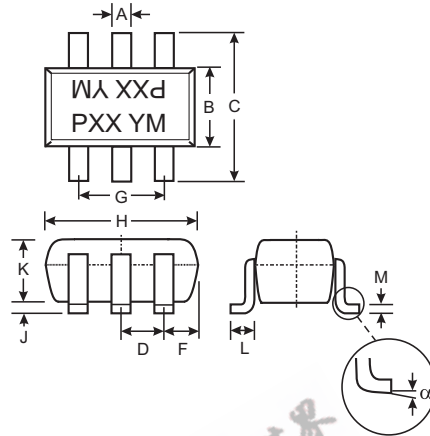


Features

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- Lead Free/RoHS Compliant (Note 3)

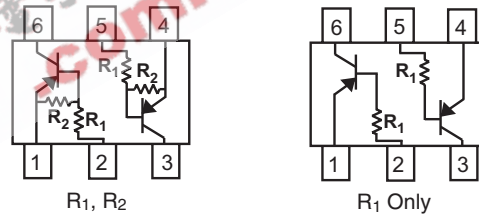
Mechanical Data

- Case: SOT-363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code (See Diagrams & Page 3)
- Ordering Information (See Page 3)
- Weight: 0.006 grams (approx.)



| 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 |
| α | 0° | 8° |
| All Dimensions in mm | | |

| P/N | R1 | R2 | MARKING |
|----------|---------------|--------------|---------|
| DDA124EU | 22K Ω | 22K Ω | P17 |
| DDA144EU | 47K Ω | 47K Ω | P20 |
| DDA114YU | 10K Ω | 47K Ω | P14 |
| DDA123JU | 2.2K Ω | 47K Ω | P06 |
| DDA114EU | 10K Ω | 10K Ω | P13 |
| DDA113TU | 1K Ω | — | P01 |
| DDA143TU | 4.7K Ω | — | P07 |
| DDA114TU | 10K Ω | — | P12 |



SCHMATIC DIAGRAM

Maximum Ratings @ T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|----------------------|---|------|
| Supply Voltage, (1) to (6) and (4) to (3) | V _{CC} | 50 | V |
| Input Voltage, (1) to (2) and (4) to (5) | V _{IN} | DDA124EU: +10 to -40 DDA144EU: +10 to -40 DDA114YU: +6 to -40 DDA123JU: +5 to -12 DDA114EU: +10 to -40 DDA113TU: +5 V _{max} DDA143TU: +5 V _{max} DDA114TU: +5 V _{max} | V |
| Output Current | I _O | DDA124EU: -30 DDA144EU: -30 DDA114YU: -70 DDA123JU: -100 DDA114EU: -50 DDA113TU: -100 DDA143TU: -100 DDA114TU: -100 | mA |
| Output Current | I _C (Max) | All: -100 | mA |
| Power Dissipation (Total) | P _d | 200 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | R _{θJA} | 625 | °C/W |

Note: 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.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

| Characteristic (DDA113TU & DDA143TU & DDA114TU only) | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|----------------------|-----|-----|------|------|---|
| Collector-Base Breakdown Voltage | BV _{CBO} | -50 | — | — | V | I _C = -50μA |
| Collector-Emitter Breakdown Voltage | BV _{CEO} | -50 | — | — | V | I _C = -1mA |
| Emitter-Base Breakdown Voltage | BV _{EBO} | -5 | — | — | V | I _E = -50μA |
| Collector Cutoff Current | I _{CBO} | — | — | -0.5 | μA | V _{CB} = -50V |
| Emitter Cutoff Current | I _{EBO} | — | — | -0.5 | μA | V _{EB} = -4V |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | — | — | -0.3 | V | I _C /I _B = -2.5mA / -0.25mA DDA143TU I _C /I _B = -1mA / -0.1mA DDA114TU I _C /I _B = -10mA / -1mA DDA113TU |
| DC Current Transfer Ratio | h _{FE} | 100 | 250 | 600 | — | I _C = -1mA, V _{CE} = -5V |
| Input Resistor (R ₁) Tolerance | ΔR ₁ | -30 | — | +30 | % | — |
| Gain-Bandwidth Product* | f _T | — | 250 | — | MHz | V _{CE} = -10V, I _E = 5mA, f = 100MHz |

