50V NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

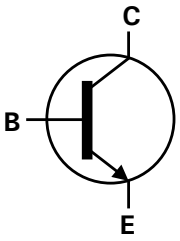
- Ultra-Small Leadless Surface Mount Package
- Complementary PNP Type Available (2DA1774QLP)
- **"Lead Free", RoHS Compliant (Note 1)**
- **Halogen and Antimony Free, "Green" Device (Note 2)**
- **Qualified to AEC-Q101Standards for High Reliability**

Mechanical Data

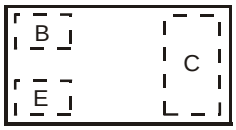
- Case: DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.0008 grams (approximate)

DFN1006-3

Bottom View



Device Symbol



Top View
Device Schematic

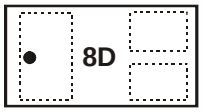
Ordering Information (Note 3)

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

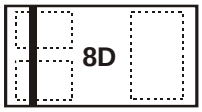
Marking Information

2DC4617QLP-7



Top View
Dot Denotes
Collector Side

2DC4617QLP-7B



Top View
Bar Denotes Base
and Emitter Side

8D = Product Type Marking Code

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 - Continuous	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 (Note 4)	P_D	250	mW
Thermal Resistance, Junction to Ambient (Note 4)	$R_{\theta JA}$	500	°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	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50	—	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	$V_{(BR)EBO}$	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 5)					
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: 4. Part mounted on FR-4 PCB with recommended pad layout.
5. Short duration pulse test used to minimize self-heating effect.

