

DDA (xxxx) H

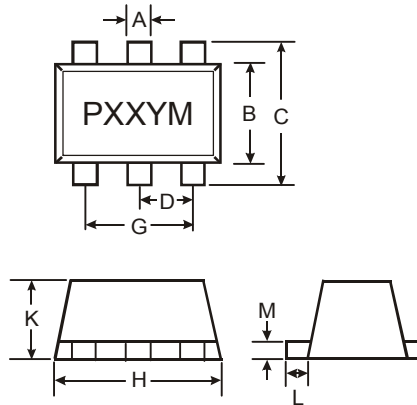
PNP PRE-BIASED SMALL SIGNAL DUAL SURFACE MOUNT TRANSISTOR

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

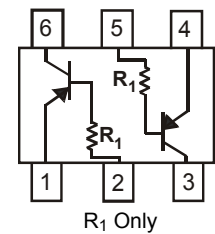
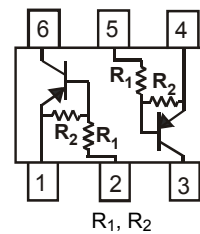
- Case: SOT-563
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.005 grams (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	R2	MARKING
DDA124EH	22KΩ	22KΩ	P17
DDA144EH	47KΩ	47KΩ	P20
DDA143EH	4.7KΩ	4.7KΩ	P08
DDA114YH	10KΩ	47KΩ	P14
DDA123JH	2.2KΩ	47KΩ	P06
DDA114EH	10KΩ	10KΩ	P13
DDA143TH	4.7KΩ	—	P07
DDA114TH	10KΩ	—	P12



SCHEMATIC DIAGRAM, TOP VIEW

Maximum Ratings @T_A = 25°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}	DDA124EH: +10 to -40 DDA144EH: +10 to -40 DDA143EH: +10 to -30 DDA114YH: +6 to -40 DDA123JH: +5 to -12 DDA114EH: +10 to -40 DDA143TH: +5V max DDA114TH: +5V max	V
Output Current	I _O	DDA124EH: -30 DDA144EH: -30 DDA143EH: -100 DDA114YH: -70 DDA123JH: -100 DDA114EH: -50 DDA143TH: -100 DDA114TH: -100	mA
Output Current All	I _C (Max)	-100	mA
Power Dissipation	P _d	150	mW
Thermal Resistance, Junction to Ambient Air (Note 2)	R _{θJA}	833	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
1. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).
 2. Mounted on FR4 Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
 3. No purposefully added lead.
 4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 5. 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

Characteristic (DDA143TH & DDA114TH only)	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-50	—	—	V	I _C = -50μA
Collector-Emitter Breakdown Voltage	BV _{CEO}	-50	—	—	V	I _C = -1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-5	—	—	V	I _E = -50μA
Collector Cutoff Current	I _{CBO}	—	—	-0.5	μA	V _{CB} = -50V
Emitter Cutoff Current	I _{EBO}	—	—	-0.5	μA	V _{EB} = -4V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	—	—	-0.3	V	I _C /I _B = -2.5mA / -0.25mA DDA143TH I _C /I _B = -1mA / -0.1mA DDA114TH
DC Current Transfer Ratio	h _{FE}	100	250	600	—	I _C = -1mA, V _{CE} = -5V
Gain-Bandwidth Product*	f _T	—	250	—	MHz	V _{CE} = -10V, I _E = 5mA, f = 100MHz

