

## Features

- Built-In Biasing Resistors
- Halogen Free. "Green" Device (Note 1)
- AEC-Q101 Qualified
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings @ 25°C Unless Otherwise Specified

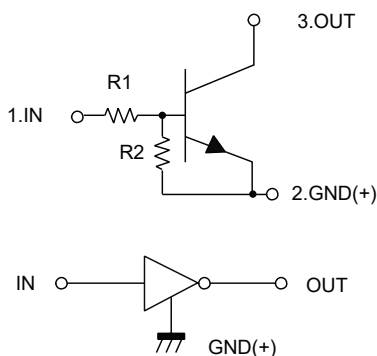
- Thermal Resistance: 625°C/W Junction to Ambient

| Parameter            | Symbol    | Value    | Unit |
|----------------------|-----------|----------|------|
| Supply Voltage       | $V_{CC}$  | 50       | V    |
| Input Voltage        | $V_{IN}$  | -10~+30  | V    |
| Output Current       | $I_O$     | 100      | mA   |
| Power Dissipation    | $P_D$     | 200      | mW   |
| Junction Temperature | $T_J$     | 150      | °C   |
| Storage Temperature  | $T_{stg}$ | -55~+150 | °C   |

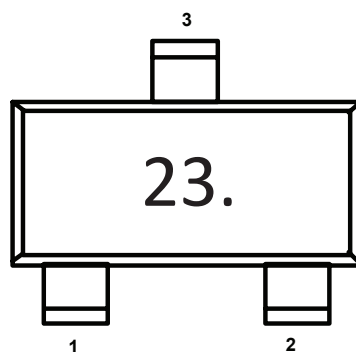
Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Internal Structure

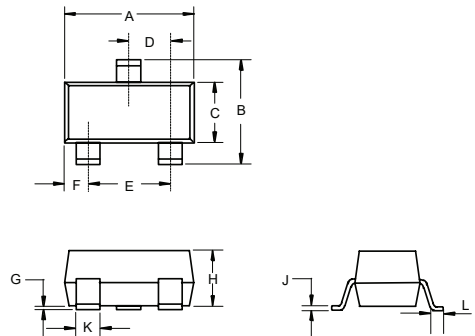


## Device Marking



# NPN Digital Transistor

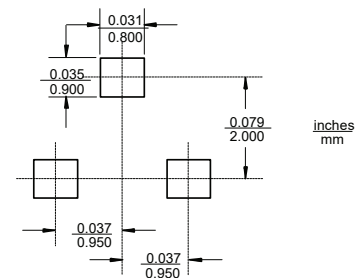
## SOT-23



### DIMENSIONS

| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | 0.110  | 0.120 | 2.80 | 3.04 |      |
| B   | 0.083  | 0.104 | 2.10 | 2.64 |      |
| C   | 0.047  | 0.055 | 1.20 | 1.40 |      |
| D   | 0.034  | 0.041 | 0.85 | 1.05 |      |
| E   | 0.067  | 0.083 | 1.70 | 2.10 |      |
| F   | 0.018  | 0.024 | 0.45 | 0.60 |      |
| G   | 0.0004 | 0.006 | 0.01 | 0.15 |      |
| H   | 0.035  | 0.043 | 0.90 | 1.10 |      |
| J   | 0.003  | 0.007 | 0.08 | 0.18 |      |
| K   | 0.012  | 0.020 | 0.30 | 0.51 |      |
| L   | 0.007  | 0.020 | 0.20 | 0.50 |      |

