



Micro Commercial Components

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DTC144TCA

Features

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy

Absolute Maximum Ratings

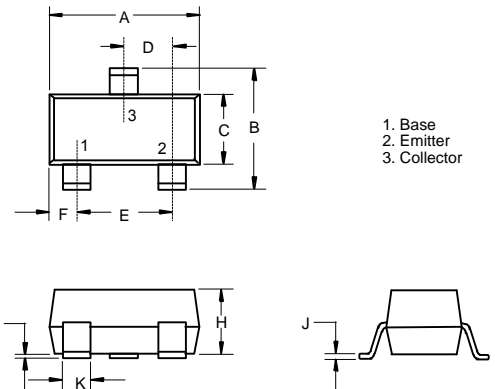
| Parameter | Symbol | Value | Unit |
|------------------------------|-----------|---------|-------------|
| Collector-Base Voltage | V_{CBO} | 50 | V |
| Collector-Emitter Voltage | V_{CEO} | 50 | V |
| Emitter-Base voltage | V_{EBO} | 5 | V |
| Collector Current-Continuous | I_C | 100 | mA |
| Collector Dissipation | P_C | 200 | mW |
| Junction Temperature | T_J | 150 | $^{\circ}C$ |
| Storage Temperature Range | T_{STG} | -55~150 | $^{\circ}C$ |

Electrical Characteristics

| Sym | Parameter | Min | Typ | Max | Unit |
|---------------|---|------|-----|------|-----------|
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_C=50\mu A, I_E=0$) | 50 | --- | --- | V |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage ($I_C=1mA, I_B=0$) | 50 | --- | --- | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_E=50\mu A, I_C=0$) | 5 | --- | --- | V |
| I_{CBO} | Collector Cut-off Current ($V_{CB}=50V, I_E=0$) | --- | --- | 0.5 | μA |
| I_{EBO} | Emitter Cut-off Current ($V_{EB}=4V, I_C=0$) | --- | --- | 0.5 | μA |
| h_{FE} | DC Current Gain ($V_{CE}=5V, I_C=1mA$) | 100 | 300 | 600 | --- |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage ($I_C=10mA, I_B=1mA$) | --- | --- | 0.3 | V |
| R_1 | Input resistance | 32.9 | 47 | 61.1 | $K\Omega$ |
| f_T | Transition Frequency ($V_{CE}=10V, I_C=-5mA, f=100MHz$) | --- | 250 | --- | MHz |

NPN Digital Transistor

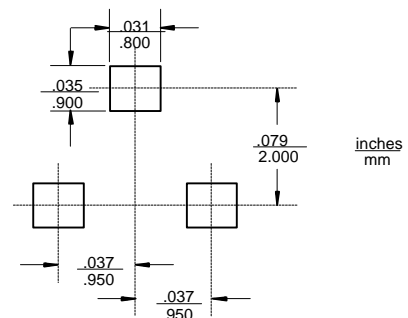
SOT-23



DIMENSIONS

| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | .110 | .120 | 2.80 | 3.04 | |
| B | .083 | .098 | 2.10 | 2.64 | |
| C | .047 | .055 | 1.20 | 1.40 | |
| D | .035 | .041 | .89 | 1.03 | |
| E | .070 | .081 | 1.78 | 2.05 | |
| F | .018 | .024 | .45 | .60 | |
| G | .0005 | .0039 | .013 | .100 | |
| H | .035 | .044 | .89 | 1.12 | |
| J | .003 | .007 | .085 | .180 | |
| K | .015 | .020 | .37 | .51 | |

Suggested Solder Pad Layout



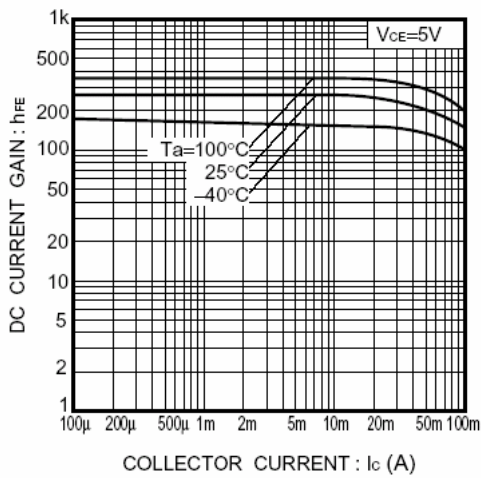


Fig.1 DC current gain vs. collector current

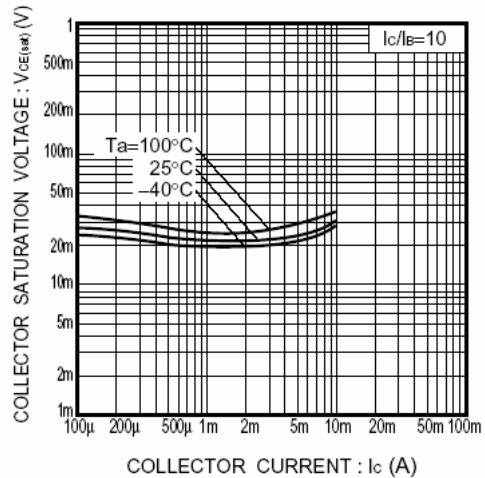


Fig.2 Collector-emitter saturation voltage vs. collector current

●Equivalent circuit

