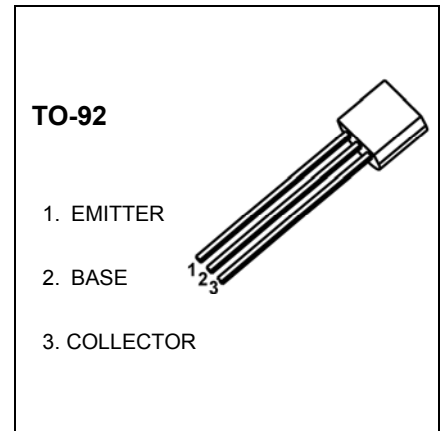


TO-92 Plastic-Encapsulate Transistors

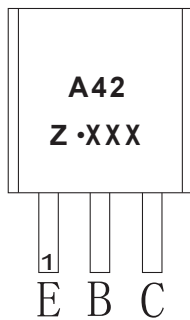
A42 TRANSISTOR (NPN)

FEATURES

- High voltage

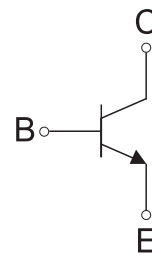


MARKING



A42=Device code
 Solid dot=Green molding compound device,
 if none,the normal device
 Z=Rank of h_{FE}
 XXX=Code

Equivalent Circuit



ORDERING INFORMATION

| Part Number | Package | Packing Method | Pack Quantity |
|-------------|---------|----------------|---------------|
| A42 | TO-92 | Bulk | 1000pcs/Bag |
| A42-TA | TO-92 | Tape | 2000pcs/Box |

MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|-----------------|---|---------|--------------------------------|
| V_{CBO} | Collector-Base Voltage | 310 | V |
| V_{CEO} | Collector-Emitter Voltage | 305 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current -Continuous | 200 | mA |
| I_{CM} | Collector Current - Pulsed | 500 | mA |
| P_C | Collector Power Dissipation | 625 | mW |
| T_J | Junction Temperature | 150 | $^{\circ}\text{C}$ |
| T_{stg} | Storage Temperature | -55-150 | $^{\circ}\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, junction to Ambient | 200 | $^{\circ}\text{C} / \text{mW}$ |
| $R_{\theta JC}$ | Thermal Resistance, junction to Case | 83.3 | $^{\circ}\text{C} / \text{mW}$ |

