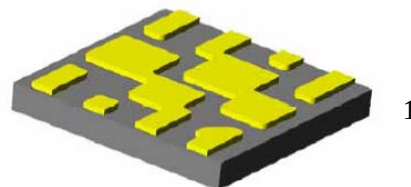
#### MARKING: 4292



#### WBFBP-08A

(4×4×0.5)

unit: mm



#### A42 MAXIMUM RATINGS\* T<sub>A</sub>=25°C unless otherwise noted

| Symbol                            | Parameter                               | Value   | Units |
|-----------------------------------|-----------------------------------------|---------|-------|
| V <sub>CB0</sub>                  | Collector-Base Voltage                  | 310     | V     |
| V <sub>CEO</sub>                  | Collector-Emitter Voltage               | 305     | V     |
| V <sub>EBO</sub>                  | Emitter-Base Voltage                    | 5       | V     |
| I <sub>C</sub>                    | Collector Current -Continuous           | 500     | mA    |
| T <sub>J</sub> , T <sub>stg</sub> | Junction and Storage Temperature        | -55-150 | °C    |
| R <sub>θJA</sub>                  | Thermal Resistance, junction to Ambient | 200     | °C/mW |
| R <sub>θJC</sub>                  | Thermal Resistance, unction to Case     | 83.3    | °C/mW |

#### A92 MAXIMUM RATINGS\* T<sub>A</sub>=25°C unless otherwise noted

| Symbol                            | Parameter                               | Value   | Units |
|-----------------------------------|-----------------------------------------|---------|-------|
| V <sub>CB0</sub>                  | Collector-Base Voltage                  | -300    | V     |
| V <sub>CEO</sub>                  | Collector-Emitter Voltage               | -300    | V     |
| V <sub>EBO</sub>                  | Emitter-Base Voltage                    | -5      | V     |
| I <sub>C</sub>                    | Collector Current -Continuous           | -500    | mA    |
| T <sub>J</sub> , T <sub>stg</sub> | Junction and Storage Temperature        | -55-150 | °C    |
| R <sub>θJA</sub>                  | Thermal Resistance, junction to Ambient | 200     | °C/mW |
| R <sub>θJC</sub>                  | Thermal Resistance, unction to Case     | 83.3    | °C/mW |

**A42 ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)**

| Parameter                            | Symbol        | Test conditions                           | MIN | MAX  | UNIT    |
|--------------------------------------|---------------|-------------------------------------------|-----|------|---------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C = 100\mu A, I_E = 0$                 | 310 |      | V       |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C = 1\text{ mA}, I_B = 0$              | 305 |      | V       |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E = 100\mu A, I_C = 0$                 | 5   |      | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = 200V, I_E = 0$                  |     | 0.25 | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = 5V, I_C = 0$                    |     | 0.1  | $\mu A$ |
| DC current gain                      | $H_{FE(1)}$   | $V_{CE} = 10V, I_C = 1mA$                 | 60  |      |         |
|                                      | $H_{FE(2)}$   | $V_{CE} = 10V, I_C = 10mA$                | 100 | 200  |         |
|                                      | $H_{FE(3)}$   | $V_{CE} = 10V, I_C = 30mA$                | 60  |      |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 20\text{ mA}, I_B = 2mA$           |     | 0.2  | V       |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = 20\text{ mA}, I_B = 2mA$           |     | 0.9  | V       |
| Transition frequency                 | $f_T$         | $V_{CE} = 20V, I_C = 10mA$<br>$f = 30MHz$ | 50  |      | MHz     |

