



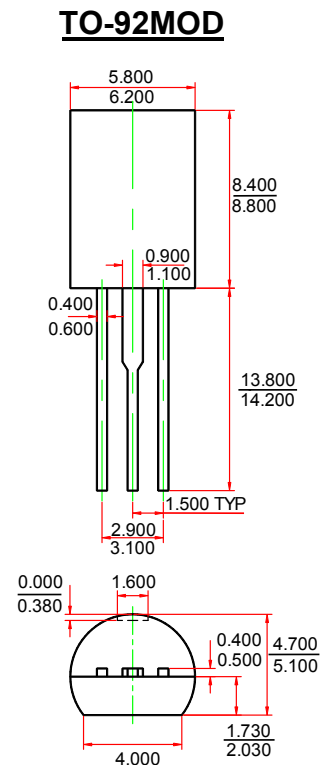
1. EMITTER
2. COLLECTOR
3. BASE

## Features

- ✧ Low  $V_{CE(sat)}$ .  $V_{CE(sat)} = 0.25V$  (Typ.) ( $I_C/I_B = 4A / 0.1A$ )
- ✧ Excellent Dc current gain characteristics

## MAXIMUM RATINGS ( $T_A=25^\circ C$ unless otherwise noted)

| Symbol    | Parameter                     | Value   | Units      |
|-----------|-------------------------------|---------|------------|
| $V_{CBO}$ | Collector-Base Voltage        | 50      | V          |
| $V_{CEO}$ | Collector-Emitter Voltage     | 20      | V          |
| $V_{EBO}$ | Emitter-Base Voltage          | 6       | V          |
| $I_C$     | Collector Current -Continuous | 5       | A          |
| $P_C$     | Collector Power Dissipation   | 0.625   | W          |
| $T_j$     | Junction Temperature          | 150     | $^\circ C$ |
| $T_{stg}$ | Storage Temperature           | -55-150 | $^\circ C$ |



Dimensions in inches and (millimeters)

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

| Parameter                            | Symbol        | Test conditions                 | MIN | TYP | MAX | UNIT    |
|--------------------------------------|---------------|---------------------------------|-----|-----|-----|---------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=50\mu A, I_E=0$            | 50  |     |     | V       |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=1mA, I_B=0$                | 20  |     |     | V       |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=50\mu A, I_C=0$            | 6   |     |     | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=40V, I_E=0$             |     |     | 0.5 | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=5V, I_C=0$              |     |     | 0.5 | $\mu A$ |
| DC current gain                      | $h_{FE}$      | $V_{CE}=2V, I_C=0.5A$           | 120 |     | 390 |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=4A, I_B=100mA$             |     |     | 1   | V       |
| Transition frequency                 | $f_T$         | $V_{CE}=6V, I_C=50mA, f=100MHz$ |     | 150 |     | MHz     |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=20V, I_E=0, f=1MHz$     |     | 30  |     | pF      |

## CLASSIFICATION OF $h_{FE}$

| Rank  | Q       | R       |
|-------|---------|---------|
| Range | 120-270 | 180-390 |

## Typical Characteristics

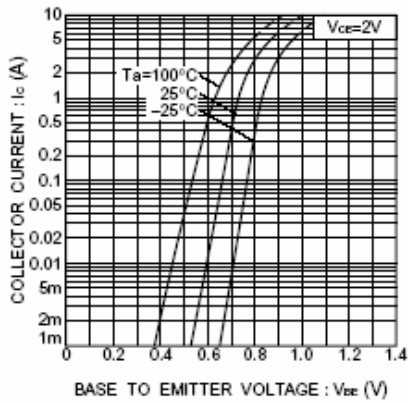


Fig.1 Grounded emitter propagation characteristics

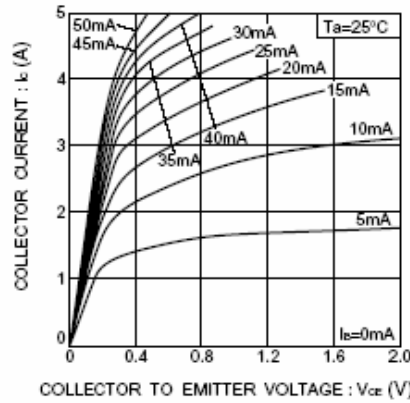


Fig.2 Grounded emitter output characteristics

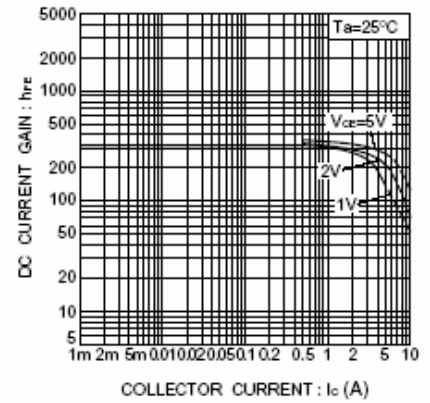


Fig.3 DC current gain vs. collector current ( I )

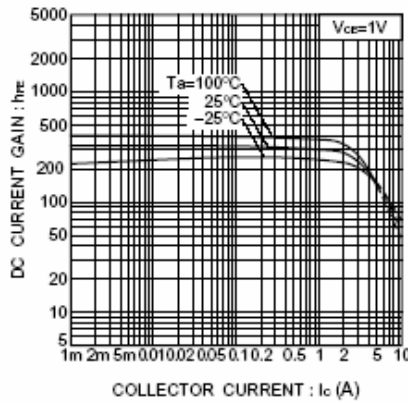


Fig.4 DC current gain vs. collector current ( II )