ELECTRICAL CHARACTERISTICS

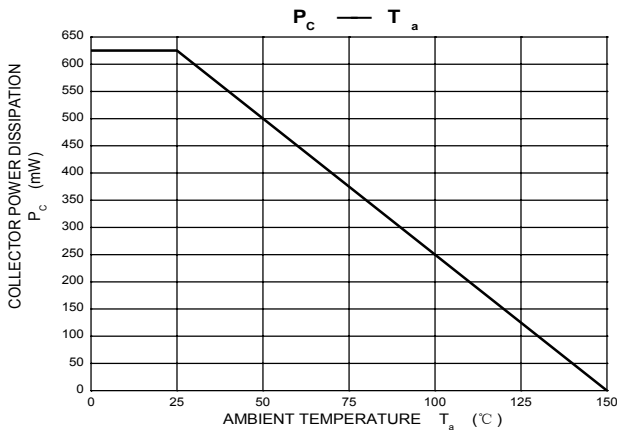
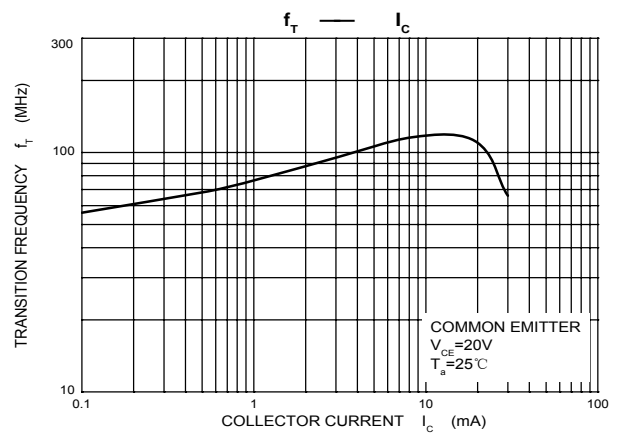
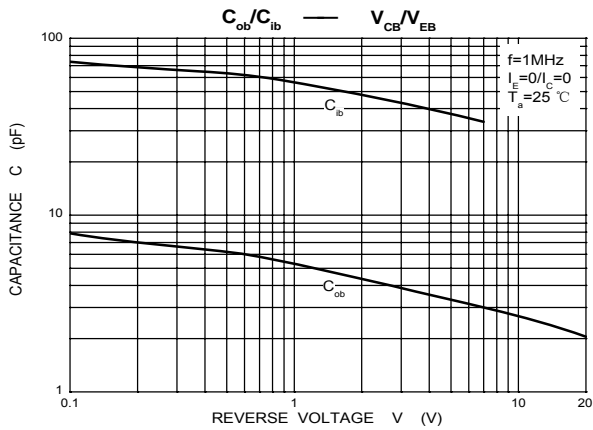
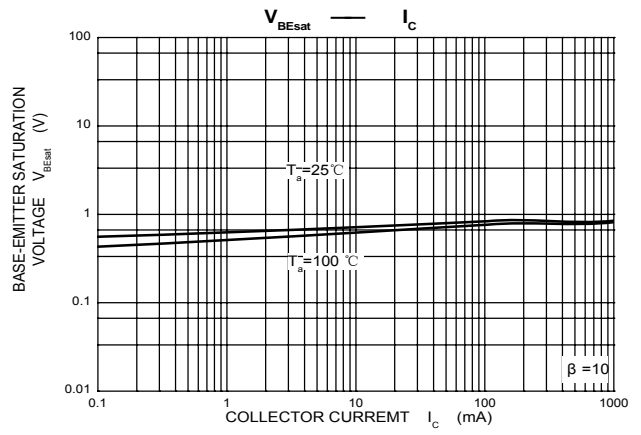
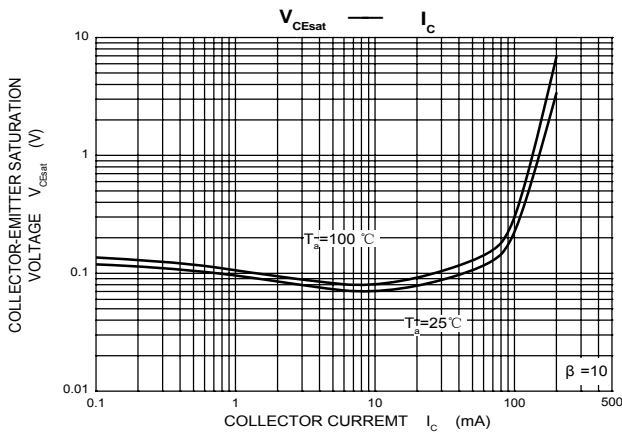
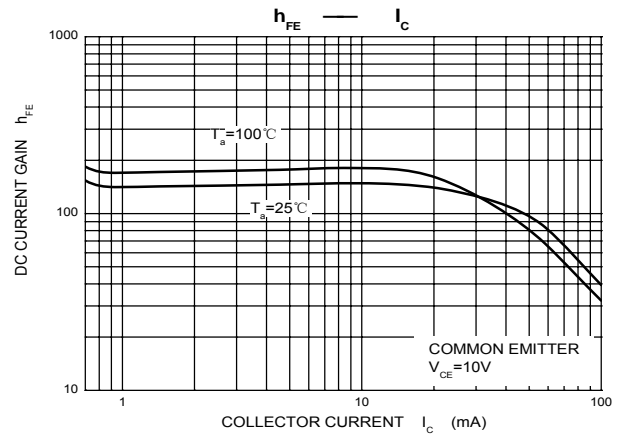
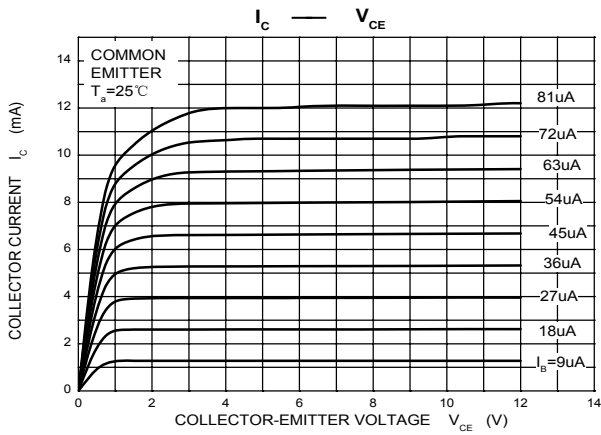
$T_a=25^\circ\text{C}$ unless otherwise specified

