

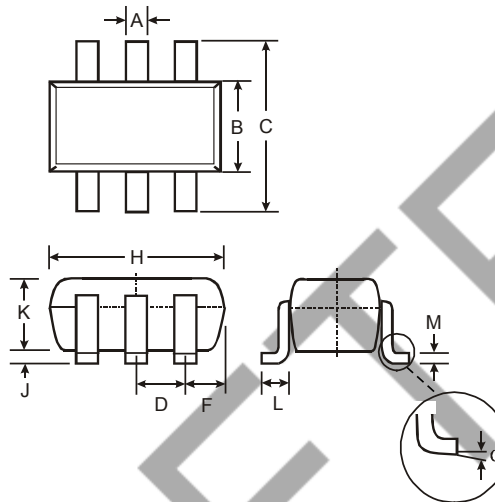
OBSOLETE - PART DISCONTINUED

### Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDC)
- Built-In Biasing Resistors
- **Lead-Free/RoHS Compliant (Note 3)**
- **"Green" Device (Note 4 and 5)**

### Mechanical Data

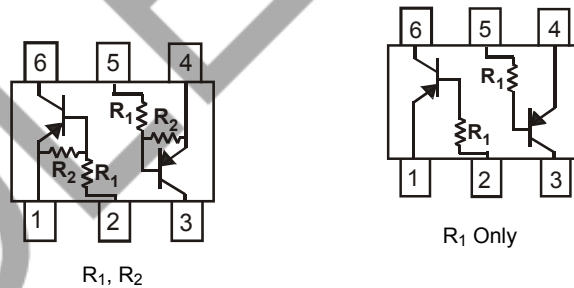
- Case: SOT-363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Type Code: See Table Below
- Ordering Information: See Page 3
- Weight: 0.0058 grams (approximate)



| SOT-363  |              |      |
|----------|--------------|------|
| Dim      | Min          | Max  |
| A        | 0.10         | 0.30 |
| B        | 1.15         | 1.35 |
| C        | 2.00         | 2.20 |
| D        | 0.65 Nominal |      |
| F        | 0.30         | 0.40 |
| H        | 1.80         | 2.20 |
| J        | —            | 0.10 |
| K        | 0.90         | 1.00 |
| L        | 0.25         | 0.40 |
| M        | 0.10         | 0.25 |
| $\alpha$ | 0°           | 8°   |

**All Dimensions in mm**

| P/N      | R1 (NOM) | R2 (NOM) | Type Code |
|----------|----------|----------|-----------|
| DDA122LU | 0.22K    | 10K      | P81       |
| DDA142JU | 0.47K    | 10K      | P82       |
| DDA122TU | 0.22K    | OPEN     | P83       |
| DDA142TU | 0.47K    | OPEN     | P84       |



SCHMATIC DIAGRAM

### Maximum Ratings NPN Section

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

| Characteristic                                       | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Supply Voltage (1) to (6) and (4) to (3)             | V <sub>CC</sub>                   | -50         | V    |
| Input Voltage (1) to (2) and (4) to (5)              | V <sub>IN</sub>                   | +5 to -6    | V    |
| Input Voltage (1) to (2) and (4) to (5)              | V <sub>EBO (MAX)</sub>            | -5          | V    |
| Output Current                                       | I <sub>C</sub>                    | -100        | mA   |
| Power Dissipation (Note 2)                           | P <sub>d</sub>                    | 200         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 2) | R <sub>θJA</sub>                  | 625         | °C/W |
| Operating and Storage Temperature Range              | T <sub>j</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

