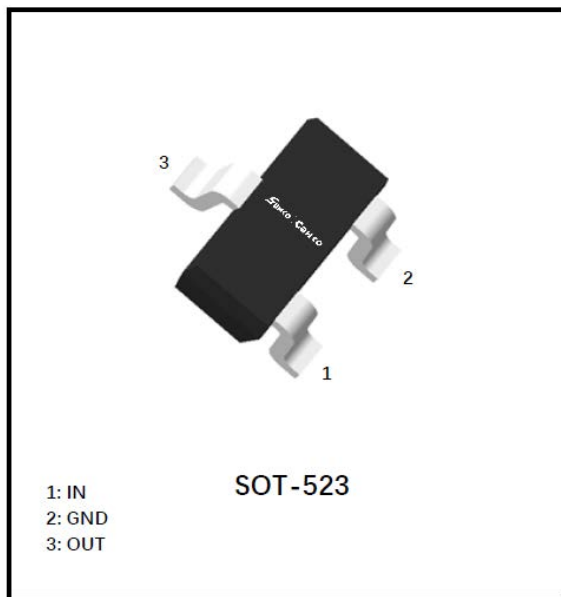


## Digital Transistors (Built-in Resistors)



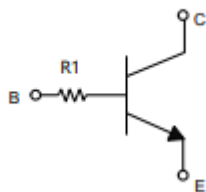
### Features

- Moisture Sensitivity Level 1
- Surface mount package ideally Suited for Automatic Insertion
- Epoxy meets UL-94 V-0 flammability rating, halogen-free

### Mechanical Data

- **Package:** SOT-523
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 03

### Equivalent circuit



### Maximum Ratings (Ta=25°C Unless otherwise specified)

| ITEM                      | SYMBOL    | UNIT | CONDITIONS | VALUE       |
|---------------------------|-----------|------|------------|-------------|
| Collector-Base Voltage    | $V_{CBO}$ | V    |            | 50          |
| Collector-Emitter Voltage | $V_{CEO}$ | V    |            | 50          |
| Emitter-Base Voltage      | $V_{EBO}$ | V    |            | 5           |
| Collector Current         | $I_C$     | mA   |            | 100         |
| Power Dissipation         | $P_D$     | mW   |            | 150         |
| Junction Temperature      | $T_J$     | °C   |            | 150         |
| Storage Temperature       | $T_{STG}$ | °C   |            | -55 to +150 |

# DTC143TE

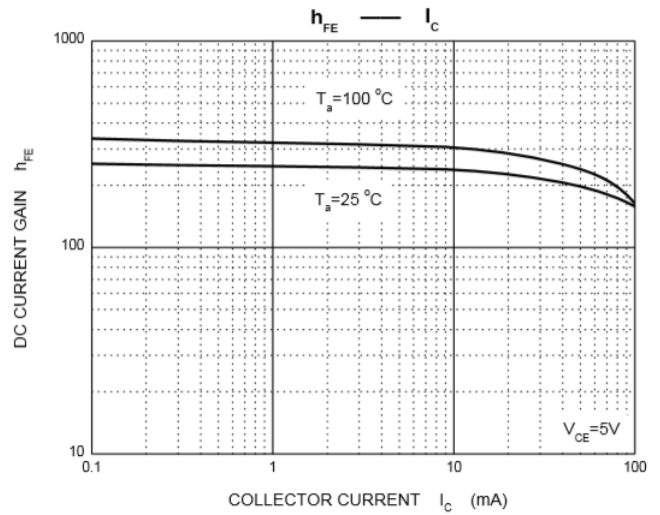
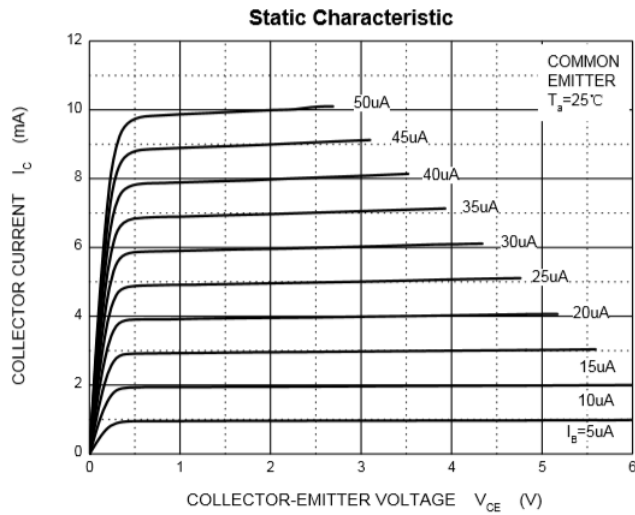
## ■Electrical Characteristics (Ta=25℃ unless otherwise specified)

