



DDTB (LO-R1) U

PNP PRE-BIASED 500 mA SOT-323 SURFACE MOUNT TRANSISTOR

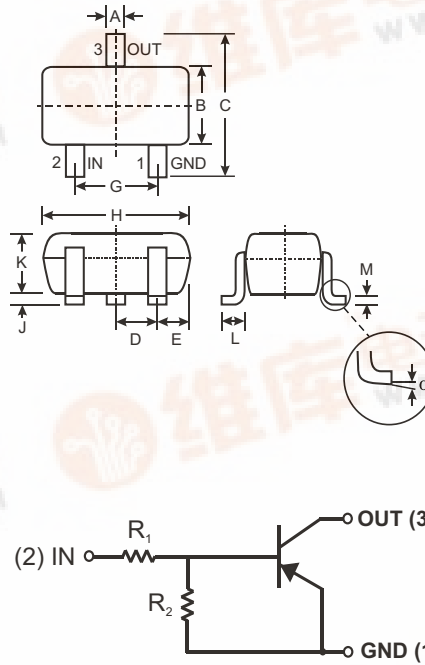
NEW PRODUCT

Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTD)
- Built-In Biasing Resistors
- Lead Free Product

Mechanical Data

- Case: SOT-323, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Finish - Matte Tin (Note 1)
Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code (See Diagrams & Page 2)
- Weight: 0.006 grams (approx.)
- Ordering Information (See Page 2)



| SOT-323 | | |
|----------------------|--------------|------|
| Dim | Min | Max |
| A | 0.25 | 0.40 |
| B | 1.15 | 1.35 |
| C | 2.00 | 2.20 |
| D | 0.65 Nominal | |
| E | 0.30 | 0.40 |
| G | 1.20 | 1.40 |
| H | 1.80 | 2.20 |
| J | 0.0 | 0.10 |
| K | 0.90 | 1.00 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.18 |
| α | 0° | 8° |
| All Dimensions in mm | | |

| P/N | R1 (NOM) | R2 (NOM) | MARKING |
|-----------|----------------|--------------|---------|
| DDTB122LU | 0.22K Ω | 10K Ω | P75 |
| DDTB142JU | 0.47K Ω | 10K Ω | P76 |
| DDTB122TU | 0.22K Ω | OPEN | P77 |
| DDTB142TU | 0.47K Ω | OPEN | P78 |

Maximum Ratings @ T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|----------------------|------|
| Supply Voltage, (3) to (1) | V _{CC} | -50 | V |
| Input Voltage, (2) to (1) | V _{IN} | +5 to -6 +5 to -6 | V |
| Input Voltage, (1) to (2) | V _{EBO (MAX)} | -5 | V |
| Output Current | I _C | -500 | mA |
| Power Dissipation (Note 2) | P _d | 200 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 2) | R _{θJA} | 625 | °C/W |
| Operating and Storage and Temperature Range | T _j , T _{STG} | -55 to +150 | °C |

- Note:
1. If lead-bearing terminal plating is required, please contact your Diodes Inc. sales representative for availability and minimum order details.
 2. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.



Electrical Characteristics @ T_A = 25°C unless otherwise specified

R1, R2 Types

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition | |
|-------------------------|------------------------|---------------------|--------------|-----|--------------|----------------|--|
| Input Voltage | DDTB122LU DDTB142JU | V _{I(off)} | -0.3 -0.3 | — | — | V | V _{CC} = -5V, I _O = -100μA |
| | DDTB122LU DDTB142JU | V _{I(on)} | — | — | -2.0 -2.0 | V | V _O = -0.3V, I _O = -20mA V _O = -0.3V, I _O = -20mA |
| Output Voltage | | V _{O(on)} | — | — | -0.3V | V | I _O /I _I = -50mA/-2.5mA |
| Input Current | DDTB122LU DDTB142JU | I _I | — | — | -28 -13 | mA | V _I = -5V |
| Output Current | | I _{O(off)} | — | — | -0.5 | μA | V _{CC} = -50V, V _I = 0V |
| DC Current Gain | DDTB122LU DDTB142JU | G _I | 56 56 | — | — | — | V _O = -5V, I _O = -50mA |
| Gain-Bandwidth Product* | | f _T | — | 200 | — | MHz | V _{CE} = -10V, I _E = -5mA, f = 100MHz |

