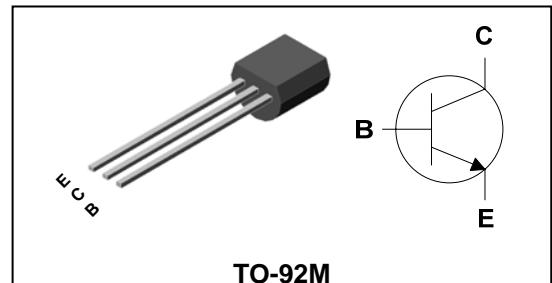


## Features

- Low saturation medium current application
- Extremely low collector saturation voltage
- Suitable for low voltage large current drivers
- High DC current gain and large current capability
- Low on resistance :  $R_{ON}=0.6\Omega$ (Max.) ( $I_B=1mA$ )

## PIN Connection



## Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| STC128M  | C128    | TO-92M       |

## Absolute maximum ratings

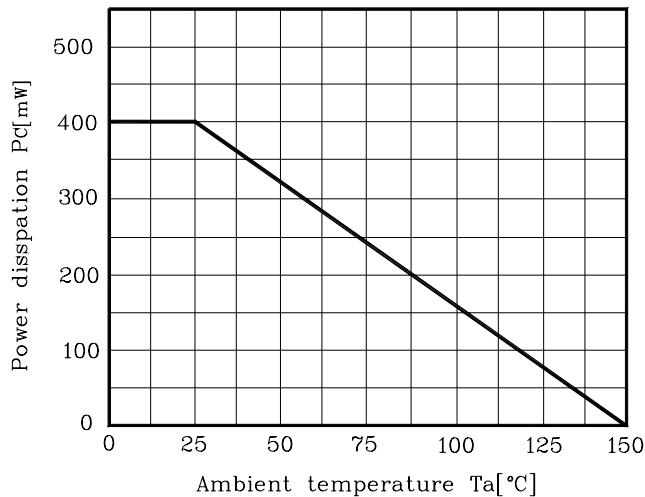
| Characteristic            | Symbol    | Ratings   | Unit |
|---------------------------|-----------|-----------|------|
| Collector-Base voltage    | $V_{CBO}$ | 20        | V    |
| Collector-Emitter voltage | $V_{CEO}$ | 15        | V    |
| Emitter-base voltage      | $V_{EBO}$ | 6.5       | V    |
| Collector current         | $I_C$     | 1         | A    |
| Collector dissipation     | $P_C$     | 400       | mW   |
| Junction temperature      | $T_j$     | 150       | °C   |
| Storage temperature       | $T_{stg}$ | -55 ~ 150 | °C   |

## Electrical Characteristics

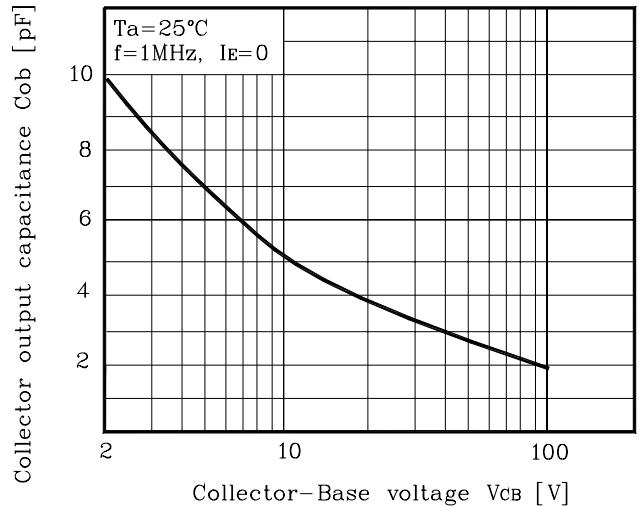
| Characteristic                       | Symbol        | Test Condition                 | Min. | Typ. | Max. | Unit     |
|--------------------------------------|---------------|--------------------------------|------|------|------|----------|
| Collector-base breakdown voltage     | $BV_{CBO}$    | $I_C=50\mu A, I_E=0$           | 20   | -    | -    | V        |
| Collector-Emitter breakdown voltage  | $BV_{CEO}$    | $I_C=1mA, I_B=0$               | 15   | -    | -    | V        |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | $I_E=50\mu A, I_C=0$           | 6.5  | -    | -    | V        |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=20V, I_E=0$            | -    | -    | 0.1  | $\mu A$  |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=6V, I_C=0$             | -    | -    | 0.1  | $\mu A$  |
| DC current gain                      | $h_{FE}$      | $V_{CE}=1V, I_C=100mA$         | 150  | -    | -    | -        |
| Collector-Emitter saturation voltage | $V_{CE(sat)}$ | $I_C=500mA, I_B=50mA$          | -    | 0.1  | 0.3  | V        |
| Transistor frequency                 | $f_T$         | $V_{CE}=5V, I_C=50mA$          | -    | 260  | -    | MHz      |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=10V, I_E=0, f=1MHz$    | -    | 5    | -    | pF       |
| On resistance                        | $R_{ON}$      | $f=1KHz, I_B=1Ma, V_{IN}=0.3V$ | -    | 0.6  | -    | $\Omega$ |

