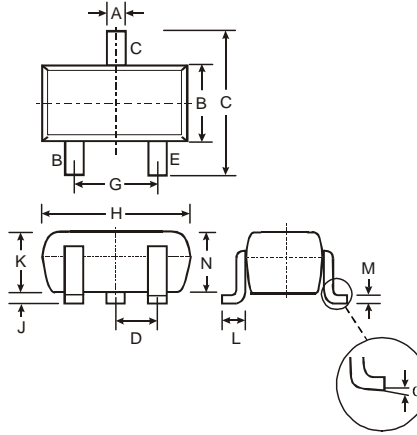


Features

- Ultra Miniature Surface Mount Package
- Complementary PNP Type Available (2DA1774Q,R,S)
- **Lead Free/RoHS Compliant (Note 3)**
- "Green" Device (Note 4 and 5)

Mechanical Data

- Case: SOT-523
- Case Material: Molded Plastic. 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 annealed over Alloy 42 leadframe).
- Marking Information: (See Page 3): 2DC4617Q: 8D
2DC4617R: 8E
2DC4617S: 8F
- Ordering Information: See Page 3
- Weight: 0.002 grams (approximate)



| SOT-523 | | | |
|----------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.15 | 0.30 | 0.22 |
| B | 0.75 | 0.85 | 0.80 |
| C | 1.45 | 1.75 | 1.60 |
| D | — | — | 0.50 |
| G | 0.90 | 1.10 | 1.00 |
| H | 1.50 | 1.70 | 1.60 |
| J | 0.00 | 0.10 | 0.05 |
| K | 0.60 | 0.80 | 0.75 |
| L | 0.10 | 0.30 | 0.22 |
| M | 0.10 | 0.20 | 0.12 |
| N | 0.45 | 0.65 | 0.50 |
| α | 0° | 8° | — |
| All Dimensions in mm | | | |

Maximum Ratings @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|------------------|-------|------|
| Collector-Base Voltage | V _{CB0} | 60 | V |
| Collector-Emitter Voltage | V _{CEO} | 50 | V |
| Emitter-Base Voltage | V _{EBO} | 7.0 | V |
| Collector Current - Continuous (Note 1) | I _C | 150 | mA |

Thermal Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 1) | P _d | 150 | mW |
| Thermal Resistance, Junction to Ambient (Note 1) | R _{θJA} | 833 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

Electrical Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------------------|----------------------|-------------------|-----|-------------------|------|--|
| OFF CHARACTERISTICS (Note 2) | | | | | | |
| Collector-Base Breakdown Voltage | V _{(BR)CBO} | 60 | — | — | V | I _C = 50μA, I _E = 0 |
| Collector-Emitter Breakdown Voltage | V _{(BR)CEO} | 50 | — | — | V | I _C = 1.0mA, I _B = 0 |
| Emitter-Base Breakdown Voltage | V _{(BR)EBO} | 7.0 | — | — | V | I _E = 50μA, I _C = 0 |
| Collector Cutoff Current | I _{CBO} | — | — | 100 | nA | V _{CB} = 60V |
| Emitter Cutoff Current | I _{EBO} | — | — | 100 | nA | V _{EB} = 7.0V |
| ON CHARACTERISTICS (Note 2) | | | | | | |
| DC Current Gain | h _{FE} | 120 180 270 | — | 270 390 560 | — | V _{CE} = 6.0V, I _C = 1.0mA |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | — | — | 0.4 | V | I _C = 50mA, I _B = 5.0mA |
| SMALL SIGNAL CHARACTERISTICS | | | | | | |
| Output Capacitance | C _{obo} | — | 2.0 | 3.5 | pF | V _{CB} = 12V, f = 1.0MHz, I _E = 0 |
| Current Gain-Bandwidth Product | f _T | — | 180 | — | MHz | V _{CE} = 12V, I _E = -2mA, f = 1MHz |
| Current Gain-Bandwidth Product | f _T | 180 Typ. | — | — | MHz | V _{CE} = 12V, I _E = 0A, f = 1MHz |
| Current Gain-Bandwidth Product | f _T | 180 Typ. | — | — | MHz | V _{CE} = 12V, I _C = -2.0mA, f = 100MHz |

- Notes:
1. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. Short duration pulse test used to minimize self-heating effect.
 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.
 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.