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition | |
|--|--|--------------------------------|--------------------------------------|--------------------------------|--|----------------|---|
| Input Voltage | DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU | V _{I(off)} | -0.5 -0.5 -0.3 -0.5 -0.5 | -1.1 -1.1 — — -1.1 | — | V | V _{CC} = -5V, I _O = -100μA |
| | DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU | V _{I(on)} | — | -1.9 -1.9 — — -1.9 | -3.0 -3.0 -1.4 -1.1 -3.0 | V | V _O = -0.3, I _O = -5mA V _O = -0.3, I _O = -2mA V _O = -0.3, I _O = -1mA V _O = -0.3, I _O = -5mA V _O = -0.3, I _O = -10mA |
| Output Voltage | DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU | V _{O(on)} | — | -0.1 | -0.3 | V | I _O /I _I = -10mA / -0.5mA I _O /I _I = -10mA / -0.5mA I _O /I _I = -5mA / -0.25mA I _O /I _I = -5mA / -0.25mA I _O /I _I = -10mA / -0.5mA |
| Input Current | DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU | I _I | — | — | -0.36 -0.18 -0.88 -3.6 -0.88 | mA | V _I = -5V |
| Output Current | | I _{O(off)} | — | — | -0.5 | μA | V _{CC} = -50V, V _I = -0V |
| DC Current Gain | DDA124EU DDA144EU DDA114YU DDA123JU DDA114EU | G _I | 56 68 68 80 30 | — | — | — | V _O = -5V, I _O = -5mA V _O = -5V, I _O = -5mA V _O = -5V, I _O = -10mA V _O = -5V, I _O = -10mA V _O = -5V, I _O = -5mA |
| Input Resistor (R ₁) Tolerance | | ΔR ₁ | -30 | — | +30 | % | — |
| Resistance Ratio Tolerance | | R ₂ /R ₁ | -20 | — | +20 | % | — |
| Gain-Bandwidth Product* | | f _T | — | 250 | — | MHz | V _{CE} = -10V, I _E = -5mA, f = 100MHz |

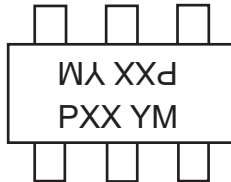
* Transistor - For Reference Only

Ordering Information (Note 4)

| Device | Packaging | Shipping |
|--------------|-----------|------------------|
| DDA124EU-7-F | SOT-363 | 3000/Tape & Reel |
| DDA144EU-7-F | SOT-363 | 3000/Tape & Reel |
| DDA114YU-7-F | SOT-363 | 3000/Tape & Reel |
| DDA123JU-7-F | SOT-363 | 3000/Tape & Reel |
| DDA114EU-7-F | SOT-363 | 3000/Tape & Reel |
| DDA113TU-7-F | SOT-363 | 3000/Tape & Reel |
| DDA143TU-7-F | SOT-363 | 3000/Tape & Reel |
| DDA114TU-7-F | SOT-363 | 3000/Tape & Reel |

Notes: 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



PXX = Product Type Marking Code
See Sheet 1 Diagrams
YM = Date Code Marking
Y = Year ex: T = 2006
M = Month ex: 9 = September

Date Code Key

| Year | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|------|------|------|------|------|------|------|------|------|
| Code | R | S | T | U | V | W | X | Y |

