

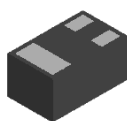
Features

- $BV_{CEO} > 50V$
- $I_C = 100mA$ High Collector Current
- $P_D = 1000mW$ Power Dissipation
- $0.60mm^2$ Package Footprint, 13 times Smaller than SOT23
- 0.5mm Height Package Minimizing Off-Board Profile
- Complementary PNP Type 2DA1774QLP
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free, "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

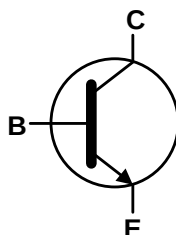
Mechanical Data

- Case: X1-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.
Solderable per MIL-STD-202, Method 208 **(e4)**
- Weight: 0.0009 grams (Approximate)

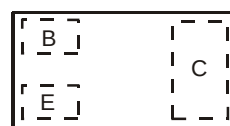
X1-DFN1006-3



Bottom View



Device Symbol

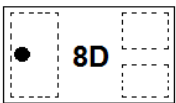
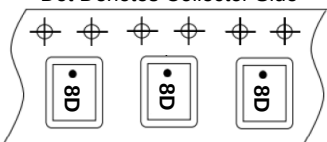
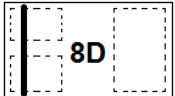
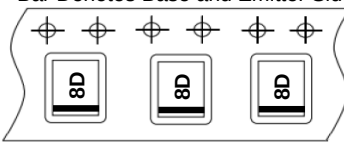
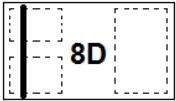
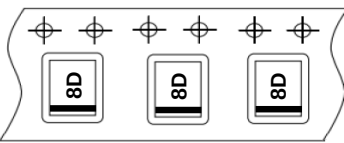

 Top View
Device Schematic

Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
2DC4617QLP-7	8D	7	8	3,000
2DC4617QLP-7B	8D	7	8	10,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information

2DC4617QLP-7	 Top View Dot Denotes Collector Side  From date code 1527 (YYWW), this changes to:  Top View Bar Denotes Base and Emitter Side 
2DC4617QLP-7B	 Top View Bar Denotes Base and Emitter Side  8D = Product Type Marking Code

Absolute Maximum Ratings (@T_A = +25°C unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	50	V
Emitter-Base Voltage	V _{EBO}	5.0	V
Collector Current	I _C	100	mA
Peak Collector Current	I _{CM}	200	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	400	mW
(Note 5)		1000	
Thermal Resistance, Junction to Ambient	R _{θJA}	310	°C/W
(Note 6)		120	
Thermal Resistance, Junction to Lead	R _{θJL}	120	°C/W
Operating and Storage and Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 8)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	200	V	B

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 9)					
Collector-Base Breakdown Voltage	BV _{CBO}	50	—	V	I _C = 50μA, I _E = 0
Collector-Emitter Breakdown Voltage	BV _{CEO}	50	—	V	I _C = 1.0mA, I _B = 0
Emitter-Base Breakdown Voltage	BV _{EBO}	5.0	—	V	I _E = 50μA, I _C = 0
Collector Cutoff Current	I _{CBO}	—	100 5	nA μA	V _{CB} = 30V V _{CB} = 30V, T _A = +150°C
Emitter Cutoff Current	I _{EBO}	—	100	nA	V _{EB} = 4.0V
ON CHARACTERISTICS (Note 9)					
DC Current Gain	h _{FE}	120	270	—	V _{CE} = 6.0V, I _C = 1.0mA
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	—	0.2	V	I _C = 50mA, I _B = 5.0mA
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C _{obo}	—	3.5	pF	V _{CB} = 12V, f = 1.0MHz, I _E = 0
Current Gain-Bandwidth Product	f _T	100	—	MHz	V _{CE} = 12V, I _C = 2.0mA, f = 100MHz

- Notes:
- For the device mounted on minimum recommended pad layout 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in steady state condition. The entire exposed collector pad is attached to the heatsink.
 - Same as Note 5, except the exposed collector pad is mounted on 25mm x 25mm 2oz copper.
 - Thermal resistance from junction to solder-point (on the exposed collector pad).
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.
 - Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