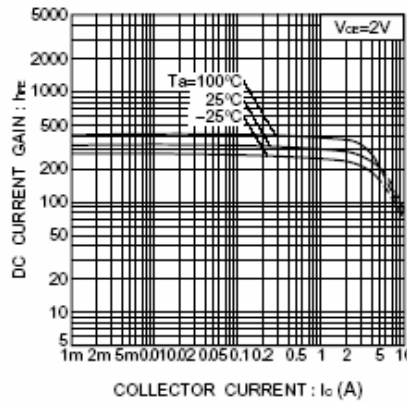


Fig.5 DC current gain vs. collector current ( III )

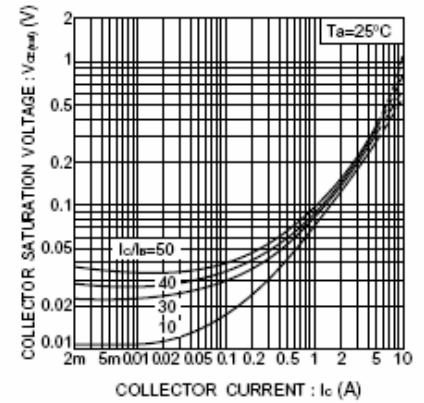


Fig.6 Collector-emitter saturation voltage vs. collector current ( I )

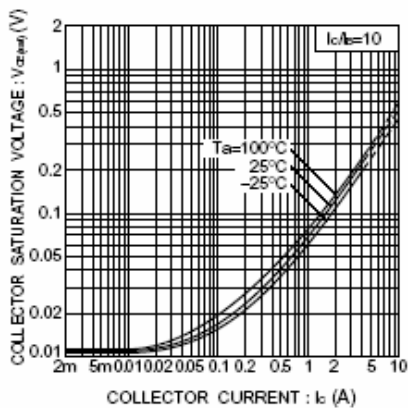


Fig.7 Collector-emitter saturation voltage vs. collector current ( II )

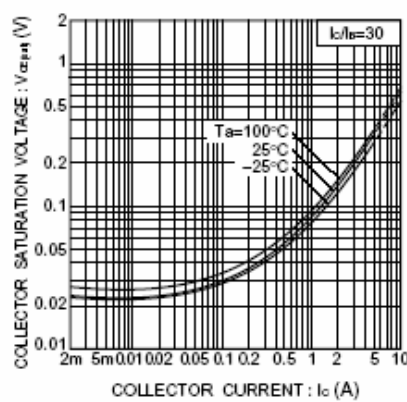


Fig.8 Collector-emitter saturation voltage vs. collector current ( III )

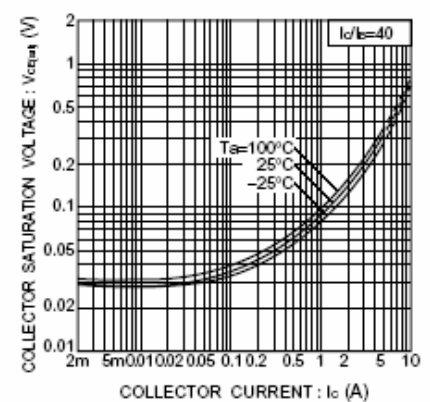


Fig.9 Collector-emitter saturation voltage vs. collector current ( IV )

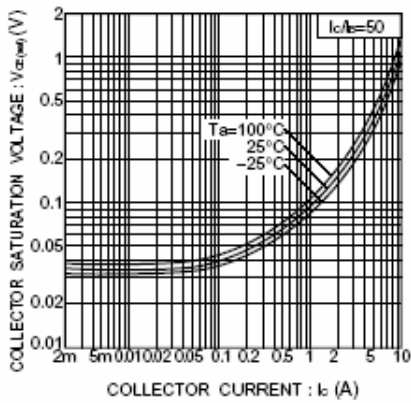


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

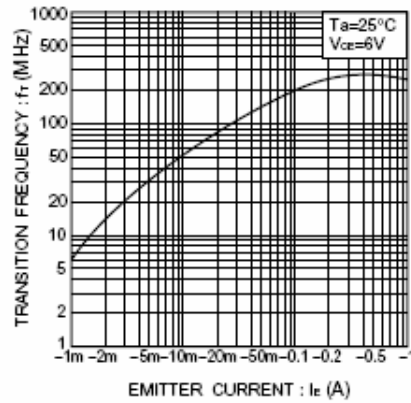


Fig.11 Gain bandwidth product vs. emitter current

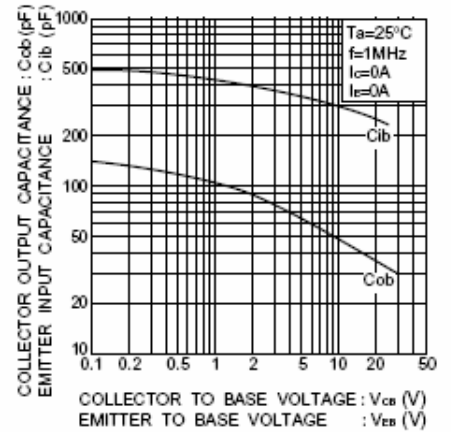


Fig.12 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage