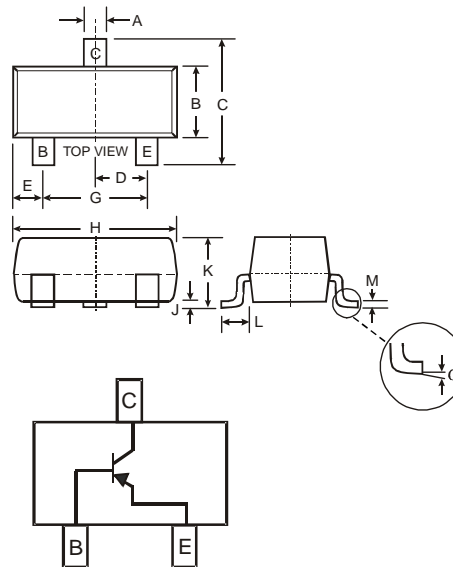


Features

- Epitaxial Planar Die Construction
- Complementary NPN Type Available (DN350T05)
- Ideal for Medium Power Amplification and Switching
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2, 3 and 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**



| SOT-23 | | |
|----------------------|-------|-------|
| Dim | Min | Max |
| A | 0.37 | 0.51 |
| B | 1.20 | 1.40 |
| C | 2.30 | 2.50 |
| D | 0.89 | 1.03 |
| E | 0.45 | 0.60 |
| G | 1.78 | 2.05 |
| H | 2.80 | 3.00 |
| J | 0.013 | 0.10 |
| K | 0.903 | 1.10 |
| L | 0.45 | 0.61 |
| M | 0.085 | 0.180 |
| α | 0° | 8° |
| All Dimensions in mm | | |

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram
- Terminals: Finish — Matte Tin Finish annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: K3U - See Page 2
- Ordering & Date Code Information: See Page 2
- Weight: 0.008 grams (approximate)

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | DP350T05 | Unit |
|--|-----------------|-------------|---------------------------|
| Collector-Base Voltage | V_{CB0} | -350 | V |
| Collector-Emitter Voltage | V_{CE0} | -350 | V |
| Emitter-Base Voltage | V_{EB0} | -5.0 | V |
| Continuous Collector Current (Note 1) | I_C | -500 | mA |
| Power Dissipation (Note 1) | P_D | 300 | mW |
| Thermal Resistance, Junction to Ambient (Note 1) | $R_{\theta JA}$ | 417 | $^\circ\text{C}/\text{W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

- Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. No purposefully added lead. Halogen and Antimony Free.
 3. Diode's Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 4. Product is manufactured with Green Molding Compound and does not contain Halogens or Sb_2O_3 Fire Retardants.

Electrical Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|--------------------------------------|----------------------|------|-------|------|--|
| OFF CHARACTERISTICS (Note 5) | | | | | |
| Collector-Base Breakdown Voltage | V _{(BR)CBO} | -350 | — | V | I _C = -100μA, I _E = 0 |
| Collector-Emitter Breakdown Voltage | V _{(BR)CEO} | -350 | — | V | I _C = -1.0mA, I _B = 0 |
| Emitter-Base Breakdown Voltage | V _{(BR)EBO} | -5.0 | — | V | I _E = -10μA, I _C = 0 |
| Collector Cutoff Current | I _{CBO} | — | -50 | nA | V _{CB} = -200V, I _E = 0 |
| Collector Cutoff Current | I _{EBO} | — | -50 | nA | V _{CE} = -3.0V, I _C = 0 |
| ON CHARACTERISTICS (Note 5) | | | | | |
| DC Current Gain | h _{FE} | 20 | — | — | I _C = -1.0mA, V _{CE} = -10V I _C = -10mA, V _{CE} = -10V I _C = -30mA, V _{CE} = -10V I _C = -50mA, V _{CE} = -10V I _C = -100mA, V _{CE} = -10V |
| | | 30 | — | | |
| | | 30 | 200 | | |
| | | 20 | 200 | | |
| | | 15 | — | | |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | — | -0.30 | V | I _C = -10mA, I _B = -1.0mA I _C = -20mA, I _B = -2.0mA I _C = -30mA, I _B = -3.0mA I _C = -50mA, I _B = -5.0mA |
| | | — | -0.35 | | |
| | | — | -0.50 | | |
| | | — | -1.0 | | |
| | | — | — | | |
| Base-Emitter Saturation Voltage | V _{BE(SAT)} | — | -0.75 | V | I _C = -10mA, I _B = -1.0mA I _C = -20mA, I _B = -2.0mA I _C = -30mA, I _B = -3.0mA |
| | | — | -0.85 | | |
| | | — | -0.90 | | |
| Base-Emitter On Voltage | V _{BE(ON)} | — | -2.0 | V | I _C = -100mA, V _{CE} = -10V |
| SMALL SIGNAL CHARACTERISTICS | | | | | |
| Output Capacitance | C _{obo} | — | 7.0 | pF | V _{CB} = -20V, f = 1.0MHz, I _E = 0 |
| Transition Frequency | f _T | 50 | — | MHz | V _{CE} = -10V, I _C = -20mA |

Notes: 5. Short duration pulse test used to minimize self-heating effect.

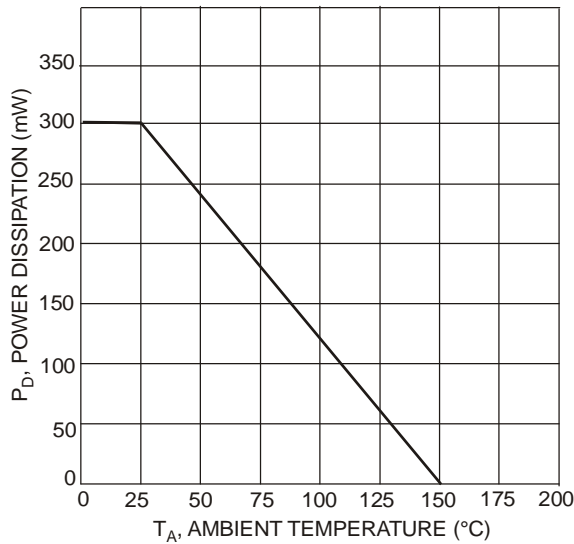


Fig. 1, Max Power Dissipation vs. Ambient Temperature

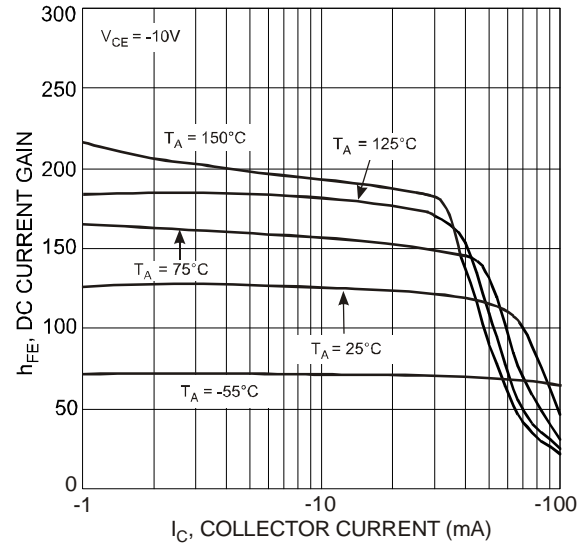


Fig. 2, DC Current Gain vs. Collector Current

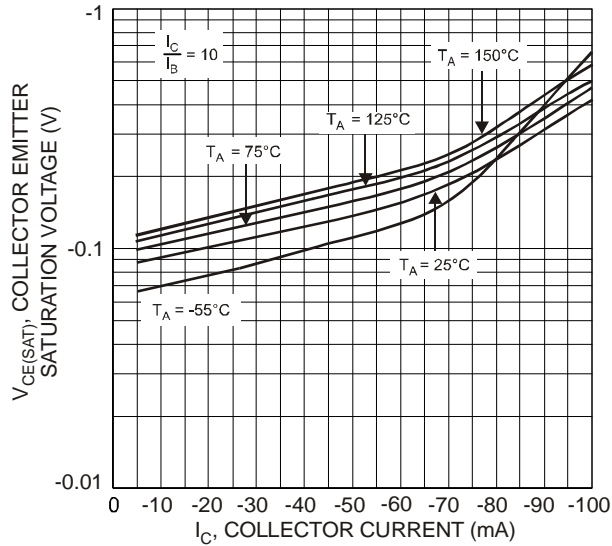


Fig. 3, Collector-Emitter Saturation Voltage vs. Collector Current

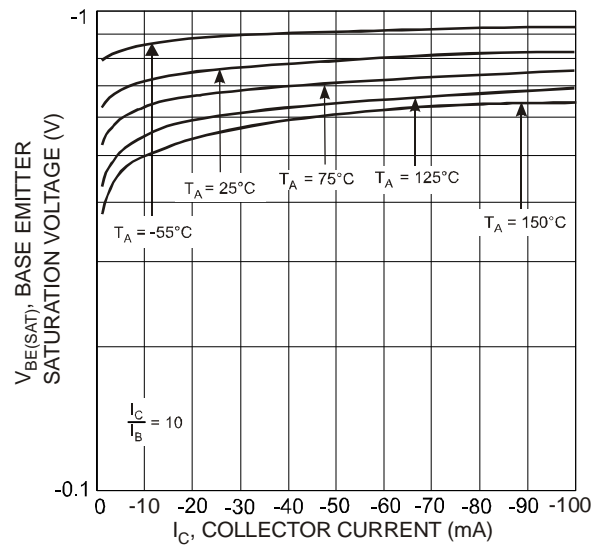


Fig. 4, Base-Emitter Saturation Voltage vs. Collector Current

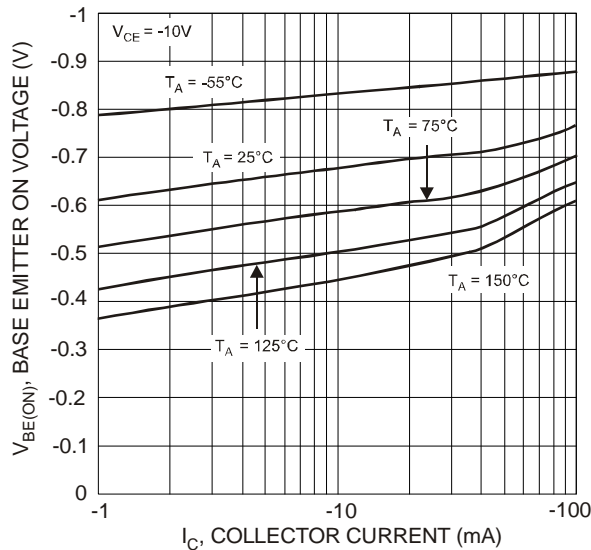


Fig. 5, Base-Emitter On Voltage vs. Collector Current

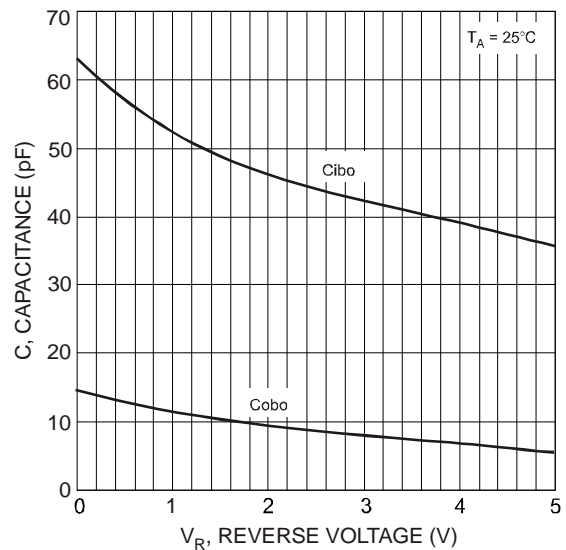


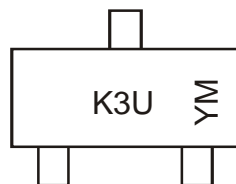
Fig. 6, Capacitance vs. Reverse Voltage

Ordering Information (Note 6)

| Device | Packaging | Shipping |
|------------|-----------|------------------|
| DP350T05-7 | SOT-23 | 3000/Tape & Reel |

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

Marking Information



K3U = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: S = 2005
 M = Month ex: 9 = September

Date Code Key

| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|------|
| Code | 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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