

1. EMITTER
2. COLLECTOR
3. BASE

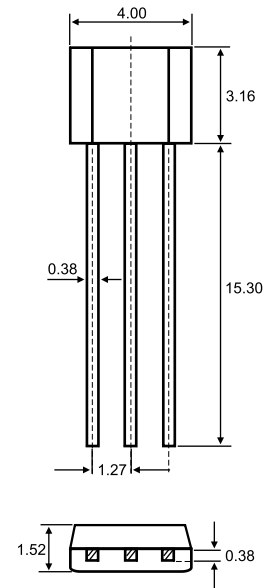
### Features

- ✧ Small reverse transfer capacitance
- ✧ Low Noise Figure

### MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

| Symbol           | Parameter                     | Value   | Units |
|------------------|-------------------------------|---------|-------|
| V <sub>CB0</sub> | Collector-Base Voltage        | 40      | V     |
| V <sub>CEO</sub> | Collector-Emitter Voltage     | 30      | V     |
| V <sub>EBO</sub> | Emitter-Base Voltage          | 4       | V     |
| I <sub>C</sub>   | Collector Current -Continuous | 20      | mA    |
| P <sub>C</sub>   | Collector Power Dissipation   | 200     | mW    |
| T <sub>J</sub>   | Junction Temperature          | 150     | °C    |
| T <sub>stg</sub> | Storage Temperature           | -55-150 | °C    |

### TO-92S



Dimensions in inches and (millimeters)

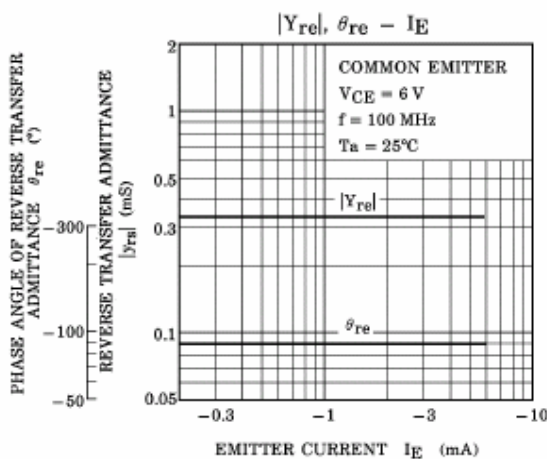
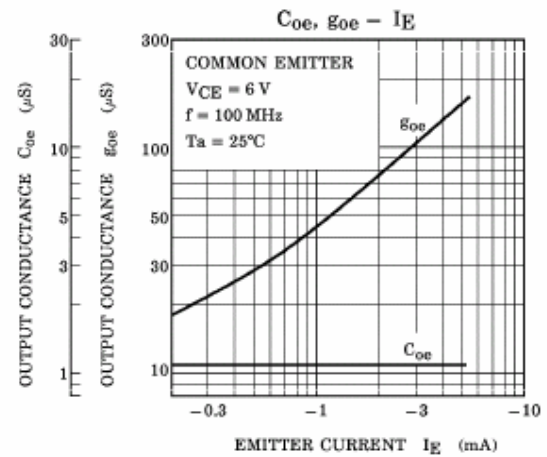
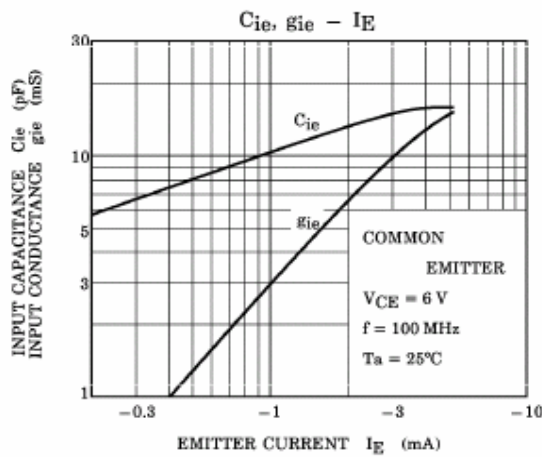
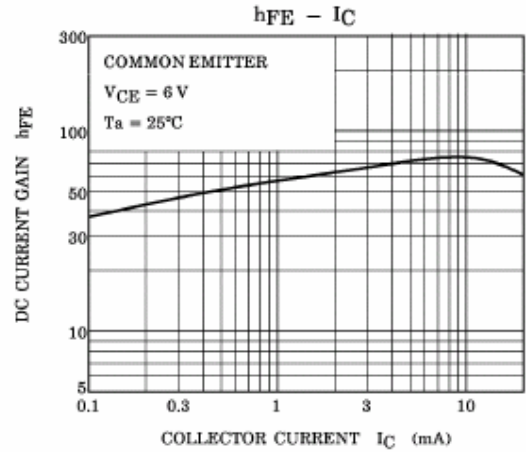
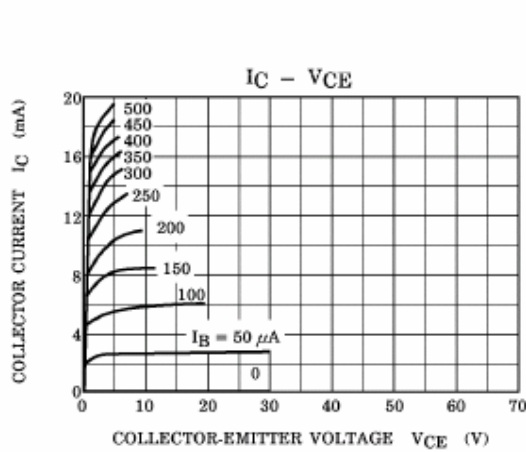
### ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C unless otherwise specified)

