

### Features

- Ultra-Small Leadless Surface Mount Package
- Complementary NPN Type Available (2DC4617QLP)
- "Lead Free", RoHS Compliant (Note 1)
- Halogen and Antimony Free, "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

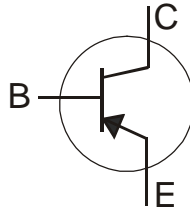
### Mechanical Data

- Case: DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.0008 grams (approximate)

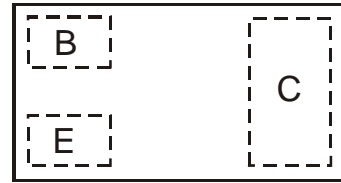
DFN1006-3



Bottom View



Device Symbol


 Top View  
Device Schematic

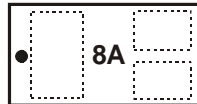
### Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
2DA1774QLP-7	8A	7	8	3,000
2DA1774QLP-7B	8A	7	8	10,000

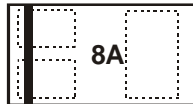
- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
  3. For packaging details, go to our website at <http://www.diodes.com>.

### Marking Information

2DA1774QLP-7


 Top View  
Dot Denotes Collector Side

2DA1774QLP-7B


 Top View  
Bar Denotes Base and Emitter Side

8A = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-40	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5.0	V
Collector Current - Continuous	I <sub>C</sub>	-100	mA
Peak Collector Current	I <sub>CM</sub>	-200	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation @T <sub>A</sub> = 25°C (Note 4)	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient @T <sub>A</sub> = 25°C (Note 4)	R <sub>θJA</sub>	500	°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	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</b>					
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-50	—	V	I <sub>C</sub> = -50μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-40	—	V	I <sub>C</sub> = -1mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-5.0	—	V	I <sub>E</sub> = -50μA, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CB0</sub>	—	-100 -5	nA μA	V <sub>CB</sub> = -30V V <sub>CB</sub> = -30V, T <sub>A</sub> = 150°C
Emitter Cutoff Current	I <sub>EBO</sub>	—	-100	nA	V <sub>EB</sub> = -4.0V
<b>ON CHARACTERISTICS (Note 5)</b>					
DC Current Gain	h <sub>FE</sub>	120	270	—	V <sub>CE</sub> = -6.0V, I <sub>C</sub> = -1.0mA
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	-0.2	V	I <sub>C</sub> = -50mA, I <sub>B</sub> = -5.0mA
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Output Capacitance	C <sub>obo</sub>	—	5.0	pF	V <sub>CB</sub> = -12V, f = 1.0MHz, I <sub>E</sub> = 0
Current Gain-Bandwidth Product	f <sub>T</sub>	100	—	MHz	V <sub>CE</sub> = -12V, I <sub>C</sub> = -2.0mA, f = 100MHz