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	V _{I(off)}	-0.5	-1.1	—	V	V _{CC} = -5V, I _O = -100μA
		-0.5	-1.1	—		
		-0.5	-1.1	—		
		-0.3	—	—		
		-0.5	—	—		
		-0.5	-1.1	—		
Input Voltage	V _{I(on)}	—	-1.9	-3.0	V	V _O = -0.3V, I _O = -5mA
		—	-1.9	-3.0		V _O = -0.3V, I _O = -2mA
		—	-1.9	-3.0		V _O = -0.3V, I _O = -20mA
		—	—	-1.4		V _O = -0.3V, I _O = -1mA
		—	—	-1.1		V _O = -0.3V, I _O = -5mA
		—	-1.9	-3.0		V _O = -0.3V, I _O = -10mA
Output Voltage	V _{O(on)}	—	-0.1	-0.3	V	I _O /I _I = -10mA / -0.5mA
		—	-0.1	-0.3		I _O /I _I = -10mA / -0.5mA
		—	-0.1	-0.3		I _O /I _I = -10mA / -0.5mA
		—	-0.1	-0.3		I _O /I _I = -5mA / -0.25mA
		—	-0.1	-0.3		I _O /I _I = -5mA / -0.25mA
		—	-0.1	-0.3		I _O /I _I = -10mA / -0.5mA
Input Current	I _I	—	—	-0.36	mA	V _I = -5V
		—	—	-0.18		
		—	—	-1.8		
		—	—	-0.88		
		—	—	-3.6		
		—	—	-0.88		
Output Current	I _{O(off)}	—	—	-0.5	μA	V _{CC} = -50V, V _I = -0V
DC Current Gain	G _I	56	—	—	—	V _O = -5V, I _O = -5mA
		68	—	—		V _O = -5V, I _O = -5mA
		20	—	—		V _O = -5V, I _O = -10mA
		68	—	—		V _O = -5V, I _O = -10mA
		80	—	—		V _O = -5V, I _O = -10mA
		30	—	—		V _O = -5V, I _O = -5mA
Gain-Bandwidth Product*	f _T	—	250	—	MHz	V _{CE} = -10V, I _E = -5mA, f = 100MHz