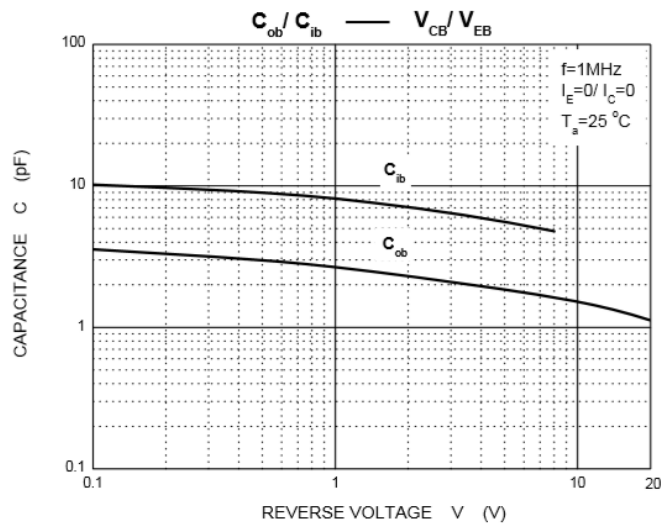
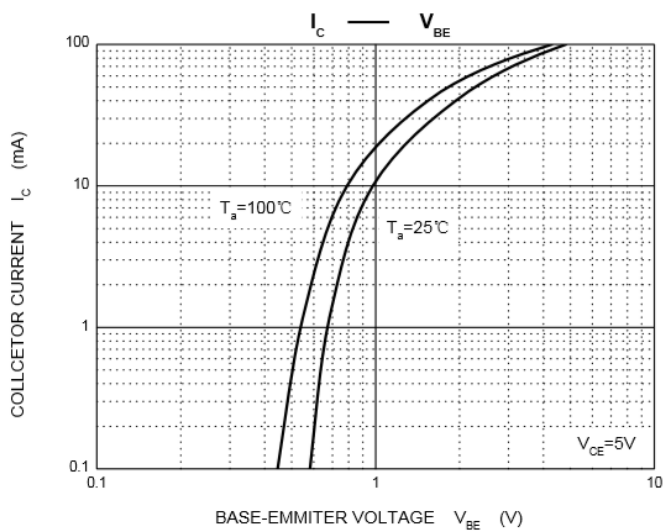
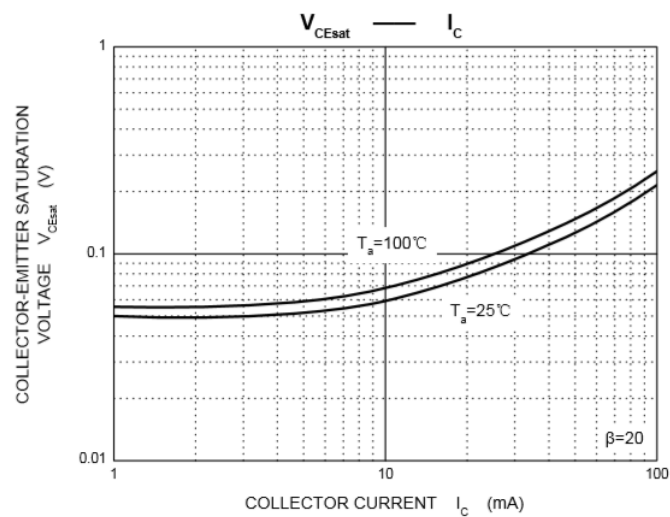
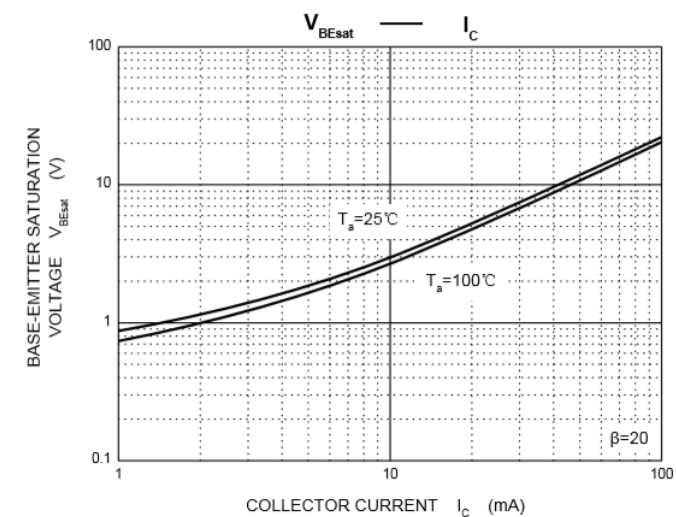
| ITEM                                 | SYMBOL        | UNIT      | CONDITIONS                       | MIN  | TYP | MAX  |
|--------------------------------------|---------------|-----------|----------------------------------|------|-----|------|
| Collector-Base Breakdown Voltage     | $V_{CBO}$     | V         | $I_C=50\mu A$                    | 50   |     |      |
| Collector-Emitter Breakdown Voltage  | $V_{CEO}$     | V         | $I_C=1mA$                        | 50   |     |      |
| Emitter-Base Breakdown Voltage       | $V_{EBO}$     | V         | $I_E=50\mu A$                    | 5    |     |      |
| Collector Cut-off Current            | $I_{CBO}$     | $\mu A$   | $V_{CB}=50V$                     |      |     | 0.5  |
| Emitter Cut-off Current              | $I_{EBO}$     | $\mu A$   | $V_{EB}=4V$                      |      |     | 0.5  |
| DC current gain                      | $h_{FE}$      |           | $V_{CE}=5V, I_C=1mA$             | 100  |     | 600  |
| Input resistance                     | $R_i$         | $k\Omega$ |                                  | 3.29 | 4.7 | 6.11 |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | V         | $I_C=5mA, I_B=0.25mA$            |      |     | 0.3  |
| Transition frequency                 | $f_T$         | MHz       | $V_{CE}=10V, I_E=-5mA, f=100MHz$ |      | 250 |      |