| 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 |

TYPICAL CURVES - DDA123JU
ONE SECTION

NEW PRODUCT

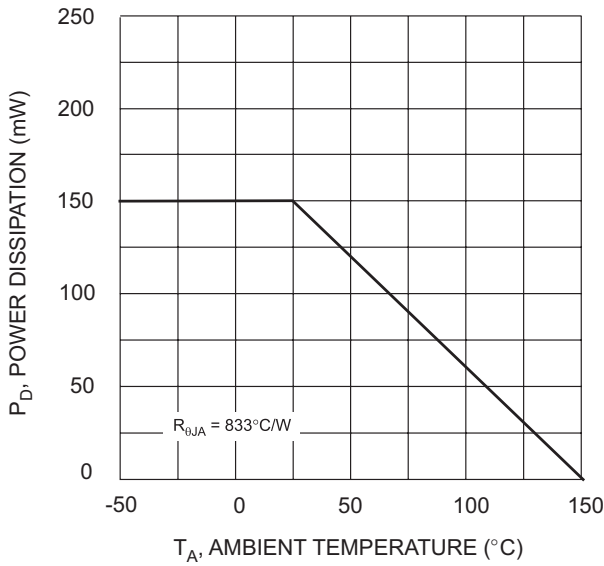


Fig. 1 Derating Curve

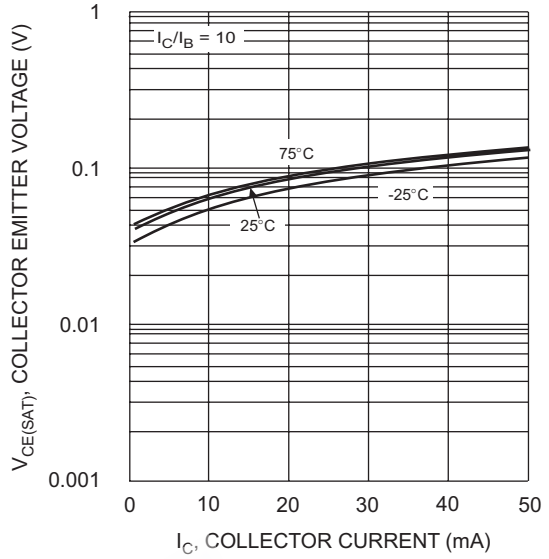


Fig. 2 $V_{CE(SAT)}$ vs. I_C

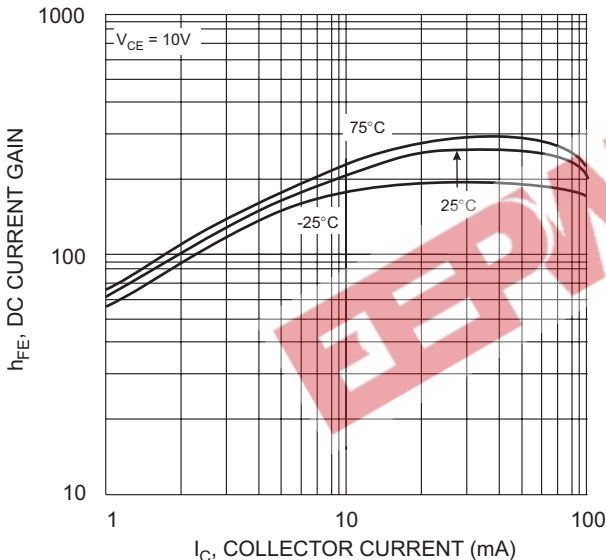


Fig. 3 DC Current Gain

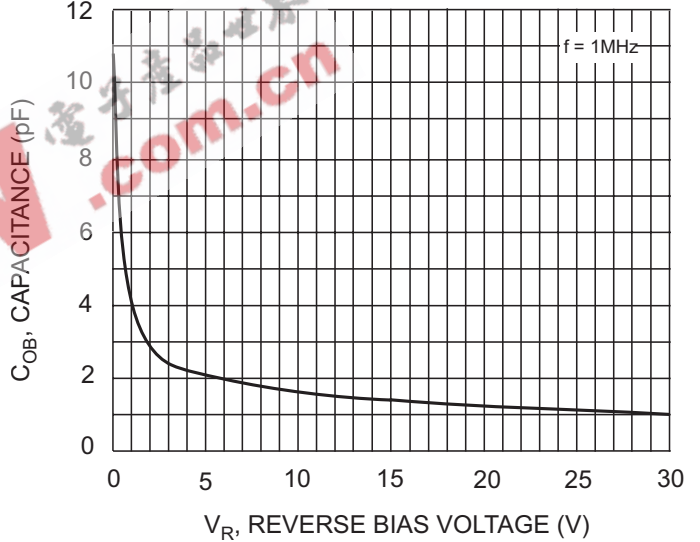