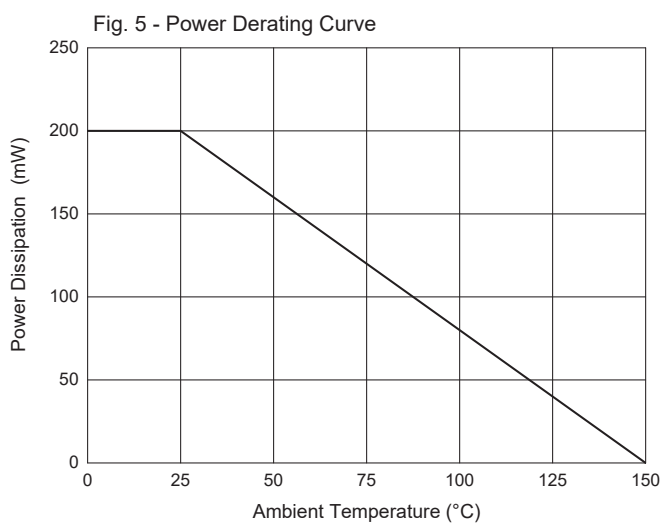
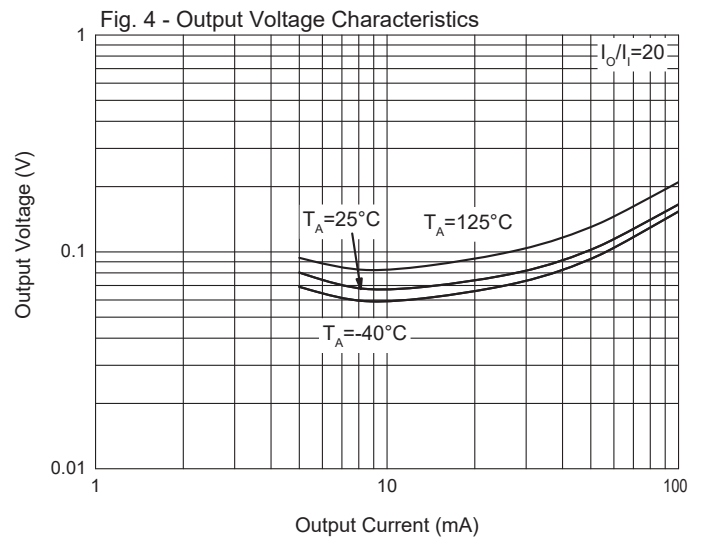
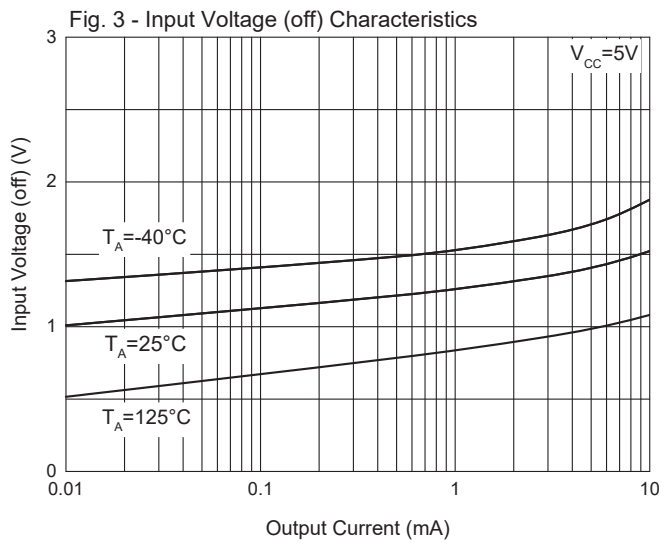
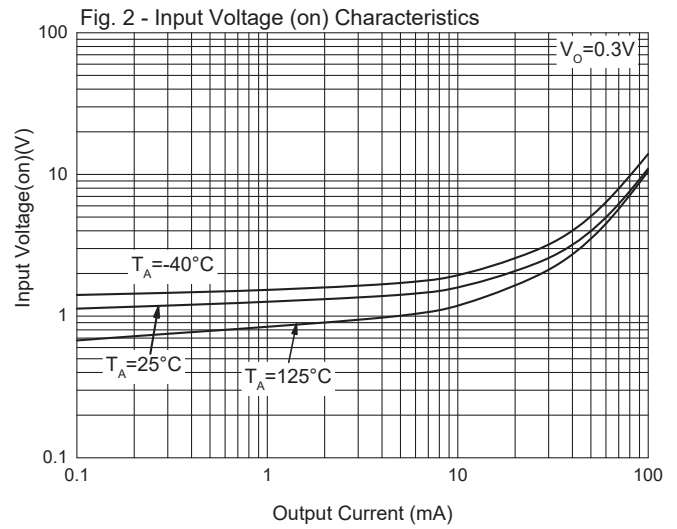
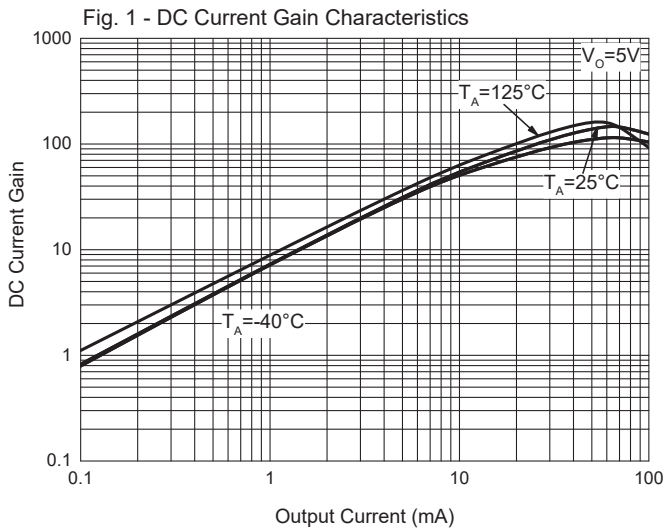
### Suggested Solder Pad Layout



### Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter            | Symbol       | Min  | Typ | Max  | Unit       | Conditions                      |
|----------------------|--------------|------|-----|------|------------|---------------------------------|
| Input Voltage        | $V_{I(off)}$ | 0.5  | --- | ---  | V          | $V_{CC}=5V, I_O=100\mu A$       |
|                      | $V_{I(on)}$  | ---  | --- | 3.0  | V          | $V_O=0.3V, I_O=20mA$            |
| Output Voltage       | $V_{O(on)}$  | ---  | --- | 0.3  | V          | $I_O=10mA, I_I=0.5mA$           |
| Input Current        | $I_I$        | ---  | --- | 1.8  | mA         | $V_I=5V$                        |
| Output Current       | $I_{O(off)}$ | ---  | --- | 0.5  | $\mu A$    | $V_{CC}=50V, V_I=0$             |
| DC Current Gain      | $G_I$        | 20   | --- | ---  |            | $V_O=5V, I_O=10mA$              |
| Input Resistance     | $R_1$        | 3.29 | 4.7 | 6.11 | K $\Omega$ |                                 |
| Resistance Ratio     | $R_2/R_1$    | 0.8  | 1   | 1.2  |            |                                 |
| Transition Frequency | $f_T$        | ---  | 250 | ---  | MHz        | $V_{CE}=10V, I_C=5mA, f=100MHz$ |

## Curve Characteristics



## Ordering Information

| Device          | Packing              |
|-----------------|----------------------|
| DTC143ECAHE3-TP | Tape&Reel:3Kpcs/Reel |

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