

Bias Resistor Transistor

PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTB114TKT1G

- **Applications**
Inverter, Interface, Driver

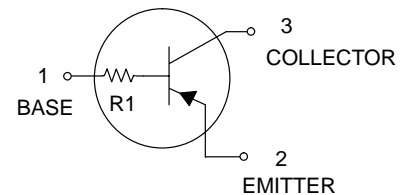
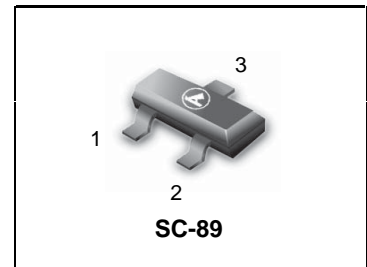
- **Features**

- 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.

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

| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|-------------|------|
| Collector-base voltage | V _{CB0} | -50 | V |
| Collector-emitter voltage | V _{CE0} | -40 | V |
| Emitter-base voltage | V _{EB0} | -5 | V |
| Collector current | I _c | -500 | mA |
| Collector power dissipation | P _c | 200 | mW |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |



DEVICE MARKING AND RESISTOR VALUES

| Device | Marking | R1 (K) | R2 (K) | Shipping |
|--------------|---------|--------|--------|-------------------|
| LDTB114TKT1G | K3 | 10 | — | 3000/Tape & Reel |
| LDTB114TKT3G | K3 | 10 | — | 10000/Tape & Reel |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CB0} | -50 | — | — | V | I _c = -50μA |
| Collector-emitter breakdown voltage | BV _{CE0} | -40 | — | — | V | I _c = -1mA |
| Emitter-base breakdown voltage | BV _{EB0} | -5 | — | — | V | I _E = -50μA |
| Collector cutoff current | I _{CB0} | — | — | -0.5 | μA | V _{CB} = -50V |
| Emitter cutoff current | I _{EB0} | — | — | -0.5 | μA | V _{EB} = -4V |
| Collector-emitter saturation voltage | V _{CE(sat)} | — | — | -0.3 | V | I _c /I _B = -50mA/-2.5mA |
| DC current transfer ratio | h _{FE} | 100 | 250 | 600 | — | I _c = -50mA, V _{CE} = -5V |
| Input resistance | R ₁ | 7 | 10 | 13 | kΩ | — |
| Transition frequency | f _t * | — | 200 | — | MHz | V _{CE} = -10V, I _E =50mA, f=100MHz |

* Characteristics of built-in transistor

LDTB114TKT1G

●Electrical characteristic curves

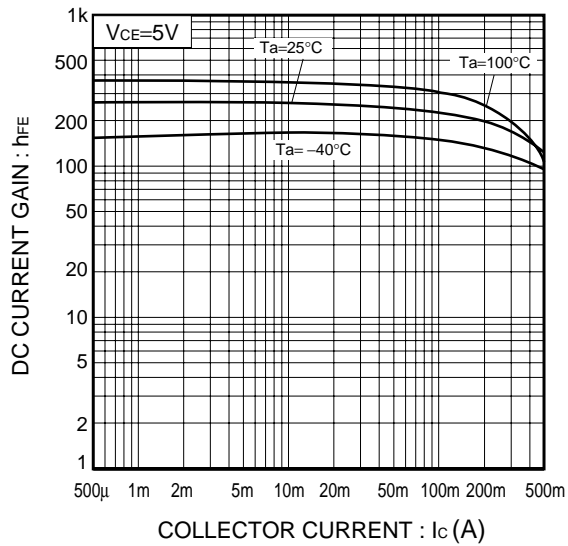


Fig.1 DC current gain vs. Collector current

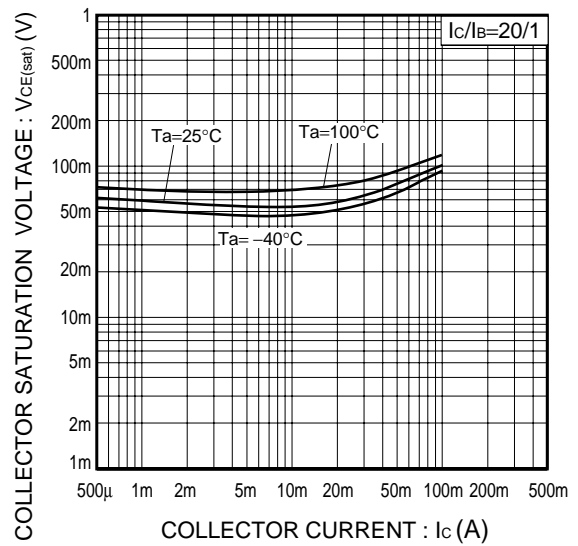
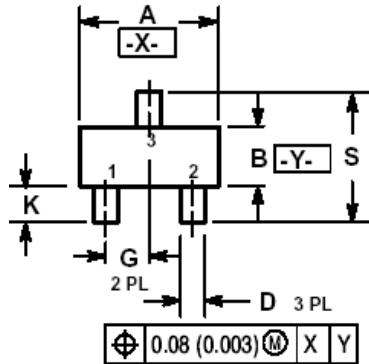
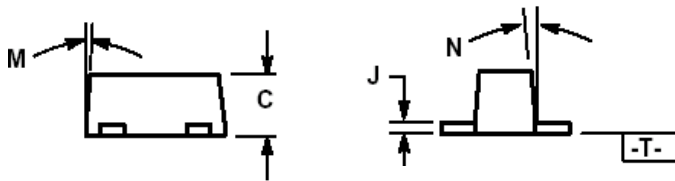


Fig.2 Collector-emitter saturation voltage vs. Collector current

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NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 463C-01 OBSOLETE, NEW STANDARD 463C-02.



| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|-----------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 1.50 | 1.60 | 1.70 | 0.059 | 0.063 | 0.067 |
| B | 0.75 | 0.85 | 0.95 | 0.030 | 0.034 | 0.040 |
| C | 0.60 | 0.70 | 0.80 | 0.024 | 0.028 | 0.031 |
| D | 0.23 | 0.28 | 0.33 | 0.009 | 0.011 | 0.013 |
| G | 0.50 BSC | | | 0.020 BSC | | |
| H | 0.53 REF | | | 0.021 REF | | |
| J | 0.10 | 0.15 | 0.20 | 0.004 | 0.006 | 0.008 |
| K | 0.30 | 0.40 | 0.50 | 0.012 | 0.016 | 0.020 |
| L | 1.10 REF | | | 0.043 REF | | |
| M | --- | --- | 10 ° | --- | --- | 10 ° |
| N | --- | --- | 10 ° | --- | --- | 10 ° |
| S | 1.50 | 1.60 | 1.70 | 0.059 | 0.063 | 0.067 |