- Notes:
1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. 150mW per element must not be exceeded.
  3. No purposefully added lead.
  4. 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).
  5. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO 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           | DDA122LU<br>DDA142JU | $V_{I(off)}$ | -0.3<br>-0.3 | —   | —            | V       | $V_{CC} = -5V, I_O = -100\mu A$                          |
|                         | DDA122LU<br>DDA142JU | $V_{I(on)}$  | —            | —   | -2.0<br>-2.0 | V       | $V_O = -0.3V, I_O = -20mA$<br>$V_O = -0.3V, I_O = -20mA$ |
| Output Voltage          |                      | $V_{O(on)}$  | —            | —   | -0.3V        | V       | $I_O/I_I = -5mA/-0.25mA$                                 |
| Input Current           | DDA122LU<br>DDA142JU | $I_I$        | —            | —   | -28<br>-13   | mA      | $V_I = -5V$  |
| Output Current          |                      | $I_{O(off)}$ | —            | —   | -0.5         | $\mu A$ | $V_{CC} = -50V, V_I = 0V$                                |
| DC Current Gain         | DDA122LU<br>DDA142JU | $G_I$        | 56<br>56     | —   | —            | —       | $V_O = -5V, I_O = -10mA$                                 |
| 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 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       | DDA122TU<br>DDA142TU | $BV_{EBO}$    | -5         | —          | —            | V       | $I_E = -50\mu A$<br>$I_E = -50\mu A$   |
| Collector Cutoff Current             |                      | $I_{CBO}$     | —          | —          | -0.5         | $\mu A$ | $V_{CB} = -50V$                        |
| Emitter Cutoff Current               | DDA122TU<br>DDA142TU | $I_{EBO}$     | —          | —          | -0.5<br>-0.5 | $\mu A$ | $V_{EB} = -4V$                         |
| Collector-Emitter Saturation Voltage |                      | $V_{CE(sat)}$ | —          | —          | -0.3         | V       | $I_C = -5mA, I_B = -0.25mA$            |
| DC Current Transfer Ratio            | DDA122TU<br>DDA142TU | $h_{FE}$      | 100<br>100 | 250<br>250 | 600<br>600   | —       | $I_C = -1mA, V_{CE} = -5V$             |
| Gain-Bandwidth Product*              |                      | $f_T$         | —          | 200        | —            | MHz     | $V_{CE} = -10V, I_E = 5mA, f = 100MHz$ |

\* Transistor - For Reference Only

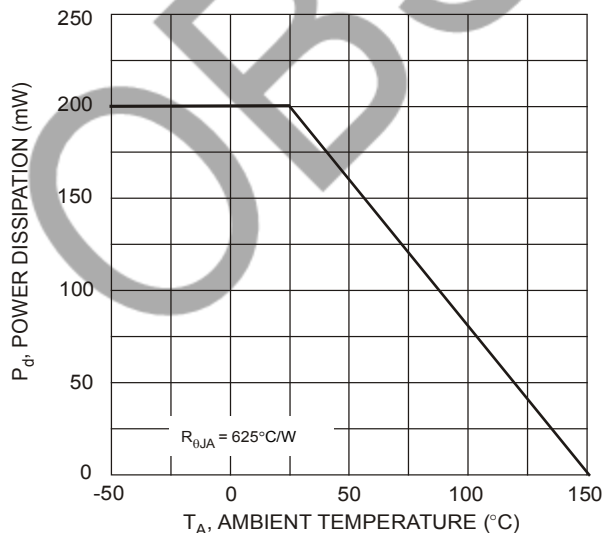


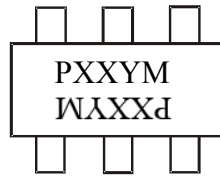
Fig. 1 Power Derating Curve  
(150mW per element must not be exceeded)

**Ordering Information** (Note 6)

| Device       | Packaging | Shipping         |
|--------------|-----------|------------------|
| DDA122LU-7-F | SOT-363   | 3000/Tape & Reel |
| DDA142JU-7-F | SOT-363   | 3000/Tape & Reel |
| DDA122TU-7-F | SOT-363   | 3000/Tape & Reel |
| DDA142TU-7-F | SOT-363   | 3000/Tape & Reel |