## Electrical Characteristic Curves

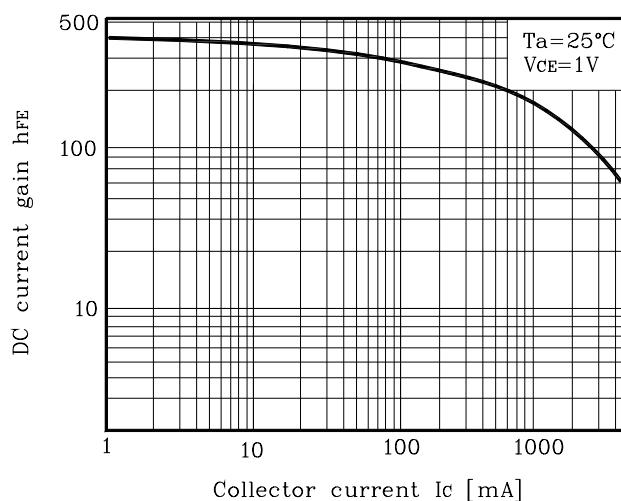
**Fig. 1 P<sub>C</sub>-T<sub>a</sub>**



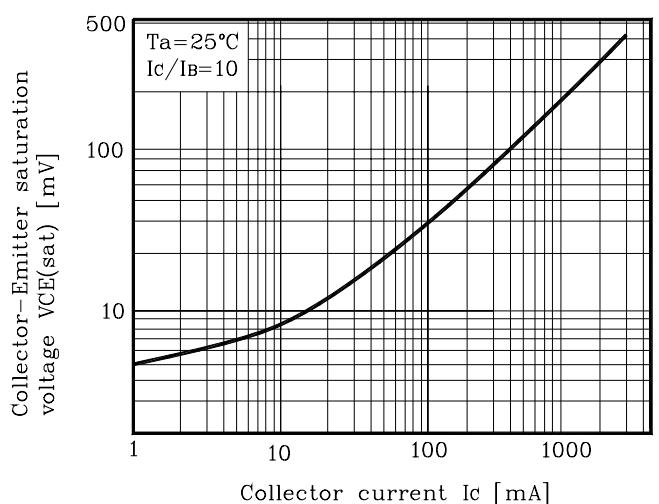
**Fig. 1 C<sub>ob</sub>-V<sub>CB</sub>**



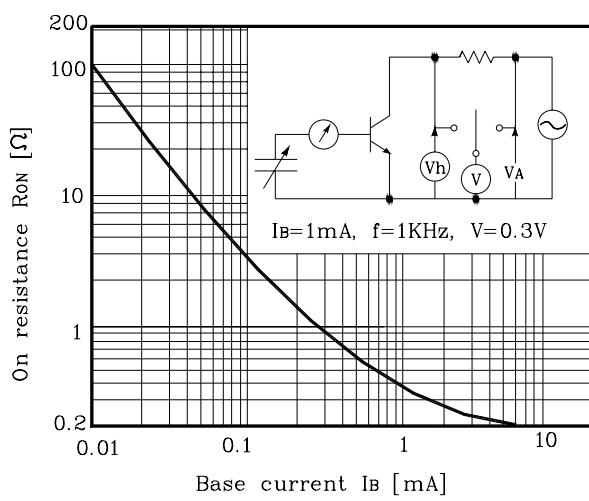
**Fig. 3 h<sub>FE</sub>-I<sub>C</sub>**

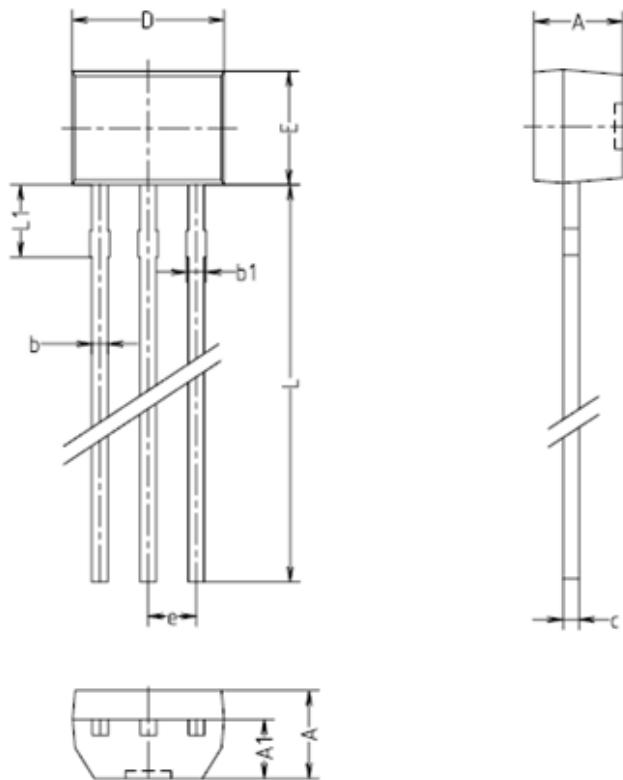


**Fig. 1 V<sub>CE(sat)</sub>-I<sub>C</sub>**



**Fig. 4 R<sub>ON</sub>-I<sub>B</sub>**



**Outline Dimension**

| SYMBOL | TO-92M  |         |         |
|--------|---------|---------|---------|
|        | MINIMUM | NOMINAL | MAXIMUM |
| A      | 2.25    | 2.30    | 2.35    |
| A1     | 1.50    | 1.55    | 1.60    |
| b      | 0.40    | 0.42    | 0.44    |
| b1     | 0.40    | —       | 0.50    |
| c      | 0.40    | 0.42    | 0.44    |
| D      | 3.93    | 4.00    | 4.07    |
| E      | 2.93    | 3.00    | 3.07    |
| e      | 1.17    | 1.27    | 1.37    |
| L      | 14.30   | 14.50   | 14.70   |
| L1     | 2.05    | 2.15    | 2.25    |

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