



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

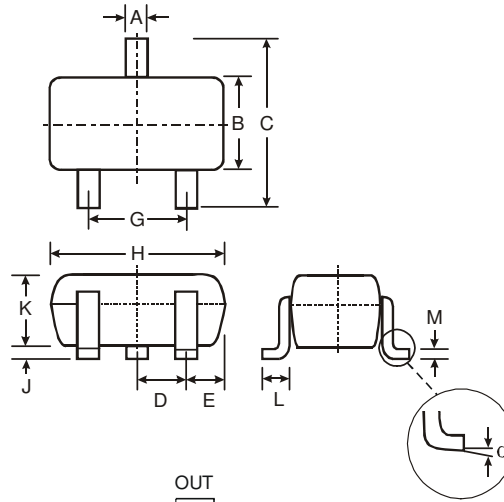


Features

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

Mechanical Data

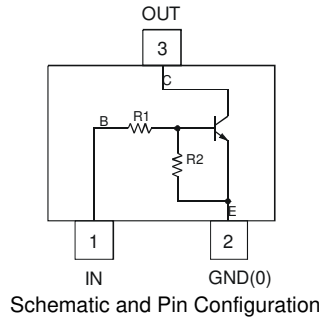
- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking Information: See Table Below & Page 3
- 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) | MARKING |
|-----------|----------|----------|---------|
| DDTD113EU | 1K | 1K | N60 |
| DDTD123EU | 2.2K | 2.2K | N61 |
| DDTD143EU | 4.7K | 4.7K | N62 |
| DDTD114EU | 10K | 10K | N63 |
| DDTD122JU | 0.22K | 4.7K | N64 |
| DDTD113ZU | 1K | 10K | N65 |
| DDTD123YU | 2.2K | 10K | N66 |
| DDTD133HU | 3.3K | 10K | N67 |
| DDTD123TU | 2.2K | OPEN | N69 |
| DDTD143TU | 4.7K | OPEN | N70 |
| DDTD114TU | 10K | OPEN | N71 |
| DDTD114GU | 0 | 10K | N72 |



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} | -10 to +10 -10 to +12 -10 to +30 -10 to +40 -5 to +5 -5 to +10 -5 to +12 -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 Temperature Range | T _j , T _{STG} | -55 to +150 | °C |

- Notes:
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 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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

R1, R2 Types

| Characteristic | | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|--|--------------|--|-----|--|---------|--|
| Input Voltage | DDTD113EU DDTD123EU DDTD143EU DDTD114EU DDTD122JU DDTD113ZU DDTD123YU DDTD133HU | $V_{I(off)}$ | 0.5 0.5 0.5 0.5 0.5 0.3 0.3 0.3 | — | — | V | $V_{CC} = 5V, I_O = 100\mu A$ |
| | DDTD113EU DDTD123EU DDTD143EU DDTD114EU DDTD122JU DDTD113ZU DDTD123YU DDTD133HU | $V_{I(on)}$ | — | — | 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 | DDTD113EU DDTD123EU DDTD143EU DDTD114EU DDTD122JU DDTD113ZU DDTD123YU DDTD133HU | 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 | $V_{CC} = 50V, V_I = 0V$ |
| DC Current Gain | DDTD113EU DDTD123EU DDTD143EU DDTD114EU DDTD122JU DDTD113ZU DDTD123YU DDTD133HU | G_I | 33 39 47 56 47 56 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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

R1-Only, R2-Only Types

| Characteristic | | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------------------|--|---------------|-------------------------|------------------------|--------------------------|---------|---|
| Collector-Base Breakdown Voltage | | BV_{CBO} | 50 | — | — | V | $I_C = 50\mu A$ |
| Collector-Emitter Breakdown Voltage | | BV_{CEO} | 40 | — | — | V | $I_C = 1mA$ |
| Emitter-Base Breakdown Voltage | DDTD123TU DDTD143TU DDTD114TU DDTD114GU | BV_{EBO} | 5 | — | — | V | $I_E = 50\mu A$ $I_E = 50\mu A$ $I_E = 50\mu A$ $I_E = 720\mu A$ |
| Collector Cutoff Current | | I_{CBO} | — | — | 0.5 | μA | $V_{CB} = 50V$ |
| Emitter Cutoff Current | DDTD123TU DDTD143TU DDTD114TU DDTD114GU | I_{EBO} | — — — 300 | — | 0.5 0.5 0.5 580 | 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 | DDTD123TU DDTD143TU DDTD114TU DDTD114GU | 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 | $V_{CE} = 10V, I_E = -5mA, f = 100MHz$ |

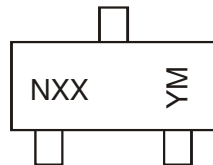
* Transistor - For Reference Only

Ordering Information (Note 4 & 5)

| Device | Packaging | Shipping |
|---------------|-----------|------------------|
| DDTD113EU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD123EU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD143EU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD114EU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD122JU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD113ZU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD123YU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD133HU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD123TU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD143TU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD114TU-7-F | SOT-323 | 3000/Tape & Reel |
| DDTD114GU-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



NXX = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | N | P | R | S | 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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