

# Bias Resistor Transistor

## PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

- **Applications**  
Inverter, Interface, Driver

- **Features**

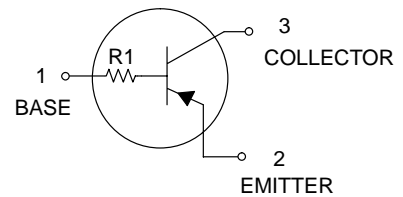
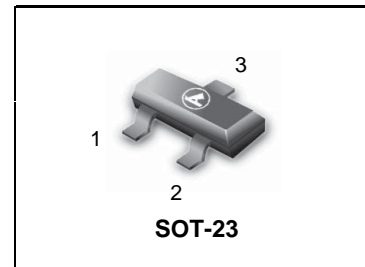
- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input. They also have the advantage of almost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

- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

- **Absolute maximum ratings** (Ta=25°C)

| Parameter                   | Symbol           | Limits      | Unit |
|-----------------------------|------------------|-------------|------|
| Collector-base voltage      | V <sub>CB0</sub> | -50         | V    |
| Collector-emitter voltage   | V <sub>CE0</sub> | -40         | V    |
| Emitter-base voltage        | V <sub>EB0</sub> | -5          | V    |
| Collector current           | I <sub>c</sub>   | -500        | mA   |
| Collector power dissipation | P <sub>c</sub>   | 200         | mW   |
| Junction temperature        | T <sub>j</sub>   | 150         | °C   |
| Storage temperature         | T <sub>stg</sub> | -55 to +150 | °C   |

**LDTB143TLT1G**  
**S-LDTB143TLT1G**



### DEVICE MARKING AND RESISTOR VALUES

| Device                         | Marking | R1 (K) | R2 (K) | Shipping          |
|--------------------------------|---------|--------|--------|-------------------|
| LDTB143TLT1G<br>S-LDTB143TLT1G | K2      | 4.7    | -      | 3000/Tape & Reel  |
| LDTB143TLT3G<br>S-LDTB143TLT3G | K2      | 4.7    | -      | 10000/Tape & Reel |

- **Electrical characteristics** (Ta=25°C)

| Parameter                            | Symbol               | Min. | Typ. | Max. | Unit | Conditions   |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage     | BV <sub>CB0</sub>    | -50  | -    | -    | V    | I <sub>c</sub> = -50μA                                 |
| Collector-emitter breakdown voltage  | BV <sub>CE0</sub>    | -40  | -    | -    | V    | I <sub>c</sub> = -1mA                                  |
| Emitter-base breakdown voltage       | BV <sub>EB0</sub>    | -5   | -    | -    | V    | I <sub>E</sub> = -50μA                                 |
| Collector cutoff current             | I <sub>cBO</sub>     | -    | -    | -0.5 | μA   | V <sub>CB</sub> = -50V                                 |
| Emitter cutoff current               | I <sub>EBO</sub>     | -    | -    | -0.5 | μA   | V <sub>EB</sub> = -4V                                  |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | -    | -    | -0.3 | V    | I <sub>c</sub> /I <sub>B</sub> = -50mA/-2.5mA          |
| DC current transfer ratio            | h <sub>FE</sub>      | 100  | 250  | 600  | -    | V <sub>CE</sub> = -5V, I <sub>c</sub> = -50mA          |
| Input resistance                     | R <sub>1</sub>       | 3.29 | 4.7  | 6.11 | kΩ   | -  |
| Transition frequency                 | f <sub>T</sub> *     | -    | 200  | -    | MHz  | V <sub>CE</sub> = -10V, I <sub>E</sub> =50mA, f=100MHz |