* Transistor - For Reference Only

Electrical Characteristics @ T_A = 25°C unless otherwise specified

R1-Only Types

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition | |
|--------------------------------------|------------------------|-------------------|------------|------------|--------------|---|---|
| Collector-Base Breakdown Voltage | BV _{CBO} | -50 | — | — | V | I _C = -50μA | |
| Collector-Emitter Breakdown Voltage | BV _{CEO} | -40 | — | — | V | I _C = -1mA | |
| Emitter-Base Breakdown Voltage | DDTB122TU DDTB142TU | BV _{EBO} | -5 | — | — | V | I _E = -50μA I _E = -50μA |
| Collector Cutoff Current | I _{CBO} | — | — | -0.5 | μA | V _{CB} = -50V | |
| Emitter Cutoff Current | DDTB122TU DDTB142TU | I _{EBO} | — | — | -0.5 -0.5 | μA | V _{EB} = -4V |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | — | — | -0.3 | V | I _C = -50mA, I _B = -2.5mA | |
| DC Current Transfer Ratio | DDTB122TU DDTB142TU | h _{FE} | 100 100 | 250 250 | 600 600 | — | I _C = -5mA, V _{CE} = -5V |
| Gain-Bandwidth Product* | | f _T | — | 200 | — | MHz | V _{CE} = -10V, I _E = 5mA, f = 100MHz |

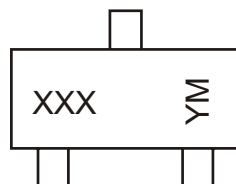
* Transistor - For Reference Only

Ordering Information (Note 3)

| Device | Packaging | Shipping |
|-------------|-----------|------------------|
| DDTB122LU-7 | SOT-323 | 3000/Tape & Reel |
| DDTB142JU-7 | SOT-323 | 3000/Tape & Reel |
| DDTB122TU-7 | SOT-323 | 3000/Tape & Reel |
| DDTB142TU-7 | SOT-323 | 3000/Tape & Reel |

- Notes: 1. If lead-bearing terminal plating is required, please contact your Diodes Inc. sales representative for availability and minimum order details.
3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



XXX = Product Type Marking Code
See Sheet 1 Diagrams
YM = Date Code Marking
Y = Year ex: P = 2003
M = Month ex: 9 = September

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|------|
| Code | N | P | R | S | T | U | V | W |

| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

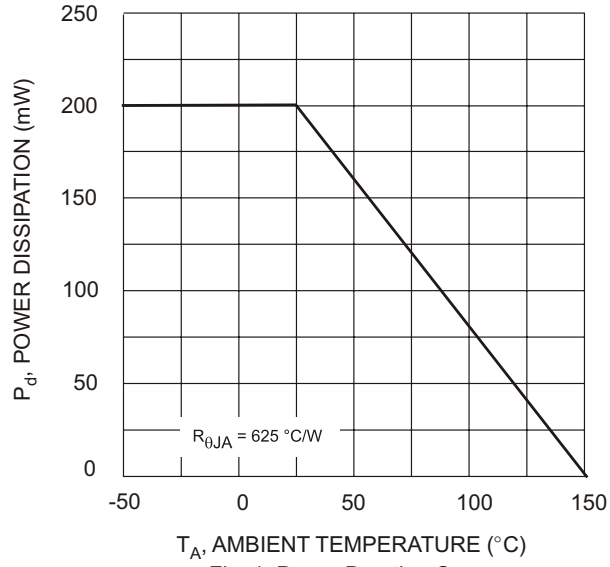


Fig. 1 Power Derating Curve