Note: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



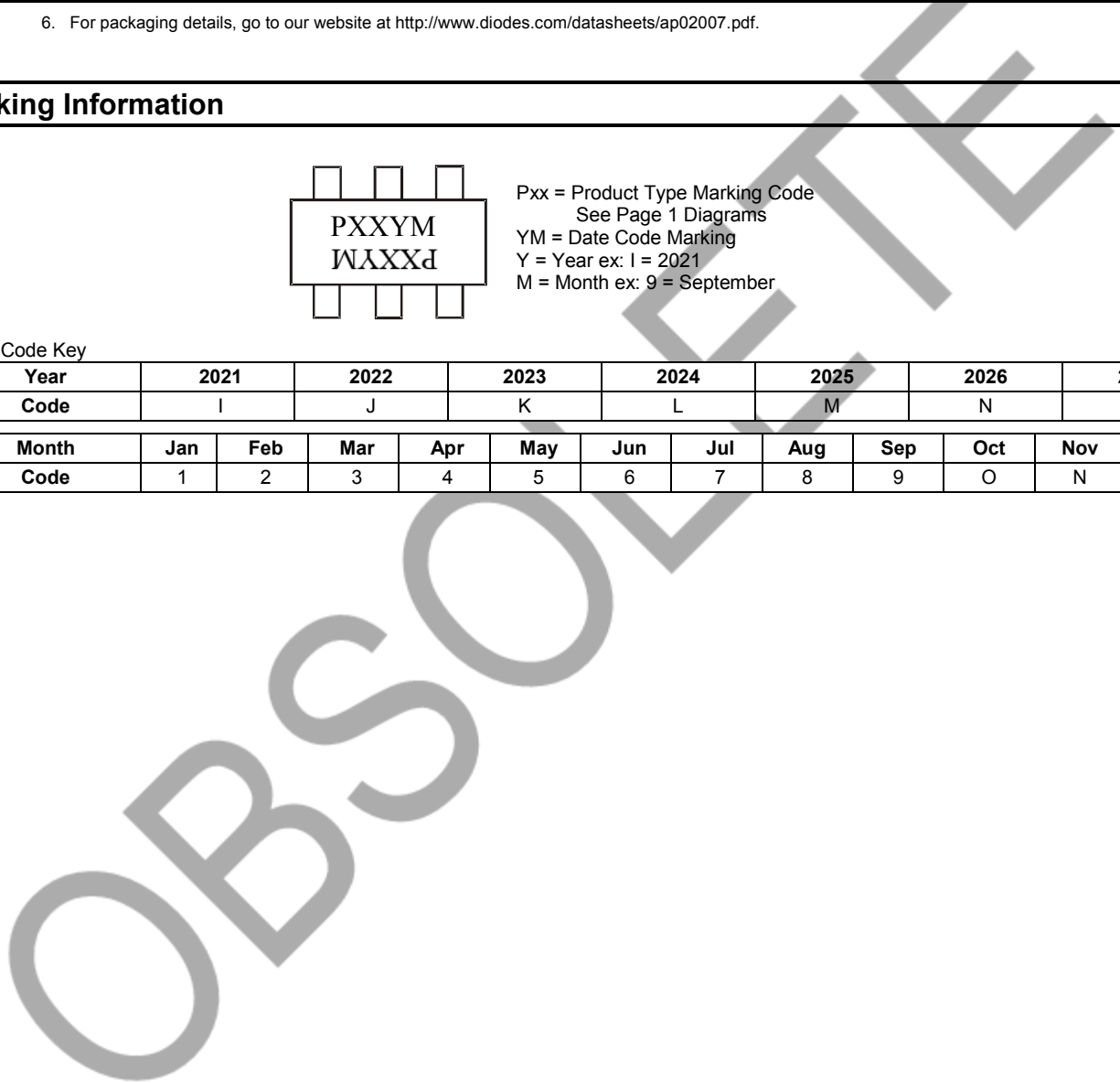
Pxx = Product Type Marking Code  
See Page 1 Diagrams  
YM = Date Code Marking  
Y = Year ex: I = 2021  
M = Month ex: 9 = September

Date Code Key

| Year | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|------|------|------|------|------|------|------|------|
| Code | I    | J    | K    | L    | M    | N    | O    |

| 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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OBSOLETE – PART DISCONTINUED

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