\* Characteristics of built-in transistor

LDTB143TLT1G ;S-LDTB143TLT1G

●Electrical characteristic curves

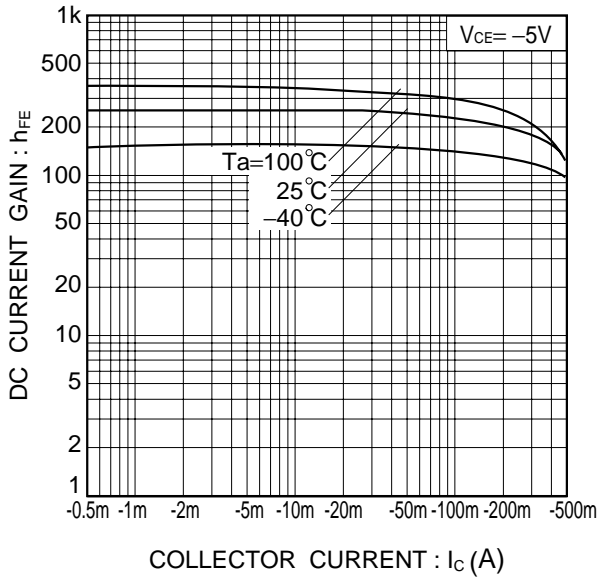


Fig.1 DC current gain vs. collector current

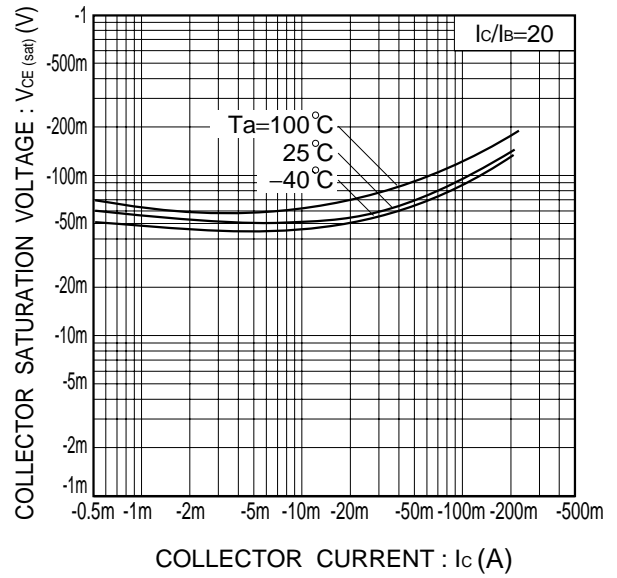


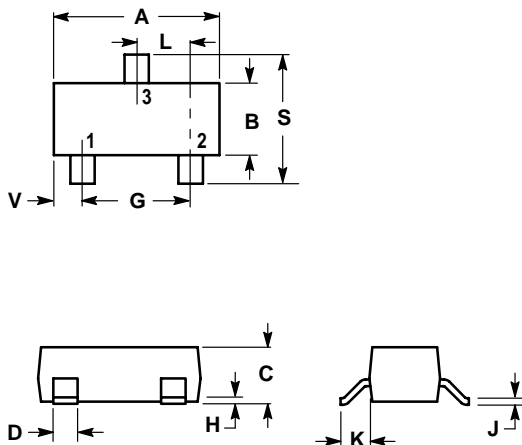
Fig.2 Collector-emitter saturation voltage vs. collector current

LDTB143TLT1G ;S-LDTB143TLT1G

SOT-23

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



| DIM | INCHES |        | MILLIMETERS |       |
|-----|--------|--------|-------------|-------|
|     | MIN    | MAX    | MIN         | MAX   |
| A   | 0.1102 | 0.1197 | 2.80        | 3.04  |
| B   | 0.0472 | 0.0551 | 1.20        | 1.40  |
| C   | 0.0350 | 0.0440 | 0.89        | 1.11  |
| D   | 0.0150 | 0.0200 | 0.37        | 0.50  |
| G   | 0.0701 | 0.0807 | 1.78        | 2.04  |
| H   | 0.0005 | 0.0040 | 0.013       | 0.100 |
| J   | 0.0034 | 0.0070 | 0.085       | 0.177 |
| K   | 0.0140 | 0.0285 | 0.35        | 0.69  |
| L   | 0.0350 | 0.0401 | 0.89        | 1.02  |
| S   | 0.0830 | 0.1039 | 2.10        | 2.64  |
| V   | 0.0177 | 0.0236 | 0.45        | 0.60  |