| Parameter                           | Symbol                             | Test conditions  | MIN | TYP | MAX | UNIT |
|-------------------------------------|------------------------------------|--|-----|-----|-----|------|
| Collector-base breakdown voltage    | V <sub>(BR)CBO</sub>               | I <sub>C</sub> = 100μA, I <sub>E</sub> = 0             | 40  |     |     | V    |
| Collector-emitter breakdown voltage | V <sub>(BR)CEO</sub>               | I <sub>C</sub> = 1mA, I <sub>B</sub> = 0               | 30  |     |     | V    |
| Emitter-base breakdown voltage      | V <sub>(BR)EBO</sub>               | I <sub>E</sub> = 100μA, I <sub>C</sub> = 0             | 4   |     |     | V    |
| Collector cut-off current           | I <sub>CBO</sub>                   | V <sub>CB</sub> = 40V, I <sub>E</sub> = 0              |     |     | 0.5 | μA   |
| Emitter cut-off current             | I <sub>EBO</sub>                   | V <sub>EB</sub> = 4V, I <sub>C</sub> = 0               |     |     | 0.5 | μA   |
| DC current gain                     | h <sub>FE</sub>                    | V <sub>CE</sub> = 6V, I <sub>C</sub> = 1mA             | 40  |     | 200 |      |
| Reverse Transfer Capacitance        | C <sub>re</sub>                    | V <sub>CE</sub> = 6V, f = 1MHz                         |     | 0.7 |     | pF   |
| Collector-Base Time Constant        | C <sub>C</sub> · r <sub>bb</sub> ' | V <sub>CE</sub> = 6V, I <sub>E</sub> = -1mA, f = 30MHz |     |     | 30  | ps   |
| Transition frequency                | f <sub>T</sub>                     | V <sub>CE</sub> = 6V, I <sub>C</sub> = 1mA             |     | 550 |     | MHz  |
| Power Gain                          | G <sub>pe</sub>                    | V <sub>CC</sub> = 6V, I <sub>C</sub> = 1mA, f = 100MHz |     | 18  |     | dB   |
| Noise figure                        | NF                                 | V <sub>CC</sub> = 6V, I <sub>C</sub> = 1mA, f = 100MHz |     |     | 5   | dB   |

### CLASSIFICATION OF h<sub>FE</sub>

| Rank  | R     | O      | Y       |
|-------|-------|--------|---------|
| Range | 40-80 | 70-140 | 100-200 |

## Typical Characteristics



| Package | Packing | Quantity   | Box      | Box Size(mm) | Carton     | Carton Size(mm) |
|---------|---------|------------|----------|--------------|------------|-----------------|
| TO-92S  | Bulk    | 1000pcs/BP | 10000pcs | 245×170×100  | 100,000pcs | 525×375×270     |
| TO-92S  | Tape    | 3000pcs/TP | 3000pcs  | 333×162×43   | 30,000pcs  | 350×340×250     |