## ■ Ordering Information (Example)

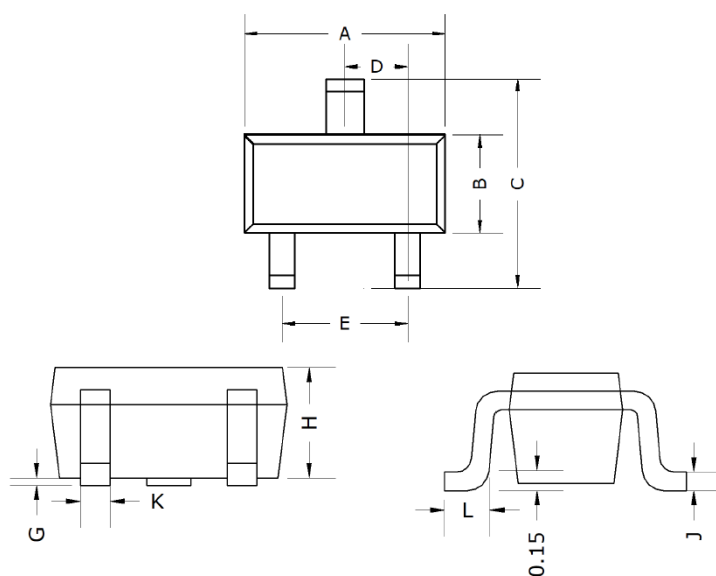
| Preferred P/N | Packing Code | Unit Weight(G)     | Minimum Package(Pcs) | Inner Box Quantity(Pcs) | Outer Carton Quantity(Pcs) | Delivery Mode |
|---------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| DTC143TE      | F2           | Approximate 0.0027 | 3000                 | 30000                   | 120000                     | 7" reel       |

## ■ Characteristics (Typical)



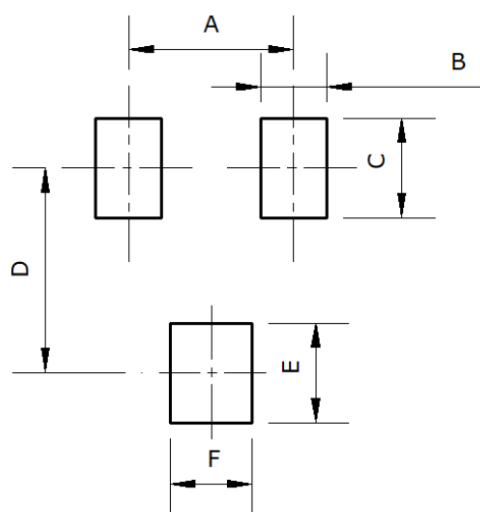


## ■ SOT-523 Package Outline Dimensions



| DIMENSIONS |          |       |         |      |
|------------|----------|-------|---------|------|
| DIM        | INCHES   |       | MM      |      |
|            | MIN      | MAX   | MIN     | MAX  |
| A          | 0.059    | 0.067 | 1.50    | 1.70 |
| B          | 0.030    | 0.033 | 0.75    | 0.85 |
| C          | 0.057    | 0.069 | 1.45    | 1.75 |
| D          | 0.020TYP |       | 0.50TYP |      |
| E          | 0.035    | 0.043 | 0.90    | 1.10 |
| G          | 0.000    | 0.004 | 0.00    | 0.10 |
| H          | 0.024    | 0.031 | 0.60    | 0.80 |
| J          | 0.004    | 0.008 | 0.10    | 0.20 |
| K          | 0.006    | 0.014 | 0.15    | 0.35 |
| L          | 0.010    | 0.018 | 0.26    | 0.46 |

## ■ SOT-523 Suggested Pad Layout



| DIMENSIONS |          |
|------------|----------|
| DIM        | MM (TYP) |
| A          | 1.00     |
| B          | 0.40     |
| C          | 0.60     |
| D          | 1.24     |
| E          | 0.60     |
| F          | 0.50     |

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