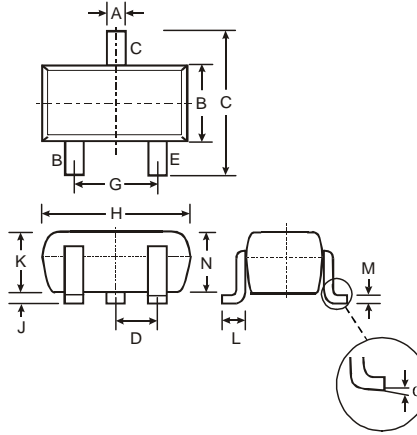


**Features**

- 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
$\alpha$	0°	8°	—
All Dimensions in mm			

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	50	V
Emitter-Base Voltage	V <sub>EBO</sub>	7.0	V
Collector Current - Continuous (Note 1)	I <sub>C</sub>	150	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P <sub>d</sub>	150	mW
Thermal Resistance, Junction to Ambient (Note 1)	R <sub>θJA</sub>	833	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

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

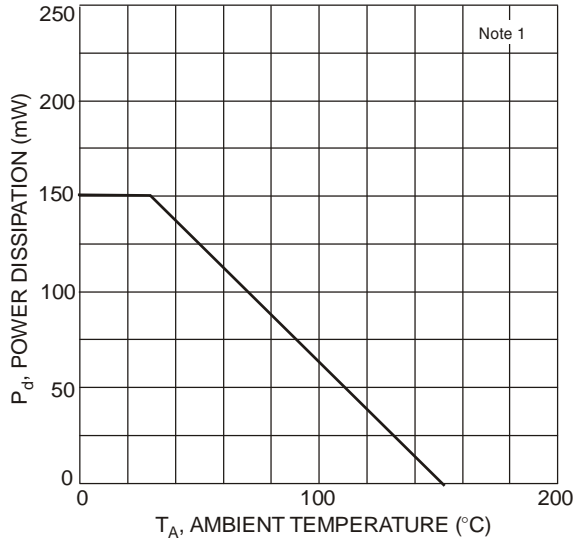


Fig. 1 Power Derating Curve

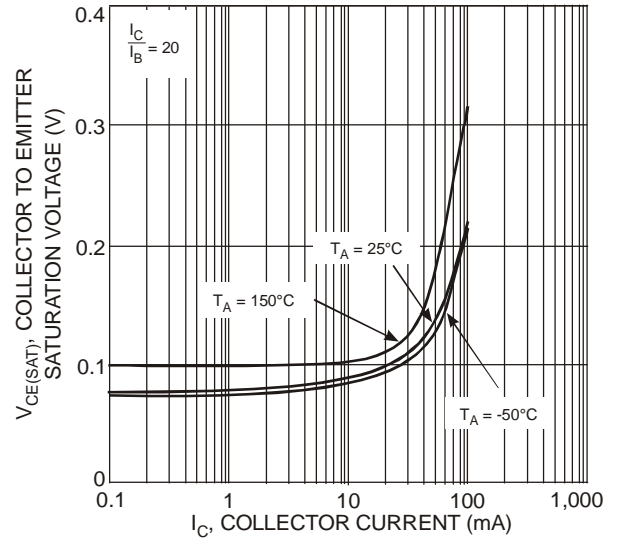


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

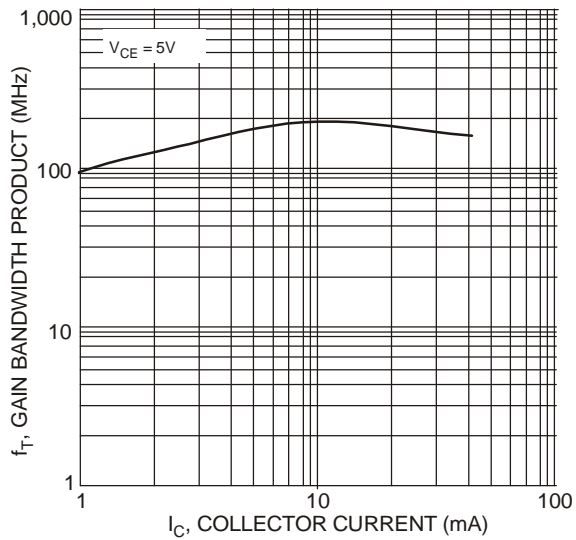


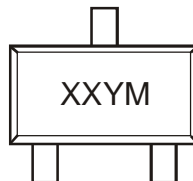
Fig. 3 Gain Bandwidth Product vs. Collector Current

## 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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