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|--|-----|-----|------|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=100\mu\text{A}, I_E=0$ | 310 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=1\text{mA}, I_B=0$ | 305 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=100\mu\text{A}, I_C=0$ | 5 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=200\text{V}, I_E=0$ | | | 0.25 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=5\text{V}, I_C=0$ | | | 0.1 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}=10\text{V}, I_C=1\text{mA}$ | 60 | | | |
| | $h_{FE(2)}$ | $V_{CE}=10\text{V}, I_C=10\text{mA}$ | 80 | | 250 | |
| | $h_{FE(3)}$ | $V_{CE}=10\text{V}, I_C=30\text{mA}$ | 75 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=20\text{mA}, I_B=2\text{mA}$ | | | 0.2 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=20\text{mA}, I_B=2\text{mA}$ | | | 0.9 | V |
| Transition frequency | f_T | $V_{CE}=20\text{V}, I_C=10\text{mA}, f=30\text{MHz}$ | 50 | | | MHz |

CLASSIFICATION OF $h_{FE(2)}$

| Rank | A | B | C |
|-------|--------|---------|---------|
| Range | 80-100 | 100-200 | 200-250 |

Typical Characteristics



TO-92 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 3.300 | 3.700 | 0.130 | 0.146 |
| A1 | 1.100 | 1.400 | 0.043 | 0.055 |
| b | 0.380 | 0.550 | 0.015 | 0.022 |
| c | 0.360 | 0.510 | 0.014 | 0.020 |
| D | 4.300 | 4.700 | 0.169 | 0.185 |
| D1 | 3.430 | | 0.135 | |
| E | 4.300 | 4.700 | 0.169 | 0.185 |
| e | 1.270 TYP | | 0.050 TYP | |
| e1 | 2.440 | 2.640 | 0.096 | 0.104 |
| L | 14.100 | 14.500 | 0.555 | 0.571 |
| Φ | | 1.600 | | 0.063 |
| h | 0.000 | 0.380 | 0.000 | 0.015 |

TO-92 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

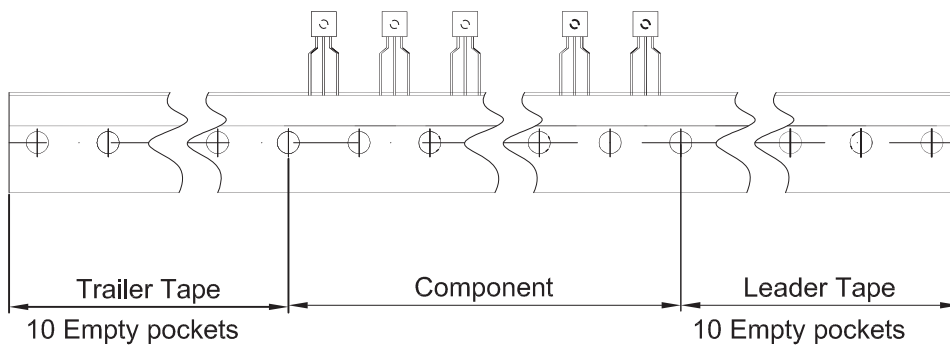
NOTICE

JCET reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JCET does not assume any liability arising out of the application or use of any product described herein.

TO-92 PACKAGE TAPEING DIMENSION



| Dimiensions are in millimeter | | | | | | | | |
|-------------------------------|-----|----------|------|------|------|-----|-----|------|
| A1 | A | T | P | P0 | P2 | F1 | F2 | W |
| 4.5 | 4.5 | 3.5 | 12.7 | 12.7 | 6.35 | 2.5 | 2.5 | 18.0 |
| W0 | W1 | W2 | H | H0 | D0 | t1 | t2 | ΔP |
| 6.0 | 9.0 | 1.0 MAX. | 19.0 | 16.0 | 4.0 | 0.4 | 0.2 | 0 |



| Package | Box | Box Size(mm) | Carton | Carton Size(mm) |
|---------|----------|--------------|------------|-----------------|
| TO-92 | 2000 pcs | 333×162×43 | 20,000 pcs | 350×340×250 |