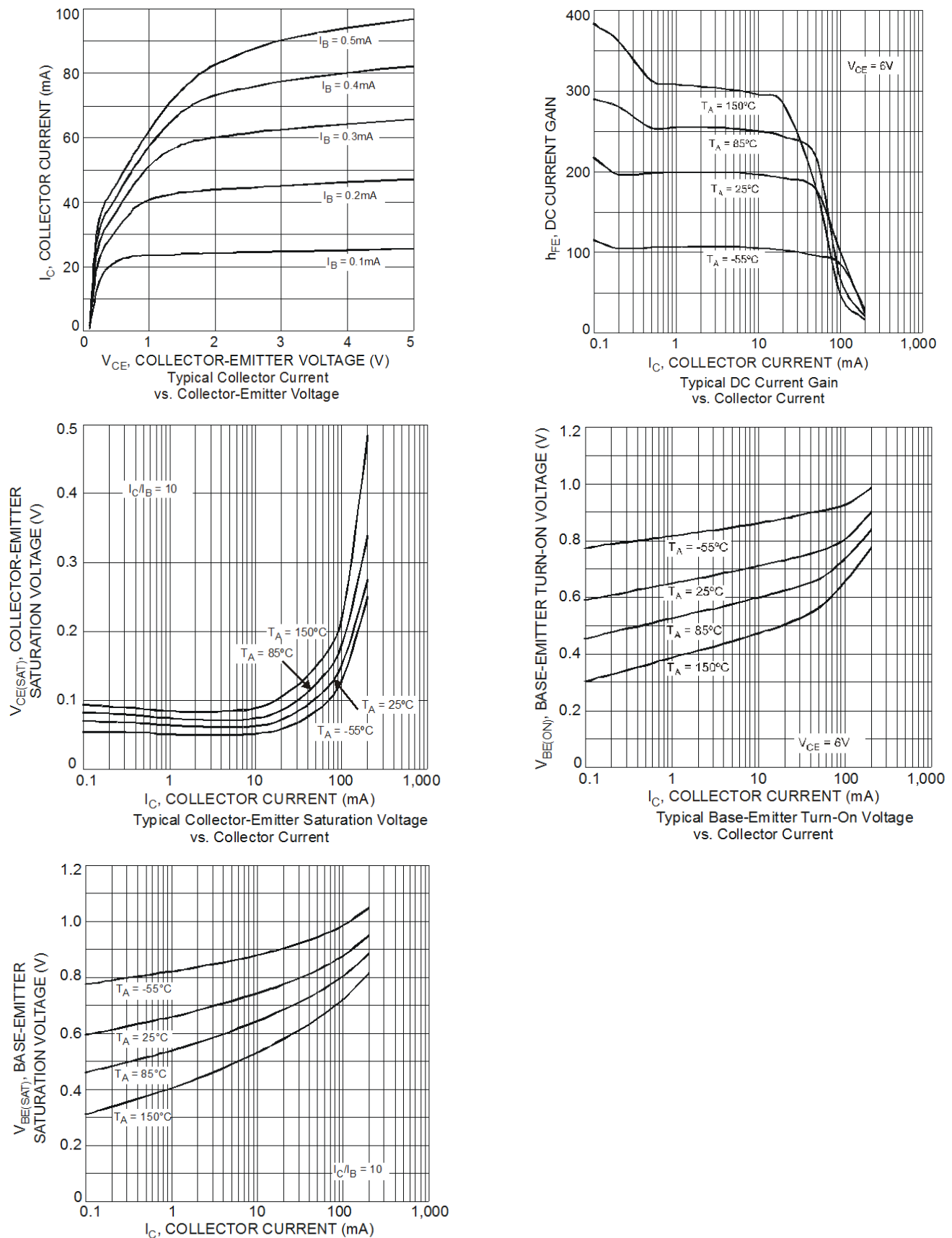
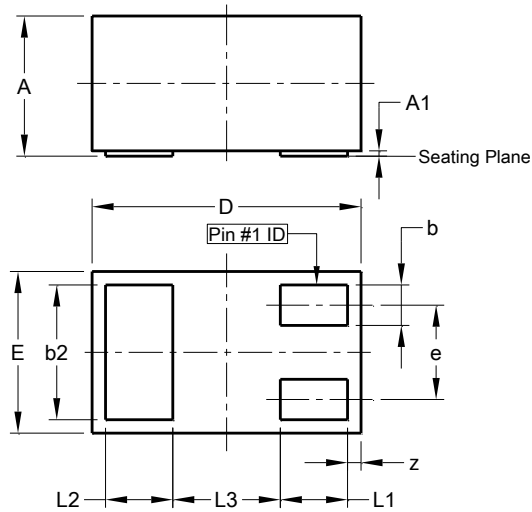


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

Package Outline Dimensions

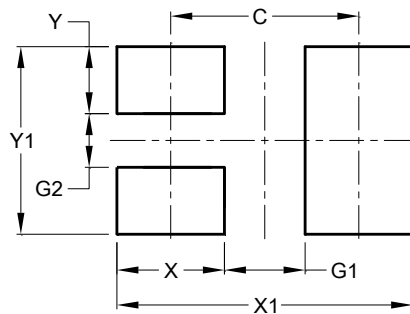
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



X1-DFN1006-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.03
b	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
z	0.02	0.08	0.05
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
C	0.70
G1	0.30
G2	0.20
X	0.40
X1	1.10
Y	0.25
Y1	0.70

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