

Digital transistors (built-in resistor)

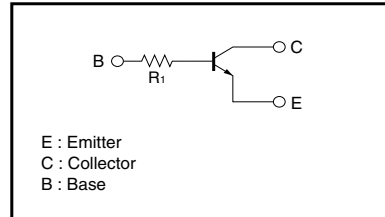
DTC343TK / DTC343TS

●Features

In addition to the features of regular digital transistors,

- 1) Low $V_{CE(sat)}$ makes these transistors ideal for muting circuits. (Typ. 0.04V at $I_C/I_B=50/2.5mA$)
- 2) They can be used at high current. ($I_{CMax.}=600mA$)

●Circuit schematic



●Absolute maximum ratings (Ta=25°C)

| Parameter | | Symbol | Limits | Unit |
|-----------------------------|----------|-----------|-------------|------|
| Collector-base voltage | | V_{CBO} | 30 | V |
| Collector-emitter voltage | | V_{CEO} | 15 | V |
| Emitter-base voltage | | V_{EBO} | 5 | V |
| Collector current | | I_C | 600 | mA |
| Collector power dissipation | DTC343TK | P_C | 200 | mW |
| | DTC343TS | | 300 | |
| Junction temperature | | T_j | 150 | °C |
| Storage temperature | | T_{stg} | -55 to +150 | °C |

●Package, marking, and packaging specifications

| Part No. | DTC343TK | DTC343TS |
|------------------------------|----------|----------|
| Package | SMT3 | SPT |
| Marking | H03 | — |
| Packaging code | T146 | TP |
| Basic ordering unit (pieces) | 3000 | 5000 |

●External characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|------------|-------------------------------------|
| Collector-base breakdown voltage | BV_{CBO} | 30 | — | — | V | $I_C=50\mu A$ |
| Collector-emitter breakdown voltage | BV_{CEO} | 15 | — | — | V | $I_C=1mA$ |
| Emitter-base breakdown voltage | BV_{EBO} | 5 | — | — | V | $I_E=50\mu A$ |
| Collector cutoff current | I_{CBO} | — | — | 0.5 | μA | $V_{CB}=20V$ |
| Emitter cutoff current | I_{EBO} | — | — | 0.5 | μA | $V_{EB}=4V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | 40 | 80 | mV | $I_C=50mA, I_B=2.5mA$ |
| DC current transfer ratio | h_{FE} | 100 | 250 | 600 | — | $I_C=50mA, V_{CE}=5V$ |
| Input resistance | R_1 | 3.29 | 4.7 | 6.11 | k Ω | — |
| Transition frequency | f_T | — | 200 | — | MHz | $V_{CE}=10V, I_E=-50mA, f=100MHz$ * |
| Output on resistance | R_{on} | — | 0.95 | — | Ω | $V_I=7V, R=1k\Omega, f=1kHz$ |

*Transition frequency of the device.

Transistors

●Electrical characteristics curves

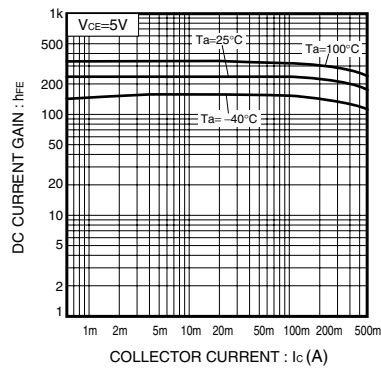


Fig.1 DC current gain vs. Collector current

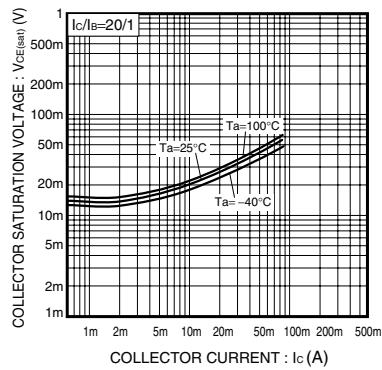


Fig.2 Collector-emitter saturation voltage vs. Collector current

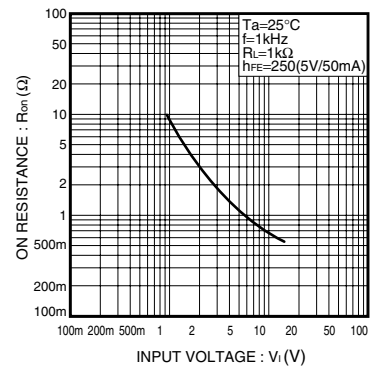


Fig.3 ON resistance vs. Input voltage

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