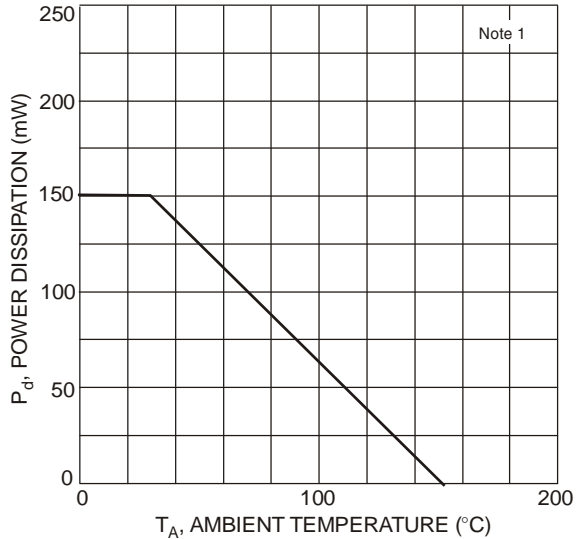


Fig. 1 Power Derating Curve

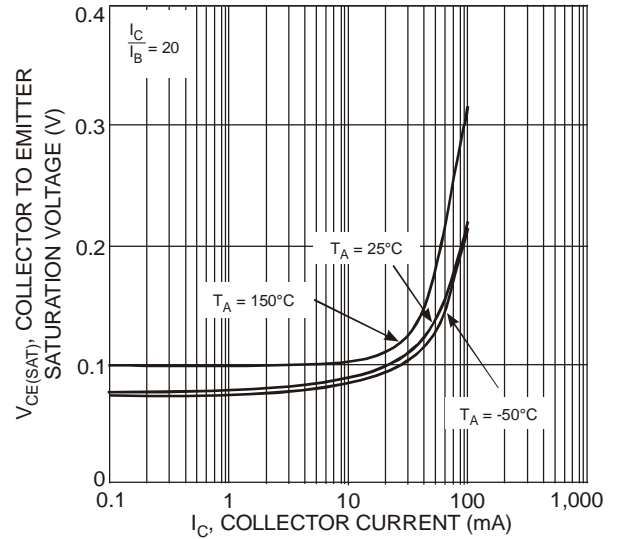


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

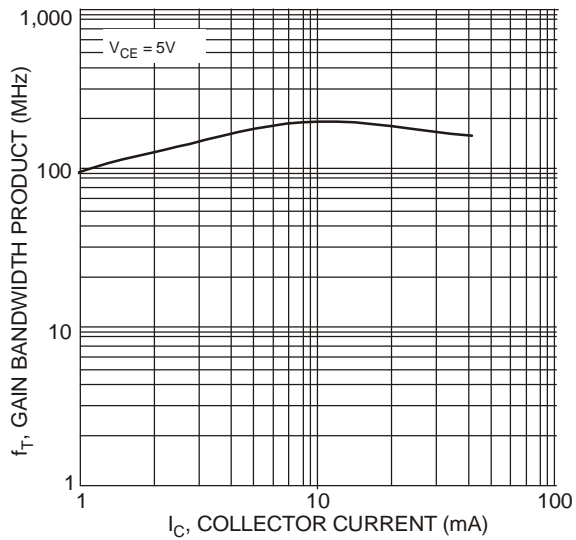


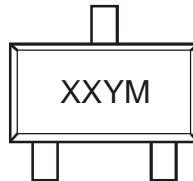
Fig. 3 Gain Bandwidth Product vs. Collector Current

Ordering Information (Note 6)

| Device | Packaging | Shipping |
|--------------|-----------|------------------|
| 2DC4617Q-7-F | SOT-523 | 3000/Tape & Reel |
| 2DC4617R-7-F | SOT-523 | 3000/Tape & Reel |
| 2DC4617S-7-F | SOT-523 | 3000/Tape & Reel |

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

Marking Information



XX = Product Type Marking Code (See Page 1, e.g. 8D = 2DC4617Q)
 YM = Date Code Marking
 Y = Year (ex: N = 2002)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | J | K | L | M | 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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