

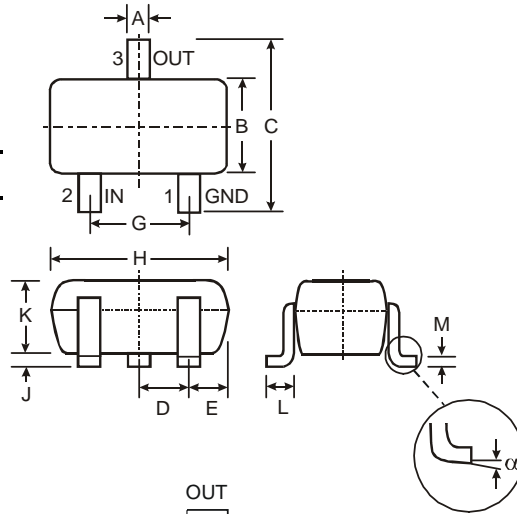
**Features**

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistors
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3 & 4)**

**Mechanical Data**

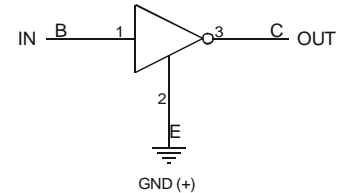
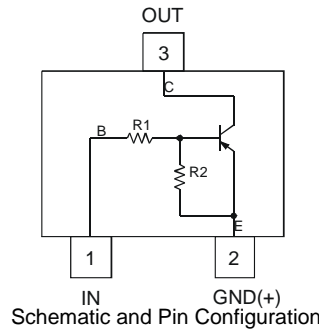
- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding
- Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe)
- Marking Information: See Table Below and Page 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)

| P/N       | R1 (NOM) | R2 (NOM) | Type Code |
|-----------|----------|----------|-----------|
| DDTA122LU | 0.22KΩ   | 10KΩ     | P81       |
| DDTA142JU | 0.47KΩ   | 10KΩ     | P82       |
| DDTA122TU | 0.22KΩ   | OPEN     | P83       |
| DDTA142TU | 0.47KΩ   | OPEN     | P84       |



| 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



**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                              | Symbol   | Value                | Unit |
|---|--|----------------------|------|
| Supply Voltage, (3) to (2)                  | V <sub>CC</sub>                                  | -50                  | V    |
| Input Voltage, (1) to (2)                   | DDTA122LU<br>DDTA142JU<br>V <sub>IN</sub>        | +5 to -6<br>+5 to -6 | V    |
| Input Voltage, (2) to (1)                   | DDTA122TU<br>DDTA142TU<br>V <sub>EBO (MAX)</sub> | -5                   | V    |
| Output Current                              | All<br>I <sub>C</sub>                            | -100                 | mA   |
| Power Dissipation                           | (Note 1)<br>P <sub>d</sub>                       | 200                  | mW   |
| Thermal Resistance, Junction to Ambient Air | (Note 1)<br>R <sub>θJA</sub>                     | 625                  | °C/W |
| Operating and Storage Temperature Range     | T <sub>j</sub> , T <sub>STG</sub>                | -55 to +150          | °C   |

- Note:
1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. No purposefully added lead.
  3. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  4. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified R1, R2 Types

| Characteristic          |                        | Symbol              | Min          | Typ | Max          | Unit | Test Condition   |
|-------------------------|------------------------|---------------------|--------------|-----|--------------|------|--|
| Input Voltage           | DDTA122LU<br>DDTA142JU | V <sub>I(off)</sub> | -0.3<br>-0.3 | —   | —            | V    | V <sub>CC</sub> = -5V, I <sub>O</sub> = -100μA   |
|                         | DDTA122LU<br>DDTA142JU | V <sub>I(on)</sub>  | —            | —   | -2.0<br>-2.0 | V    | V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA<br>V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA |
| Output Voltage          |                        | V <sub>O(on)</sub>  | —            | —   | -0.3V        | V    | I <sub>O</sub> /I <sub>I</sub> = -5mA/-0.25mA  |
| Input Current           | DDTA122LU<br>DDTA142JU | I <sub>I</sub>      | —            | —   | -28<br>-13   | mA   | V <sub>I</sub> = -5V   |
| Output Current          |                        | I <sub>O(off)</sub> | —            | —   | -0.5         | μA   | V <sub>CC</sub> = -50V, V <sub>I</sub> = 0V  |
| DC Current Gain         | DDTA122LU<br>DDTA142JU | G <sub>I</sub>      | 56<br>56     | —   | —            | —    | V <sub>O</sub> = -5V, I <sub>O</sub> = -10mA   |
| Gain-Bandwidth Product* |                        | f <sub>T</sub>      | —            | 200 | —            | MHz  | V <sub>CE</sub> = -10V, I <sub>E</sub> = -5mA, f = 100MHz  |