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

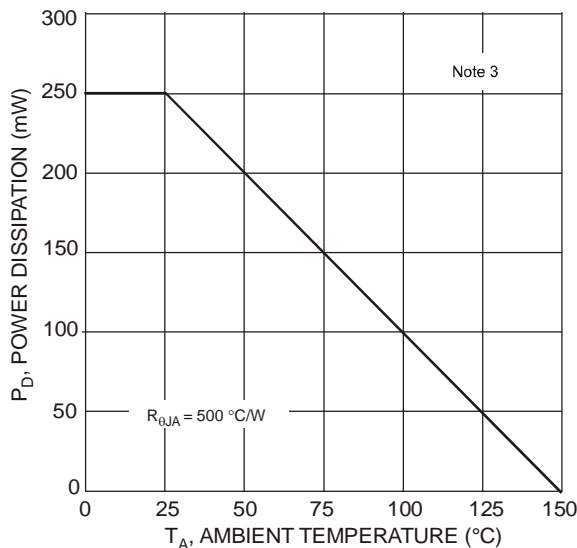


Fig. 1 Power Derating Curve

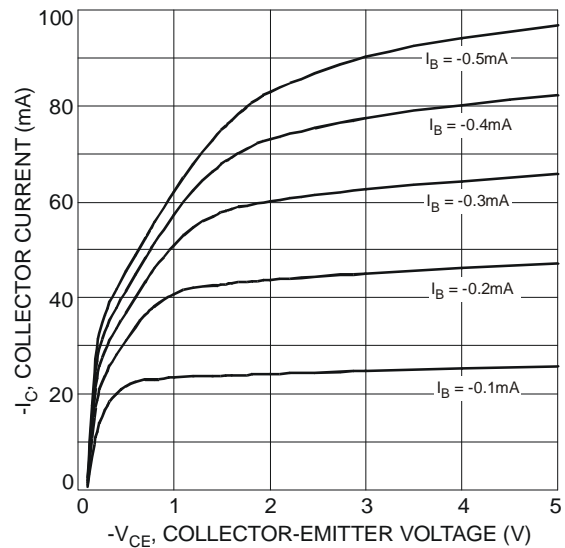


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

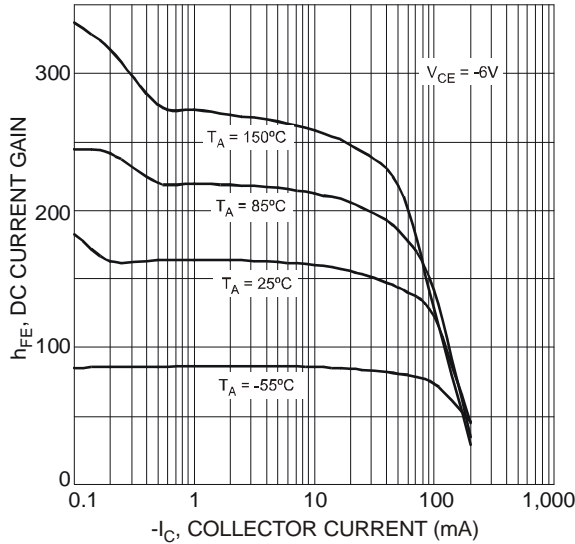


Fig. 3 Typical DC Current Gain vs. Collector Current

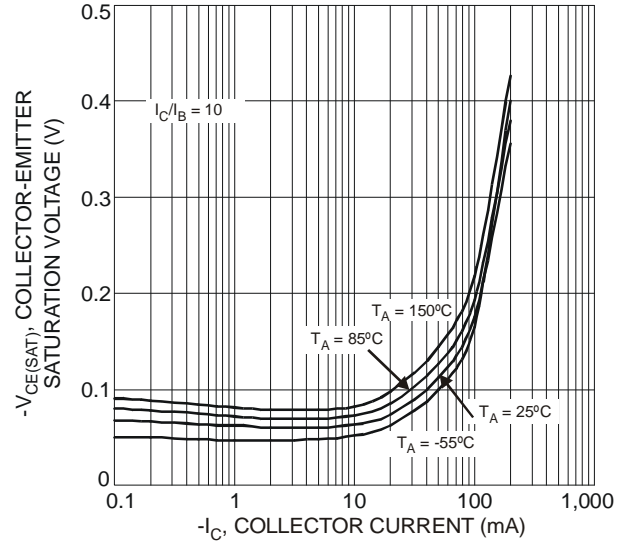


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

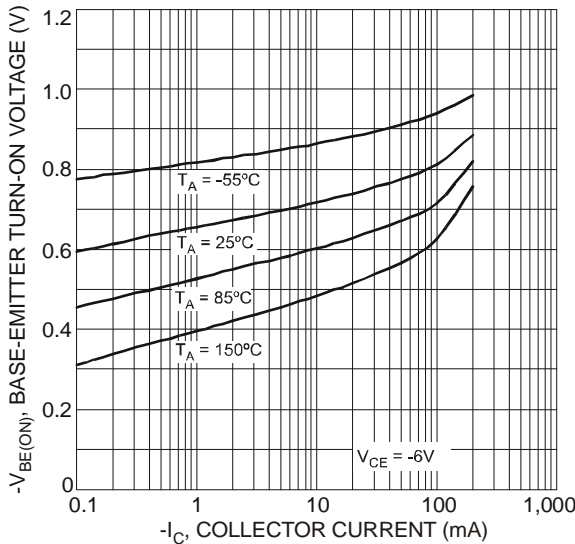


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

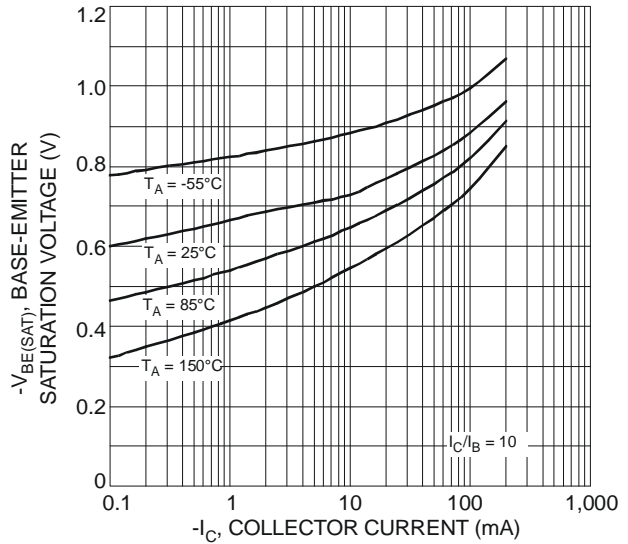
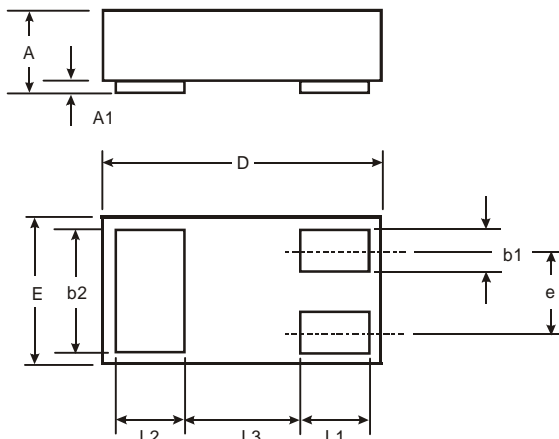


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

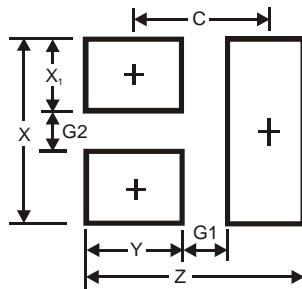
**Package Outline Dimensions**



DFN1006-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.03
b1	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	—	—	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	—	—	0.40

All Dimensions in mm

## Suggested Pad Layout



Dimensions	Value (in mm)
Z	1.1
G1	0.3
G2	0.2
X	0.7
X1	0.25
Y	0.4
C	0.7

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**Наши контакты:**

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331