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)**

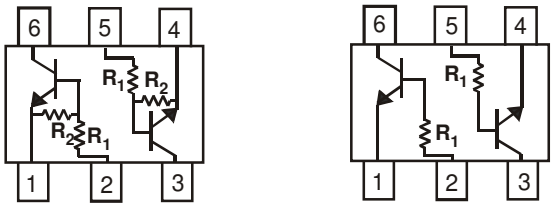
Product Summary

P/N	R1 (NOM)	R2 (NOM)	MARKING
DDC122LH	0.22KΩ	10KΩ	N81
DDC142JH	0.47KΩ	10KΩ	N82
DDC122TH	0.22KΩ	OPEN	N83
DDC142TH	0.47KΩ	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 e3
- Terminal Connections: See Diagram
- Weight: 0.005 grams (Approximate)

Pin Assignments



R_1, R_2 R_1 Only

SCHEMATIC DIAGRAM, TOP VIEW

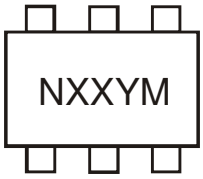
Ordering Information (Note 4)

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 All	I_C	100	mA
Power Dissipation	P_d	150	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	833	°C/W

Notes:
5. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).
6. Mounted on FR4 Board with recommended pad layout at http://www.diodes.com/datasheets/ap02001.pdf.
7. 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	$V_{I(off)}$	0.3 0.3	—	—	V	V_{CC} = 5V, I_O = 100µA
	DDC122LH DDC142JH	$V_{I(on)}$	— —	—	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_{CBO}	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	600 600	—	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

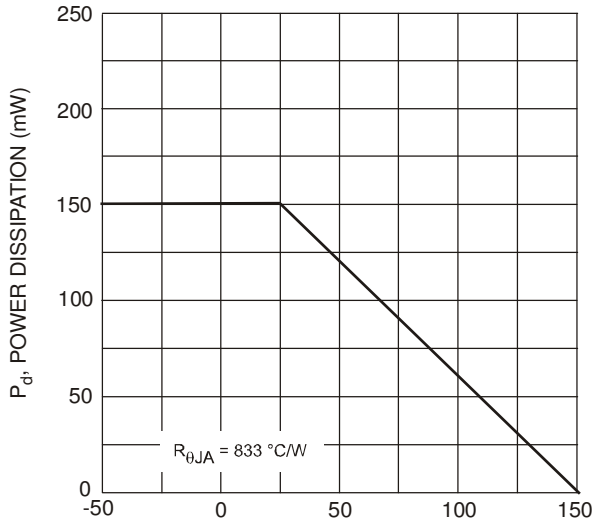
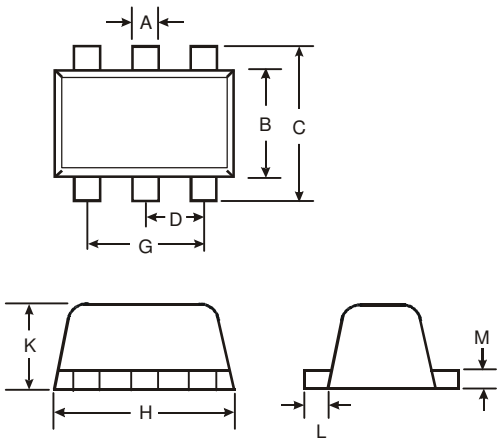


Fig. 1 Derating Curve

Package Outline Dimensions

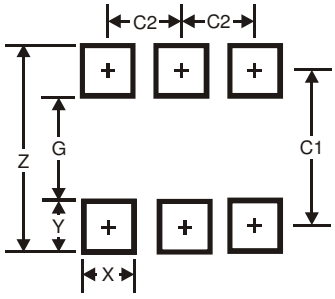
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

www.diodes.com

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Bipolar Transistors - Pre-Biased ***category:***

Click to view products by Diodes Incorporated ***manufacturer:***

Other Similar products are found below :

RN1607(TE85L,F) DTA124GKAT146 DTA144WETL DTA144WKAT146 DTC113EET1G DTC115TETL DTC115TKAT146 DTC124TETL DTC144ECA-TP DTC144VUAT106 MUN5241T1G NSBA114TDP6T5G NSBA143ZF3T5G NSBC114YF3T5G NSBC123TF3T5G SMUN5330DW1T1G SSVMUN5312DW1T2G RN1303(TE85L,F) RN4605(TE85L,F) TTEPROTOTYPE79 DDTC114EUAQ-7-F EMH15T2R SMUN2214T3G NSBC114TF3T5G NSBC143ZPDP6T5G NSVMUN5113DW1T3G SMUN5230DW1T1G SMUN5133T1G SMUN2214T1G DTC114EUA-TP NSBA144EF3T5G NSVDTA114EET1G 2SC2223-T1B-A 2SC3912-TB-E SMUN5237DW1T1G SMUN5213DW1T1G SMUN5114DW1T1G SMUN2111T1G NSVDTC144EM3T5G DTC124ECA-TP DTC123TM3T5G DTA114ECA-TP DTA113EM3T5G DCX115EK-7-F DTC113EM3T5G NSVMUN5135DW1T1G NSVDTC143ZM3T5G SMUN5216DW1T1G NSVMUN5312DW1T2G NSVMUN5215DW1T1G