**A92 ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)**

| Parameter                            | Symbol        | Test conditions                             | MIN  | MAX   | UNIT    |
|--------------------------------------|---------------|---------------------------------------------|------|-------|---------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C = -100\mu A, I_E = 0$                  | -300 |       | V       |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C = -1mA, I_B = 0$                       | -300 |       | V       |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E = -100\mu A, I_C = 0$                  | -5   |       | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = -200V, I_E = 0$                   |      | -0.25 | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = -5V, I_C = 0$                     |      | -0.1  | $\mu A$ |
| DC current gain                      | $H_{FE(1)}$   | $V_{CE} = -10V, I_C = -1mA$                 | 60   |       |         |
|                                      | $H_{FE(2)}$   | $V_{CE} = -10V, I_C = -10mA$                | 100  | 200   |         |
|                                      | $H_{FE(3)}$   | $V_{CE} = -10V, I_C = -30mA$                | 60   |       |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -20\text{ mA}, I_B = -2mA$           |      | -0.2  | V       |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = -20\text{ mA}, I_B = -2mA$           |      | -0.9  | V       |
| Transition frequency                 | $f_T$         | $V_{CE} = -20V, I_C = -10mA$<br>$f = 30MHz$ | 50   |       | MHz     |

# Typical Characteristics

A42

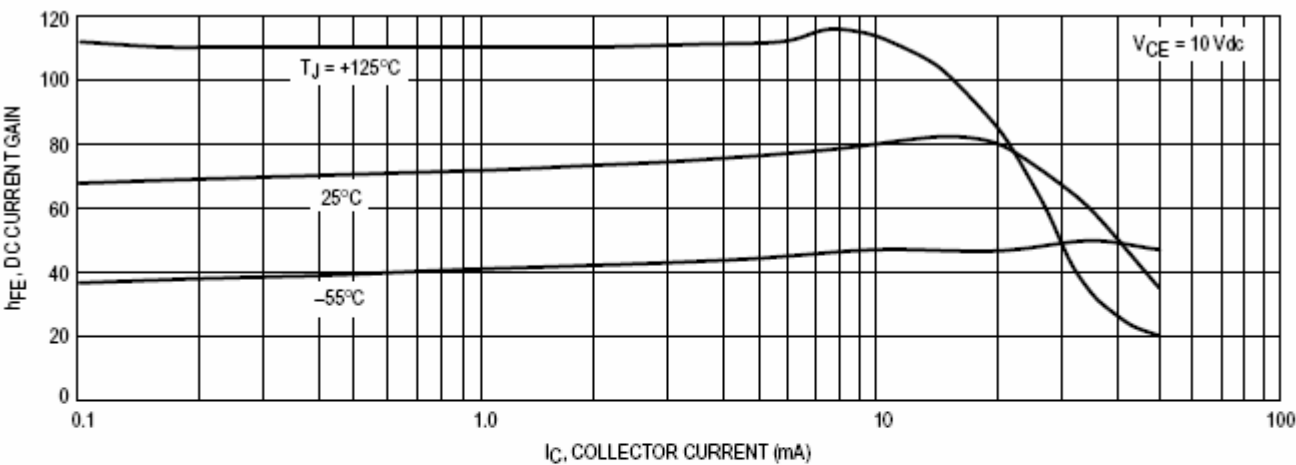


Figure 1. DC Current Gain

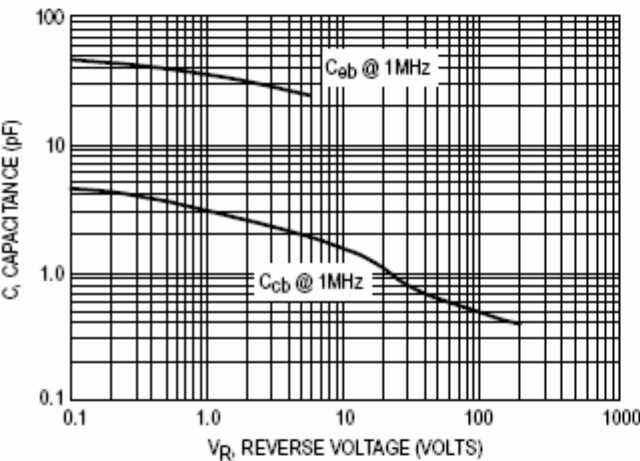


Figure 2. Capacitance

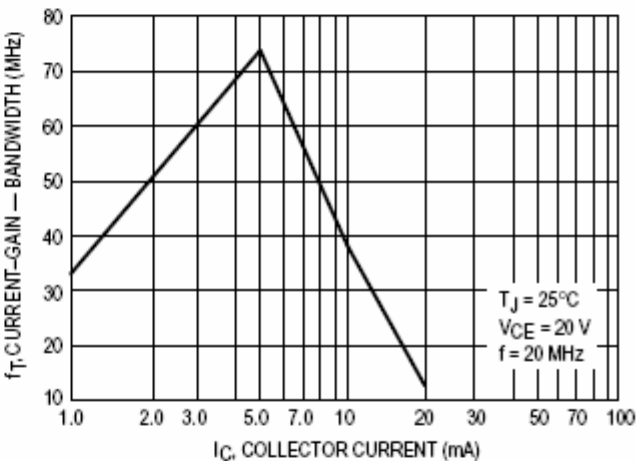


Figure 3. Current-Gain - Bandwidth

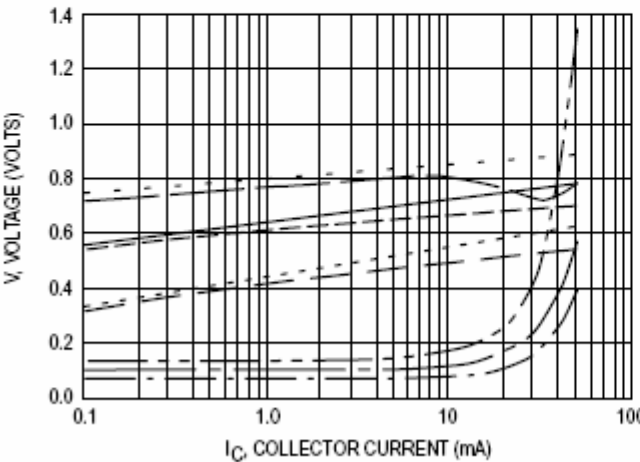


Figure 4. "ON" Voltages

- $V_{CE(sat)}$  @  $25^\circ\text{C}$ ,  $I_C/I_B = 10$
- $V_{CE(sat)}$  @  $125^\circ\text{C}$ ,  $I_C/I_B = 10$
- $V_{CE(sat)}$  @  $-55^\circ\text{C}$ ,  $I_C/I_B = 10$
- $V_{BE(sat)}$  @  $25^\circ\text{C}$ ,  $I_C/I_B = 10$
- $V_{BE(sat)}$  @  $125^\circ\text{C}$ ,  $I_C/I_B = 10$
- $V_{BE(sat)}$  @  $-55^\circ\text{C}$ ,  $I_C/I_B = 10$
- $V_{BE(on)}$  @  $25^\circ\text{C}$ ,  $V_{CE} = 10\text{ V}$
- $V_{BE(on)}$  @  $125^\circ\text{C}$ ,  $V_{CE} = 10\text{ V}$
- $V_{BE(on)}$  @  $-55^\circ\text{C}$ ,  $V_{CE} = 10\text{ V}$

