



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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NPN PRE-BIASED SMALL SIGNAL DUAL SURFACE MOUNT TRANSISTOR
Features

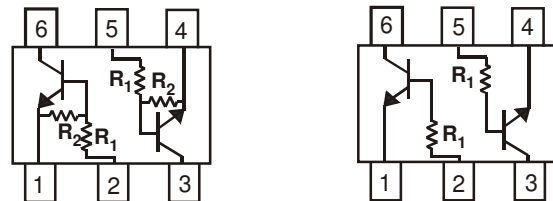
- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDA)
- Built-In Biasing Resistors
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Product Summary

P/N	R1 (NOM)	R2 (NOM)	MARKING
DDC122LH	0.22K Ω	10K Ω	N81
DDC142JH	0.47K Ω	10K Ω	N82
DDC122TH	0.22K Ω	OPEN	N83
DDC142TH	0.47K Ω	OPEN	N84

Mechanical Data

- Case: SOT-563, Molded Plastic
- Case Material: Molded Plastic.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe.
Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.005 grams (Approximate)

Pin Assignments

 R₁, R₂

 R₁ Only

SCHEMATIC DIAGRAM, TOP VIEW

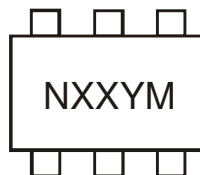
Ordering Information (Note 4)

Device	Packaging	Shipping
DDC122LH-7	SOT-563	3,000/Tape & Reel
DDC142JH-7	SOT-563	3,000/Tape & Reel
DDC122TH-7	SOT-563	3,000/Tape & Reel
DDC142TH-7	SOT-563	3,000/Tape & Reel

- 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/datasheets/ap02007.pdf>.

Marking Information

SOT-563



NXX = Product Type Marking Code (See Page 1)
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Code	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

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

Characteristic	Symbol	Value	Unit
Supply Voltage (Note 4) to (Note 5) and (Note 1) to (Note 3)	V _{CC}	50	V
Input Voltage (Note 6) to (Note 5) and (Note 7) to (Note 3) DDC122LH DDC142JH	V _{IN}	-5 to +6 -5 to +6	V
Input Voltage (Note 5) to (Note 6) and (Note 3) to (Note 7) DDC122TH DDC142TH	V _{EBO (MAX)}	5	V
Output Current	I _C	100	mA
Power Dissipation	P _d	150	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	833	°C/W

- Notes:
- Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).
 - Mounted on FR4 Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
 - 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.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.) **R1, R2 Types**

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDC122LH DDC142JH	0.3 0.3	—	—	V	V _{CC} = 5V, I _O = 100μA
	DDC122LH DDC142JH	—	—	2.0 2.0	V	V _O = 0.3V, I _O = 20mA V _O = 0.3V, I _O = 20mA
Output Voltage	V _{O(on)}	—	—	0.3V	V	I _O /I _I = 5mA/0.25mA
Input Current	DDC122LH DDC142JH	I _I	—	28 13	mA	V _I = 5V
Output Current	I _{O(off)}	—	—	0.5	μA	V _{CC} = 50V, V _I = 0V
DC Current Gain	DDC122LH DDC142JH	G _I	56 56	—	—	V _O = 5V, I _O = 10mA
Gain-Bandwidth Product*	f _T	—	200	—	MHz	V _{CE} = 10V, I _E = 5mA, f = 100MHz

* Transistor - For Reference Only

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.) **R1-Only**

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CB0}	50	—	—	V	I _C = 50μA
Collector-Emitter Breakdown Voltage	BV _{CEO}	40	—	—	V	I _C = 1mA
Emitter-Base Breakdown Voltage	DDC122TH DDC142TH	BV _{EBO}	5	—	V	I _E = 50μA I _E = 50μA
Collector Cutoff Current	I _{CBO}	—	—	0.5	μA	V _{CB} = 50V
Emitter Cutoff Current	DDC122TH DDC142TH	I _{EBO}	—	0.5 0.5	μA	V _{EB} = 4V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	—	—	0.3	V	I _C = 5mA, I _B = 0.25mA
DC Current Transfer Ratio	DDC122TH DDC142TH	h _{FE}	100 100	250 250	—	I _C = 1mA, V _{CE} = 5V
Gain-Bandwidth Product*	f _T	—	200	—	MHz	V _{CE} = 10V, I _E = -5mA, f = 100MHz

* Transistor - For Reference Only

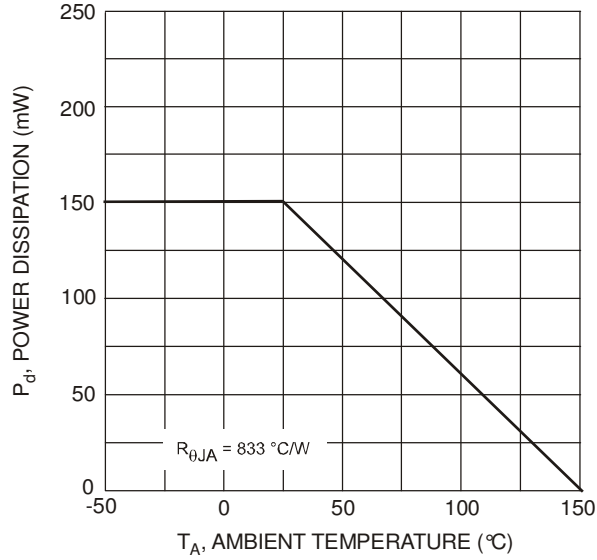
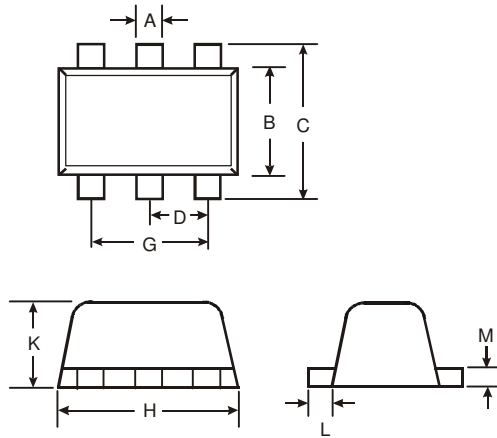


Fig. 1 Derating Curve

Package Outline Dimensions

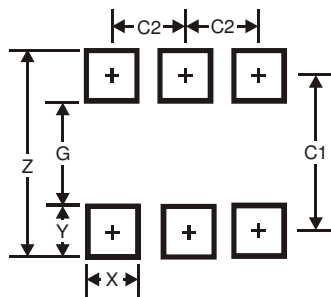
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT563			
Dim	Min	Max	Typ
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	-	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
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)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

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