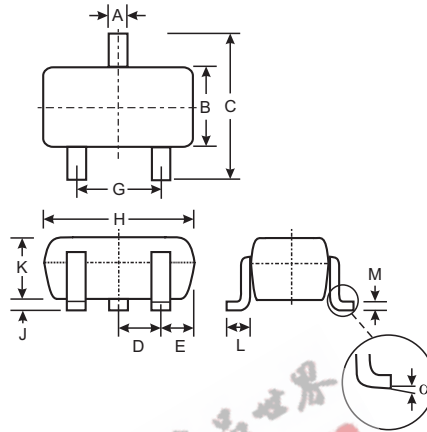


Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTD)
- Built-In Biasing Resistors, R1, R2
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3 and 4)**

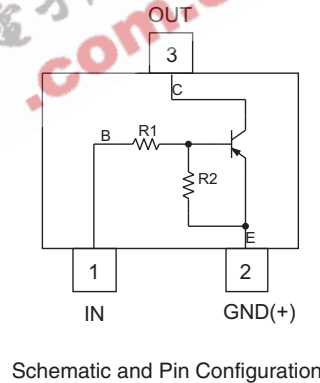
Mechanical Data

- 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
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking: Date Code and Type Code, See Page 3
- Marking Code: See Table Below
- Ordering Information (See Page 3)
- Weight: 0.006 grams (approximate)



| 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) | Type Code |
|-----------|----------|----------|-----------|
| DDTB113EU | 1K | 1K | P60 |
| DDTB123EU | 2.2K | 2.2K | P61 |
| DDTB143EU | 4.7K | 4.7K | P62 |
| DDTB114EU | 10K | 10K | P63 |
| DDTB122JU | 0.22K | 4.7K | P64 |
| DDTB113ZU | 1K | 10K | P65 |
| DDTB123YU | 2.2K | 10K | P66 |
| DDTB133HU | 3.3K | 10K | P67 |
| DDTB123TU | 2.2K | OPEN | P69 |
| DDTB143TU | 4.7K | OPEN | P70 |
| DDTB114TU | 10K | OPEN | P71 |
| DDTB114GU | 0 | 10K | P72 |



Maximum Ratings @ T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|---|------|
| Supply Voltage, (3) to (2) | V _{CC} | -50 | V |
| Input Voltage, (1) to (2) | V _{IN} | DDTB113EU: +10 to -10 DDTB123EU: +10 to -12 DDTB143EU: +10 to -30 DDTB114EU: +10 to -40 DDTB122JU: +5 to -5 DDTB113ZU: +5 to -10 DDTB123YU: +5 to -12 DDTB133HU: +6 to -20 | V |
| Input Voltage, (2) to (1) | V _{EBO (MAX)} | -5 | V |
| Output Current | I _C | -500 | mA |
| Power Dissipation | P _d | 200 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | R _{θJA} | 625 | °C/W |
| Operating and Storage and Temperature Range | T _j , T _{STG} | -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.
 4. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

R1, R2 Types

| Characteristic | | Symbol | Min | Typ | Max | Unit | Test Condition |
|-----------------|--|---------------------|--|-----|--|------|--|
| Input Voltage | DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU | V _{I(off)} | -0.5 -0.5 -0.5 -0.5 -0.5 -0.3 -0.3 -0.3 | — | — | V | V _{CC} = -5V, I _O = -100μA |
| | DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU | V _{I(on)} | — | — | -3.0 -3.0 -3.0 -3.0 -3.0 -2.0 -2.0 -2.0 | V | V _O = -0.3V, I _O = -20mA V _O = -0.3V, I _O = -20mA V _O = -0.3V, I _O = -20mA V _O = -0.3V, I _O = -10mA V _O = -0.3V, I _O = -30mA V _O = -0.3V, I _O = -20mA 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 | DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU | I _I | — | — | -7.2 -3.8 -1.8 -0.88 -28 -7.2 -3.6 -2.4 | mA | V _I = -5V |
| | Output Current | | I _{O(off)} | — | — | -0.5 | μA |
| DC Current Gain | DDTB113EU DDTB123EU DDTB143EU DDTB114EU DDTB122JU DDTB113ZU DDTB123YU DDTB133HU | G _I | 33 39 47 56 47 56 56 56 | — | — | — | V _O = -5V, I _O = -50mA |
| | Gain-Bandwidth Product* | | f _T | — | 200 | — | MHz |

* Transistor - For Reference Only

Electrical Characteristics @ T_A = 25°C unless otherwise specified

R1-Only, R2-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 | DDTB123TU DDTB143TU DDTB114TU DDTB114GU | BV _{EBO} | -5 | — | — | V | I _E = -50μA I _E = -50μA I _E = -50μA I _E = -720μA |
| | Collector Cutoff Current | | I _{CBO} | — | — | -0.5 | μA |
| Emitter Cutoff Current | DDTB123TU DDTB143TU DDTB114TU DDTB114GU | I _{EBO} | — — — -300 | — | -0.5 -0.5 -0.5 -580 | μA | V _{EB} = -4V |
| | Collector-Emitter Saturation Voltage | | V _{CE(sat)} | — | — | -0.3 | V |
| DC Current Transfer Ratio | DDTB123TU DDTB143TU DDTB114TU DDTB114GU | h _{FE} | 100 100 100 56 | 250 250 250 — | 600 600 600 — | — | I _C = -5mA, V _{CE} = -5V |
| | Gain-Bandwidth Product* | | f _T | — | 200 | — | MHz |

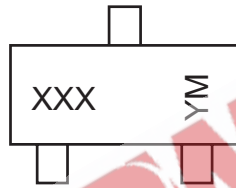
* Transistor - For Reference Only

Ordering Information (Note 4 & 5)

| Device | Packaging | Shipping |
|---------------|-----------|------------------|
| DDTB113EU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB123EU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB143EU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB114EU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB122JU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB113ZU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB123YU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB133HU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB123TU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB143TU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB114TU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTB114GU-7-F | SOT-323 | 3000/Tape & Reel |

- Notes: 4. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
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: N = 2002
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 |

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