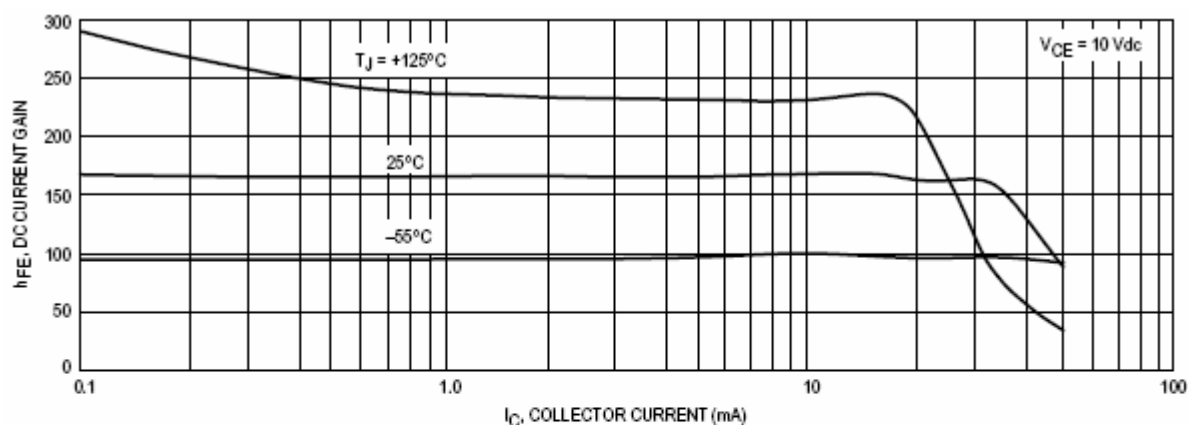


Figure 1. DC Current Gain

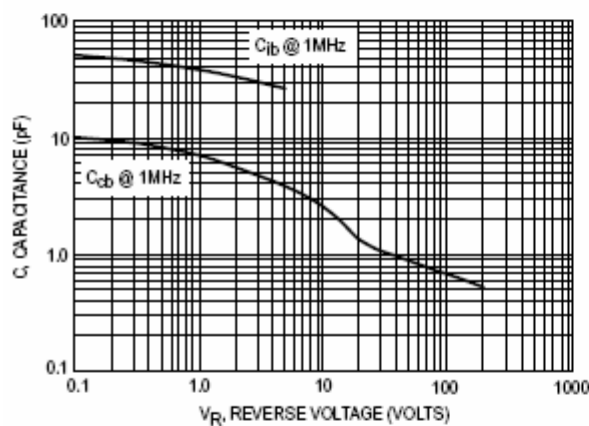


Figure 2. Capacitance

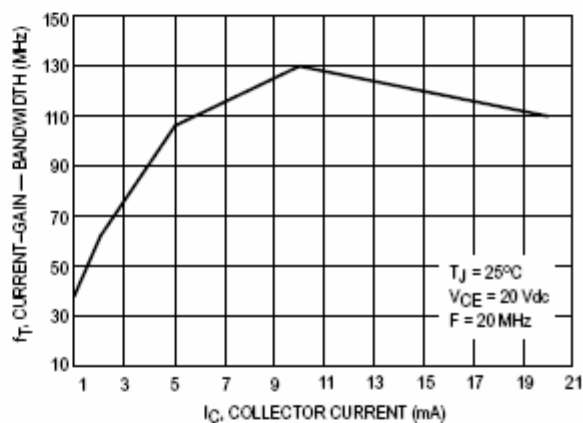


Figure 3. Current-Gain — Bandwidth

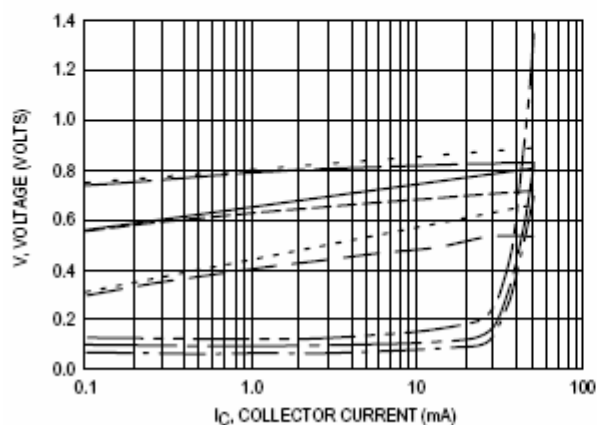
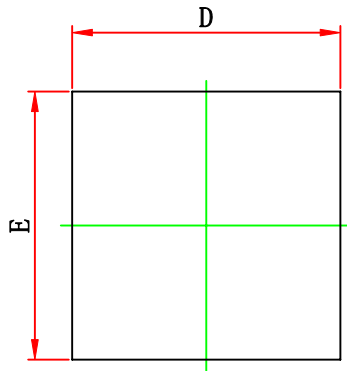