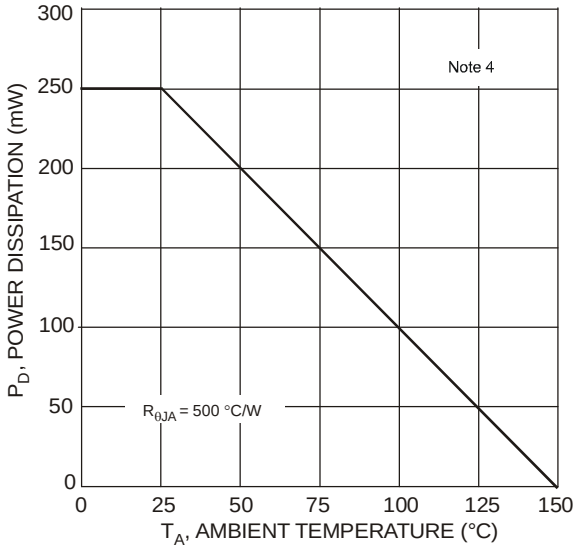


Fig. 1 Power Derating Curve

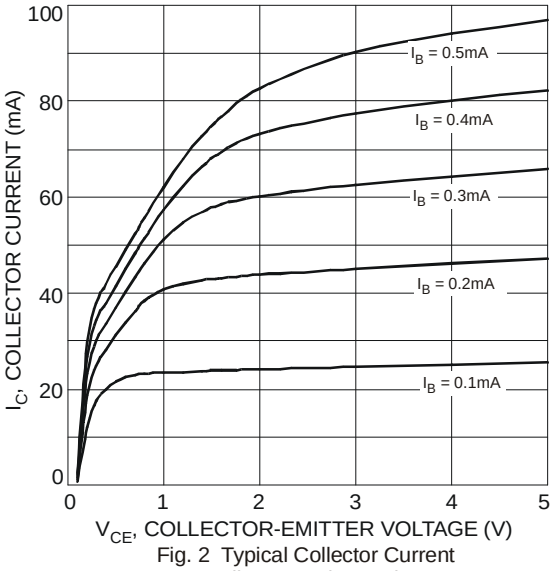


Fig. 2 Typical Collector Current
vs. Collector-Emitter Voltage

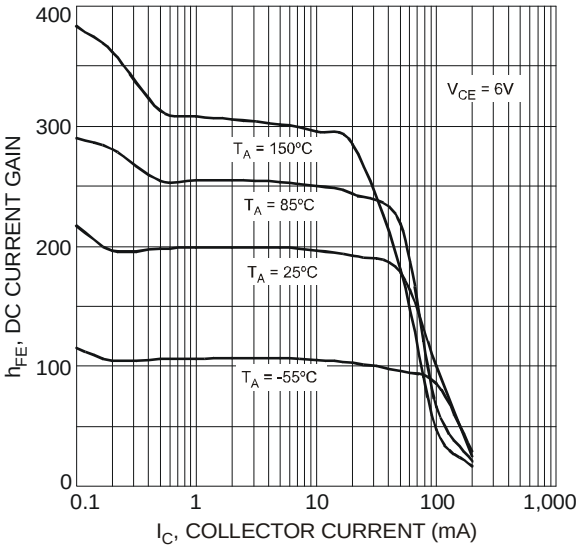


Fig. 3 Typical DC Current Gain
vs. Collector Current

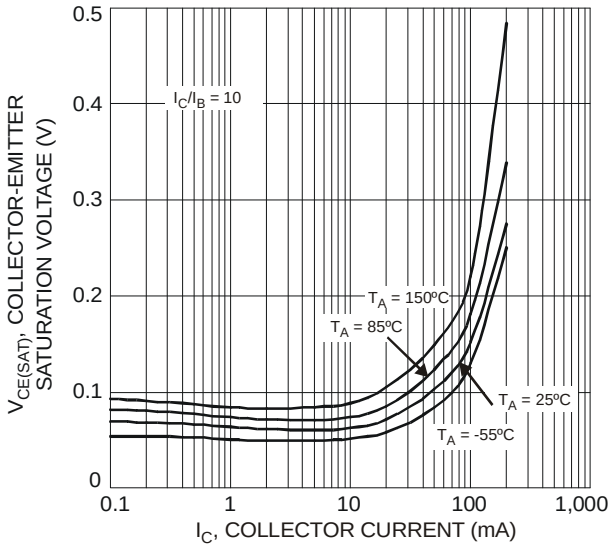


Fig. 4 Typical Collector-Emitter Saturation Voltage
vs. Collector Current

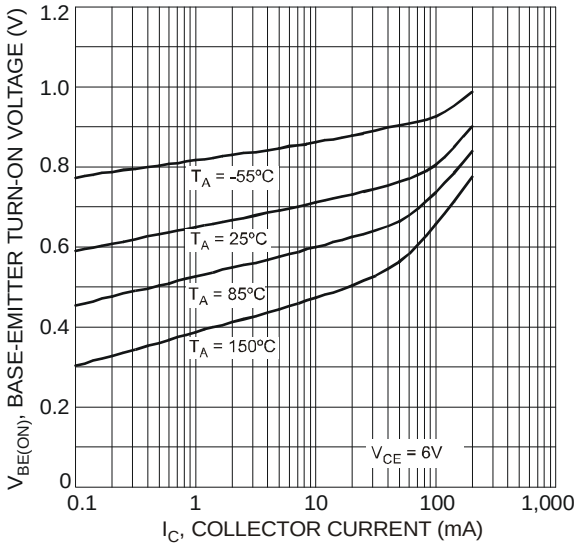


Fig. 5 Typical Base-Emitter Turn-On Voltage
vs. Collector Current

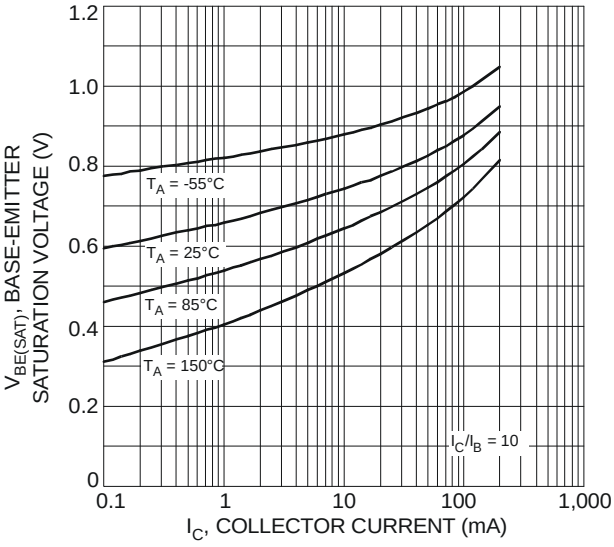
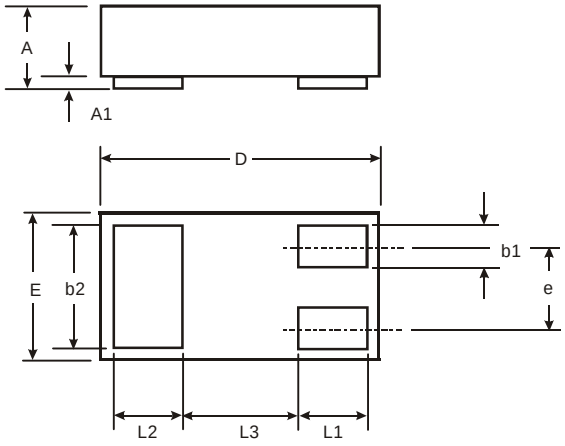


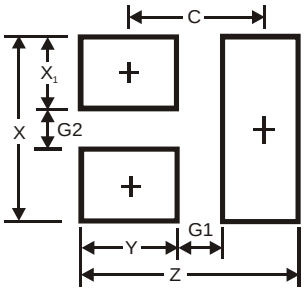
Fig. 6 Typical Base-Emitter Saturation Voltage
vs. Collector Current

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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