* Transistor - For Reference Only

Typical Curves - DDA143EH

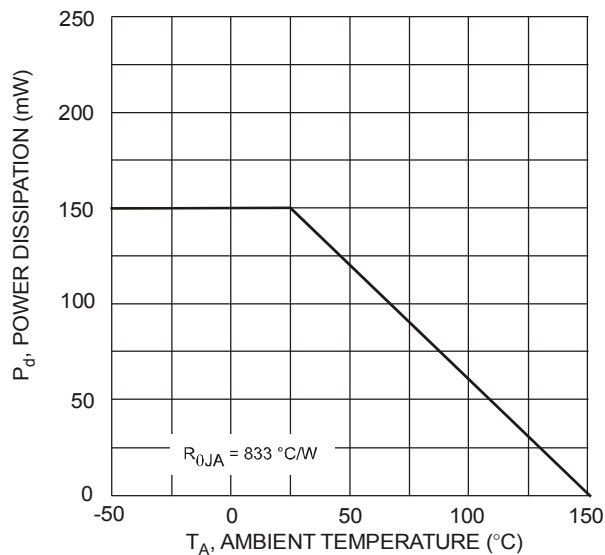


Fig. 1 Derating Curve

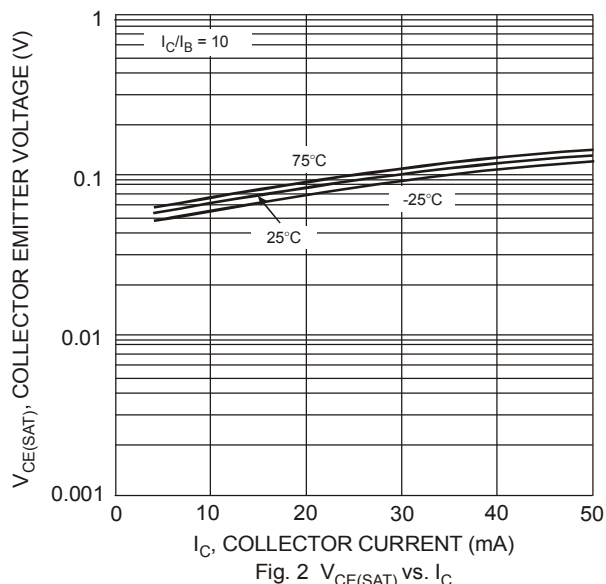


Fig. 2 $V_{CE(SAT)}$ vs. I_C

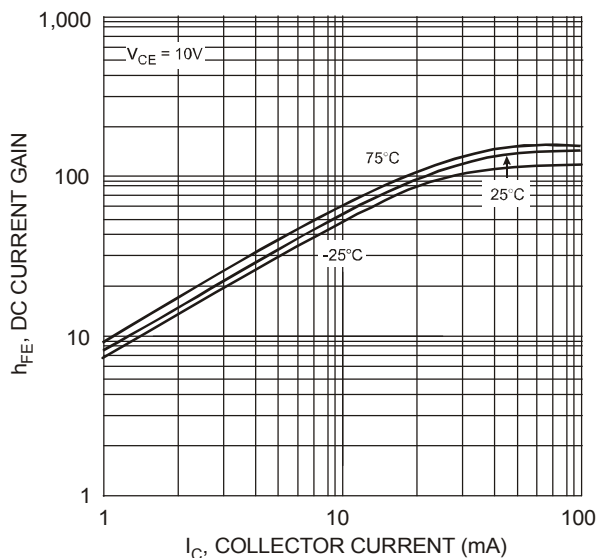


Fig. 3 DC Current Gain

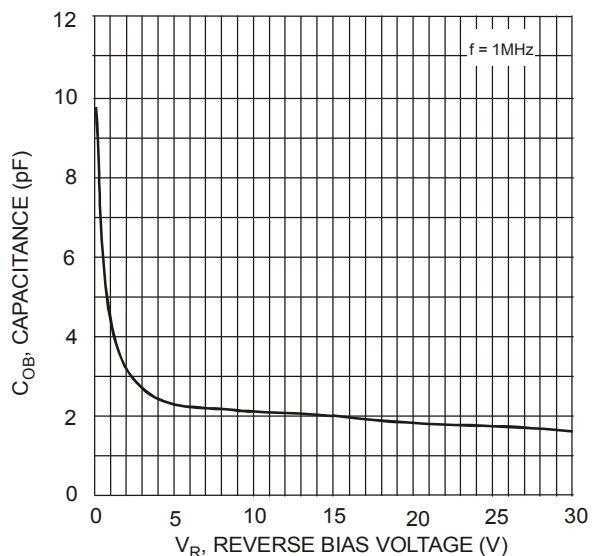


Fig. 4 Output Capacitance

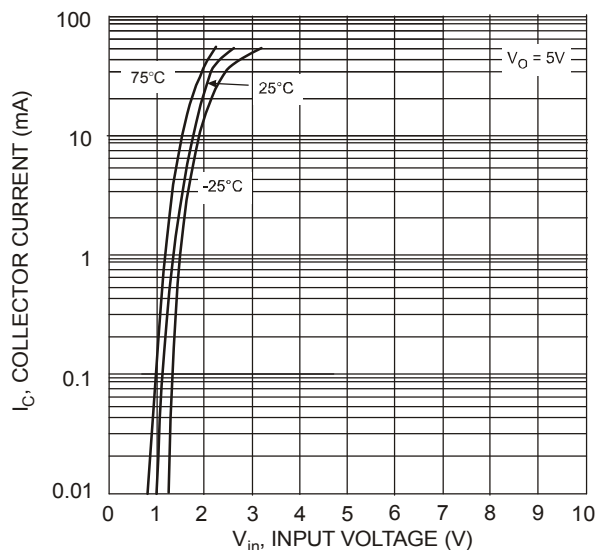


Fig. 5 Collector Current vs. Input Voltage

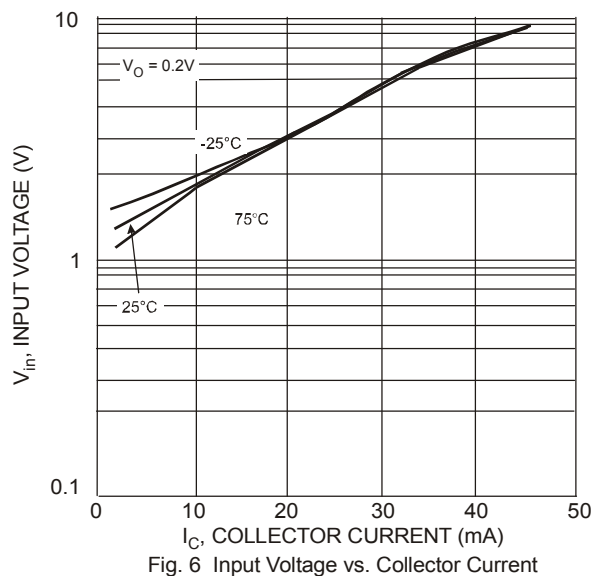


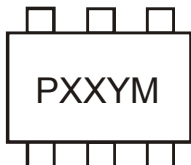
Fig. 6 Input Voltage vs. Collector Current

Ordering Information (Note 6)

Device	Packaging	Shipping
DDA124EH-7	SOT-563	3000/Tape & Reel
DDA144EH-7	SOT-563	3000/Tape & Reel
DDA143EH-7	SOT-563	3000/Tape & Reel
DDA114YH-7	SOT-563	3000/Tape & Reel
DDA123JH-7	SOT-563	3000/Tape & Reel
DDA114EH-7	SOT-563	3000/Tape & Reel
DDA143TH-7	SOT-563	3000/Tape & Reel
DDA114TH-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



PXX = 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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	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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