Fig. 4 Output Capacitance

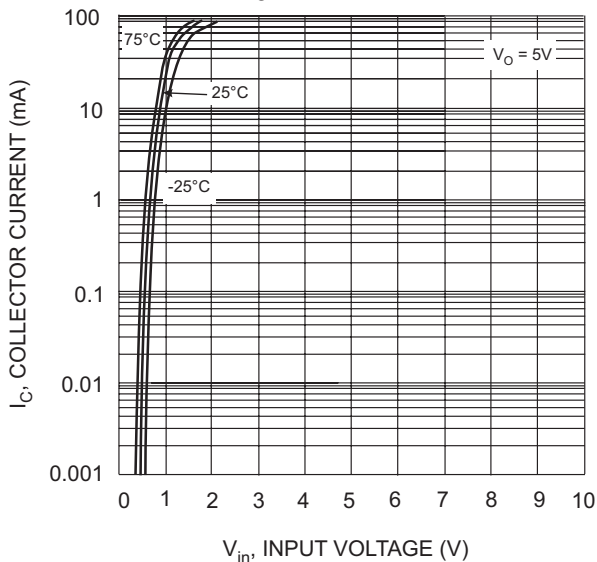


Fig. 5 Collector Current Vs. Input Voltage

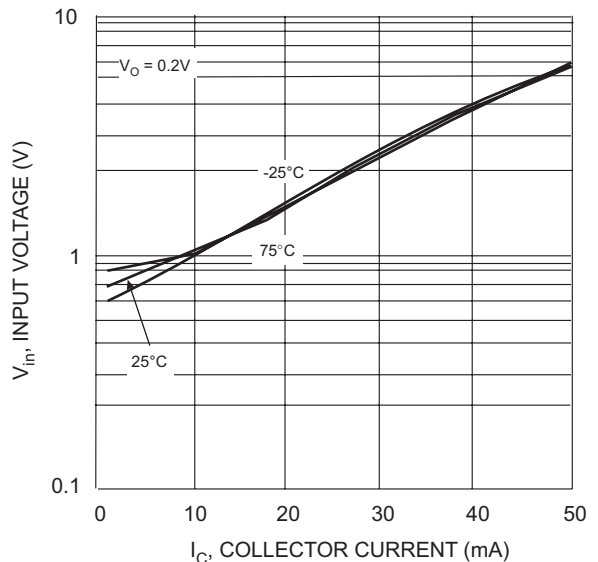


Fig. 6 Input Voltage vs. Collector Current

TYPICAL CURVES - DDA114TU
ONE SECTION

NEW PRODUCT

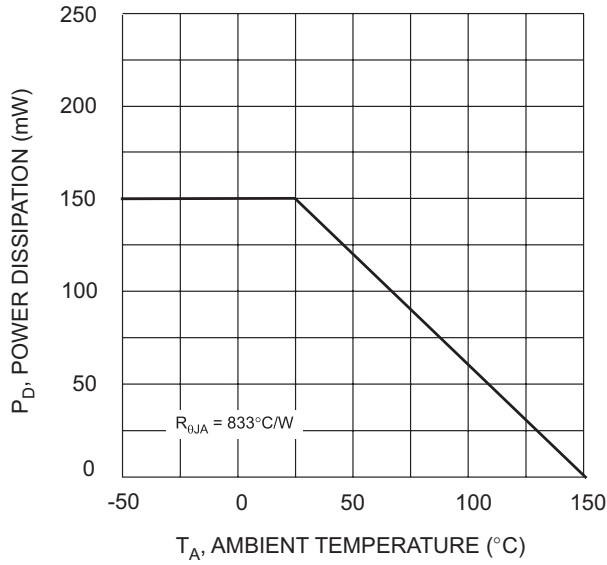


Fig. 1 Derating Curve

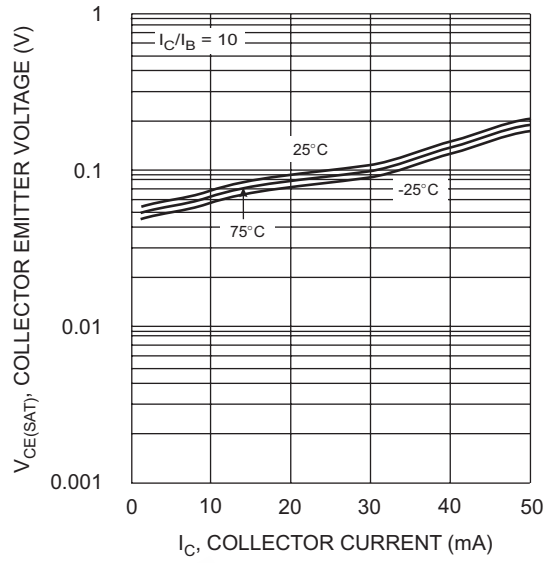


Fig. 2 $V_{CE(SAT)}$ vs. I_C