Figure 4. "ON" Voltages

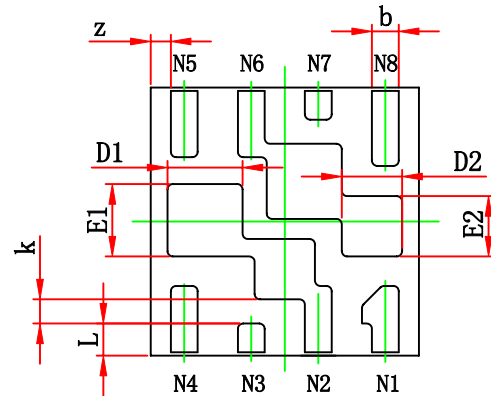
- $V_{CE(sat)}$  @ 25°C,  $I_C/I_B = 10$
- $V_{CE(sat)}$  @ 125°C,  $I_C/I_B = 10$
- $V_{CE(sat)}$  @ -55°C,  $I_C/I_B = 10$
- $V_{BE(sat)}$  @ 25°C,  $I_C/I_B = 10$
- $V_{BE(sat)}$  @ 125°C,  $I_C/I_B = 10$
- $V_{BE(sat)}$  @ -55°C,  $I_C/I_B = 10$
- $V_{BE(on)}$  @ 25°C,  $V_{CE} = 10$  V
- $V_{BE(on)}$  @ 125°C,  $V_{CE} = 10$  V
- $V_{BE(on)}$  @ -55°C,  $V_{CE} = 10$  V



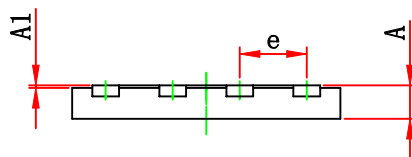
## WBFBP-08A(4×4×0.5) PACKAGE OUTLINE DIMENSIONS



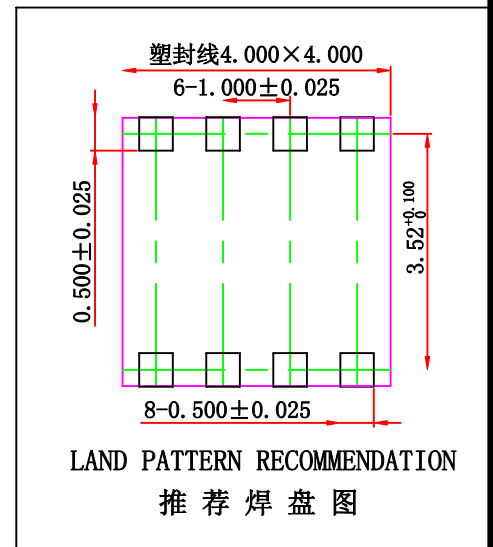
TOP VIEW



BOTTOM VIEW



SIDE VIEW



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 0.450                     | 0.550 | 0.018                | 0.022 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| b      | 0.350                     | 0.450 | 0.014                | 0.018 |
| D      | 3.900                     | 4.100 | 0.154                | 0.161 |
| E      | 3.900                     | 4.100 | 0.154                | 0.161 |
| D1     | 1.120 REF.                |       | 0.044 REF.           |       |
| E1     | 1.120 REF.                |       | 0.044 REF.           |       |
| D2     | 0.900 REF.                |       | 0.035 REF.           |       |
| E2     | 0.900 REF.                |       | 0.035 REF.           |       |
| e      | 1.000 TYP.                |       | 0.040 TYP.           |       |
| L      | 0.450 REF.                |       | 0.018 REF.           |       |
| k      | 0.300 REF.                |       | 0.012 REF.           |       |
| z      | 0.300 REF.                |       | 0.012 REF.           |       |