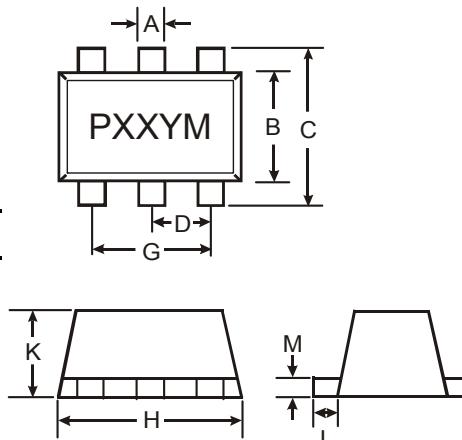


Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDC)
- Built-In Biasing Resistors
- Lead Free By Design/RoHS Compliant (Note 3)**
- "Green" Device (Note 4 and 5)

Mechanical Data

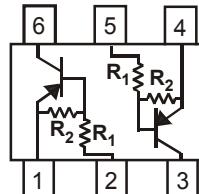
- Case: SOT-563
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.005 grams (approximate)



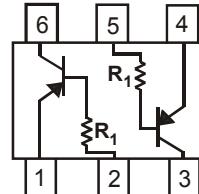
SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.25
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	0.50		
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.56	0.60	0.60
L	0.15	0.25	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

SEE NOTE 1

P/N	R1 (NOM)	R2 (NOM)	MARKING
DDA122LH	0.22KΩ	10KΩ	P81
DDA142JH	0.47KΩ	10KΩ	P82
DDA122TH	0.22KΩ	OPEN	P83
DDA142TH	0.47KΩ	OPEN	P84



R1, R2



R1 Only

SCHEMATIC DIAGRAM, TOP VIEW

Maximum Ratings

 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage (6) to (1) and (3) to (4)	V_{CC}	-50	V
Input Voltage (2) to (1) and (5) to (4)	V_{IN}	+5 to -6 +5 to -6	V
Input Voltage (1) to (2) and (4) to (5)	$V_{EBO} (\text{MAX})$	-5	V
Output Current	I_C	-100	mA
Power Dissipation	P_d	150	mW
Thermal Resistance, Junction to Ambient Air (Note 2)	$R_{\theta JA}$	833	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

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>.
- No purposefully added lead.
- Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

R1, R2 Types

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDA122LH DDA142JH	$V_{I(\text{off})}$	-0.3 -0.3	—	—	V	$V_{CC} = -5\text{V}$, $I_O = -100\mu\text{A}$
	DDA122LH DDA142JH	$V_{I(\text{on})}$	—	—	-2.0 -2.0	V	$V_O = -0.3\text{V}$, $I_O = -20\text{mA}$ $V_O = -0.3\text{V}$, $I_O = -20\text{mA}$
Output Voltage		$V_{O(\text{on})}$	—	—	-0.3V	V	$I_O/I_I = -5\text{mA}/-0.25\text{mA}$
Input Current		I_I	—	—	-28 -13	mA	$V_I = -5\text{V}$
Output Current		$I_O(\text{off})$	—	—	-0.5	μA	$V_{CC} = -50\text{V}$, $V_I = 0\text{V}$
DC Current Gain	DDA122LH DDA142JH	G_I	56 56	—	—	—	$V_O = -5\text{V}$, $I_O = -10\text{mA}$
Gain-Bandwidth Product*		f_T	—	200	—	MHz	$V_{CE} = -10\text{V}$, $I_E = -5\text{mA}$, $f = 100\text{MHz}$

* Transistor - For Reference Only

Electrical Characteristics

@ $T_A = 25^\circ\text{C}$ unless otherwise specified

R1-Only

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV_{CBO}	-50	—	—	V	$I_C = -50\mu\text{A}$
Collector-Emitter Breakdown Voltage		BV_{CEO}	-40	—	—	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	DDA122TH DDA142TH	BV_{EBO}	-5	—	—	V	$I_E = -50\mu\text{A}$ $I_E = -50\mu\text{A}$
Collector Cutoff Current		I_{CBO}	—	—	-0.5	μA	$V_{CB} = -50\text{V}$
Emitter Cutoff Current	DDA122TH DDA142TH	I_{EBO}	—	—	-0.5 -0.5	μA	$V_{EB} = -4\text{V}$
Collector-Emitter Saturation Voltage		$V_{CE(\text{sat})}$	—	—	-0.3	V	$I_C = -5\text{mA}$, $I_B = -0.25\text{mA}$
DC Current Transfer Ratio	DDA122TH DDA142TH	h_{FE}	100 100	250 250	600 600	—	$I_C = -1\text{mA}$, $V_{CE} = -5\text{V}$
Gain-Bandwidth Product*		f_T	—	200	—	MHz	$V_{CE} = -10\text{V}$, $I_E = 5\text{mA}$, $f = 100\text{MHz}$

* Transistor - For Reference Only

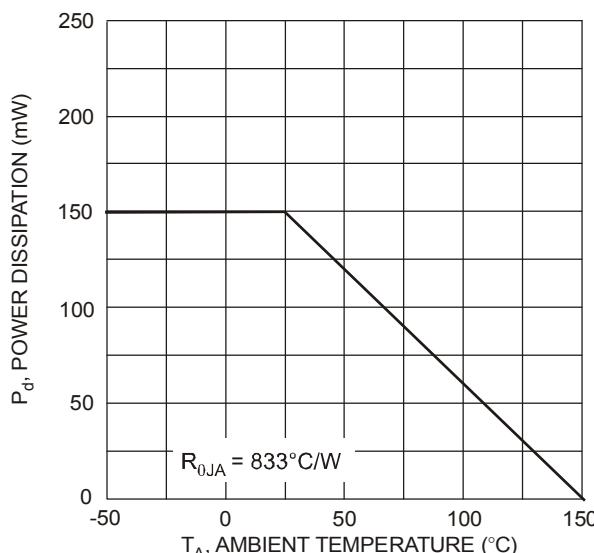


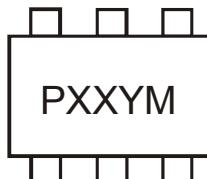
Fig. 1 Power Derating Curve

Ordering Information (Note 6)

Device	Packaging	Shipping
DDA122LH-7	SOT-563	3000/Tape & Reel
DDA142JH-7	SOT-563	3000/Tape & Reel
DDA122TH-7	SOT-563	3000/Tape & Reel
DDA142TH-7	SOT-563	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



XXX = 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

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