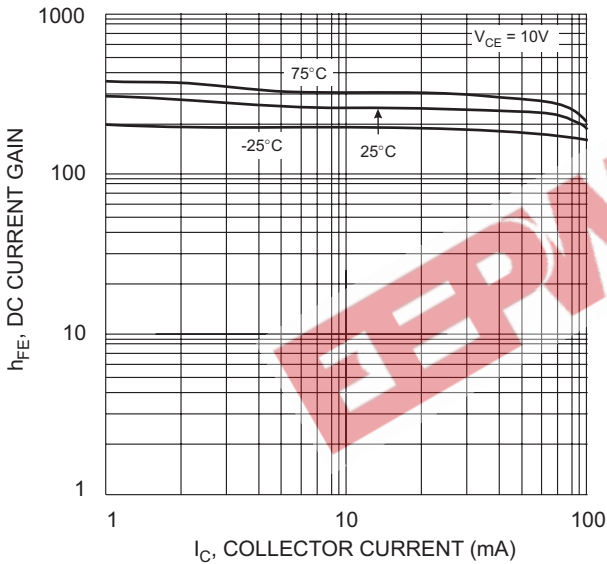


Fig. 3 DC Current Gain

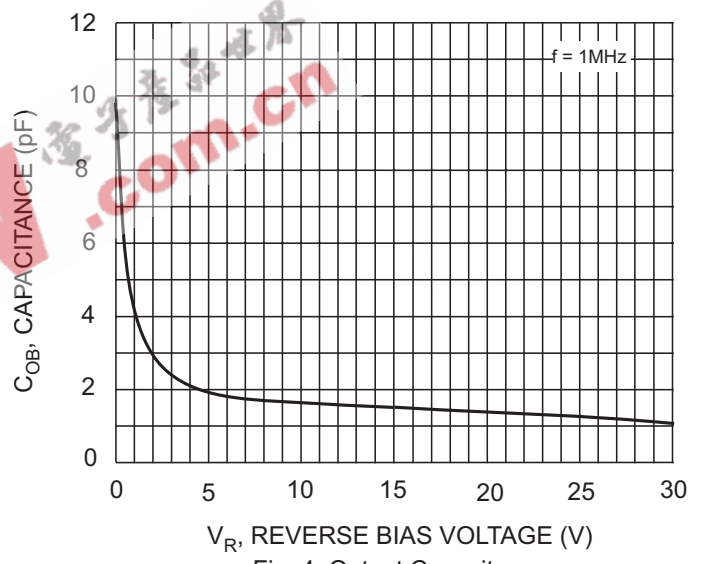


Fig. 4 Output Capacitance

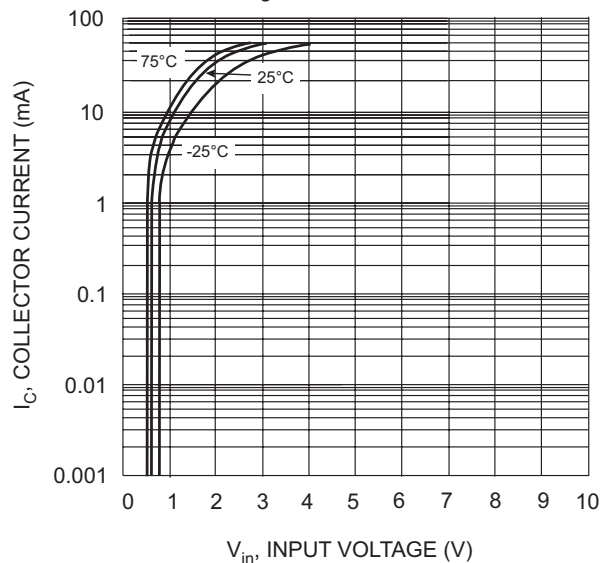


Fig. 5 Collector Current vs. Input Voltage

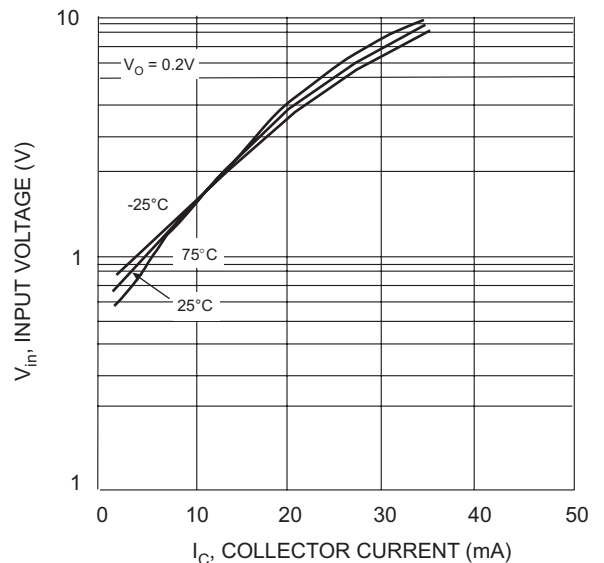


Fig. 6 Input Voltage vs. Collector Current

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