\* Transistor - For Reference Only

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified R1-Only Types

| Characteristic                       |                        | Symbol               | Min        | Typ        | Max          | Unit | Test Condition   |
|--------------------------------------|------------------------|----------------------|------------|------------|--------------|------|--|
| Collector-Base Breakdown Voltage     |                        | BV <sub>CBO</sub>    | -50        | —          | —            | V    | I <sub>C</sub> = -50μA                                   |
| Collector-Emitter Breakdown Voltage  |                        | BV <sub>CEO</sub>    | -40        | —          | —            | V    | I <sub>C</sub> = -1mA                                    |
| Emitter-Base Breakdown Voltage       | DDTA122TU<br>DDTA142TU | BV <sub>EBO</sub>    | -5         | —          | —            | V    | I <sub>E</sub> = -50μA<br>I <sub>E</sub> = -50μA         |
| Collector Cutoff Current             |                        | I <sub>CBO</sub>     | —          | —          | -0.5         | μA   | V <sub>CB</sub> = -50V                                   |
| Emitter Cutoff Current               | DDTA122TU<br>DDTA142TU | I <sub>EBO</sub>     | —          | —          | -0.5<br>-0.5 | μA   | V <sub>EB</sub> = -4V                                    |
| Collector-Emitter Saturation Voltage |                        | V <sub>CE(sat)</sub> | —          | —          | -0.3         | V    | I <sub>C</sub> = -5mA, I <sub>B</sub> = -0.25mA          |
| DC Current Transfer Ratio            | DDTA122TU<br>DDTA142TU | h <sub>FE</sub>      | 100<br>100 | 250<br>250 | 600<br>600   | —    | I <sub>C</sub> = -1mA, V <sub>CE</sub> = -5V             |
| Gain-Bandwidth Product*              |                        | f <sub>T</sub>       | —          | 200        | —            | MHz  | V <sub>CE</sub> = -10V, I <sub>E</sub> = 5mA, f = 100MHz |

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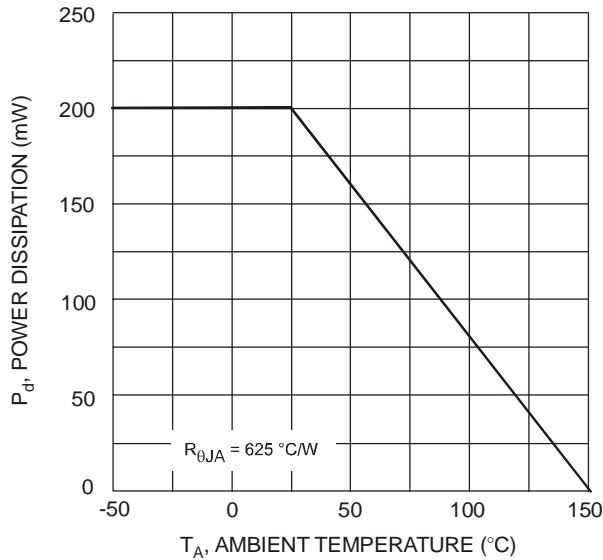


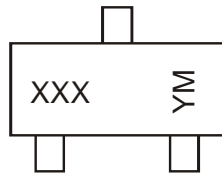
Fig. 1 Power Derating Curve

## Ordering Information (Note 4 & 5)

| Device        | Packaging | Shipping         |
|---------------|-----------|------------------|
| DDTA122LU-7-F | SOT-323   | 3000/Tape & Reel |
| DDTA142JU-7-F | SOT-323   | 3000/Tape & Reel |
| DDTA122TU-7-F | SOT-323   | 3000/Tape & Reel |
| DDTA142TU-7-F | SOT-323   | 3000/Tape & Reel |

Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



XXX = Product Type Marking Code, See Table on Page 1  
 YM = Date Code Marking  
 Y = Year ex: T = 2006  
 M = Month ex: 9 = September

### Date Code Key

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|
| Code | T    | U    | V    | W    | X    | Y    | Z    |

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

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.