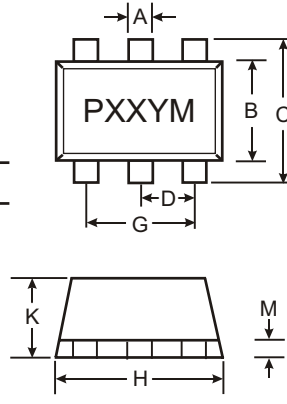


### Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDC)
- Built-In Biasing Resistors
- Lead-Free Device

### Mechanical Data

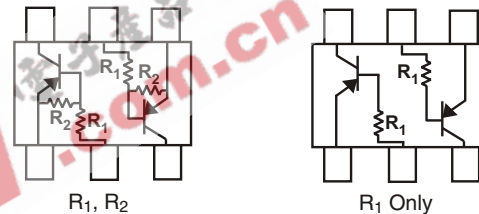
- Case: SOT-563, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208 (Note 2)
- Terminal Connections: See Diagram
- Weight: 0.005 grams (approx.)



SEE NOTE 1

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			

P/N	R1	R2	MARKING
DDA124EH	22K $\Omega$	22K $\Omega$	P17
DDA144EH	47K $\Omega$	47K $\Omega$	P20
DDA143EH	4.7K $\Omega$	4.7K $\Omega$	P08
DDA114YH	10K $\Omega$	47K $\Omega$	P14
DDA123JH	2.2K $\Omega$	47K $\Omega$	P06
DDA114EH	10K $\Omega$	10K $\Omega$	P13
DDA143TH	4.7K $\Omega$	-	P07
DDA114TH	10K $\Omega$	-	P12



SCHEMATIC DIAGRAM, TOP VIEW

### Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage	V <sub>CC</sub>	50	V
Input Voltage	V <sub>IN</sub>	+10 to -40 +10 to -40 +10 to -30 +6 to -40 +5 to -12 +10 to -40 +5 V <sub>max</sub> +5 V <sub>max</sub>	V
Output Current	I <sub>O</sub>	-30 -30 -100 -70 -100 -50 -100 -100	mA
Output Current	I <sub>C</sub> (Max)	-100	mA
Power Dissipation	P <sub>d</sub>	150	mW
Thermal Resistance, Junction to Ambient Air (Note 3)	R <sub>θJA</sub>	833	°C/W
Operating and Storage and Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-55 to +150	°C

- Note:
1. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).
  2. If lead-bearing terminal plating is required, please contact your Diodes Inc. sales representative for availability and minimum order details.
  3. Mounted on FR4 Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.

**Electrical Characteristics** @ T<sub>A</sub> = 25°C unless otherwise specified

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

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH	V <sub>I(off)</sub>	-0.5	-1.1	—	V	V <sub>CC</sub> = -5V, I <sub>O</sub> = -100μA
	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH		V <sub>I(on)</sub>	—	-1.9		
Output Voltage	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH	V <sub>O(on)</sub>		—	-0.1	-0.3	V
	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH		I <sub>I</sub>	—	—	-0.36	
Input Current	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH	I <sub>I</sub>		—	—	-0.18	mA
Output Current			I <sub>O(off)</sub>	—	—	-0.5	
DC Current Gain	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH	G <sub>I</sub>	56	—	—	—	V <sub>O</sub> = -5V, I <sub>O</sub> = -5mA V <sub>O</sub> = -5V, I <sub>O</sub> = -5mA V <sub>O</sub> = -5V, I <sub>O</sub> = -10mA V <sub>O</sub> = -5V, I <sub>O</sub> = -10mA V <sub>O</sub> = -5V, I <sub>O</sub> = -10mA V <sub>O</sub> = -5V, I <sub>O</sub> = -5mA
	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH		f <sub>T</sub>	68	—		
Gain-Bandwidth Product*		f <sub>T</sub>		—	250	—	MHz

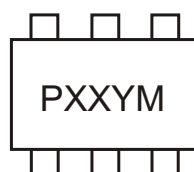
\* Transistor - For Reference Only

**Ordering Information** (Note 4)

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: 4. 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: P = 2003

M = Month ex: 9 = September

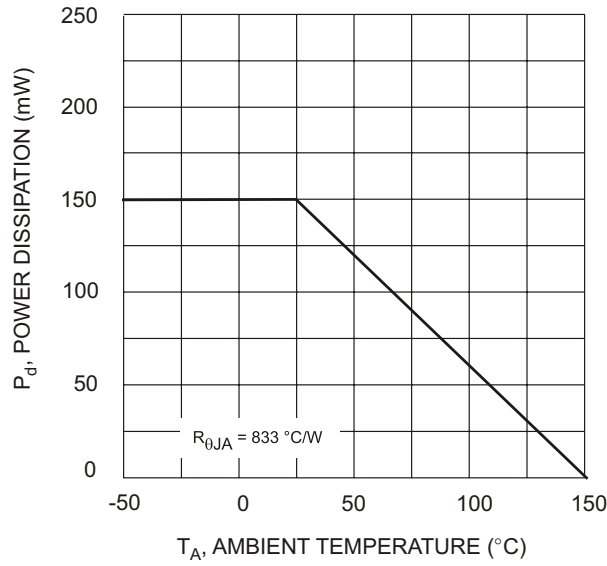
Date Code Key

Year	2003	2004	2005	2006	2007	2008	2009
Code	P	R	S	T	U	V	W

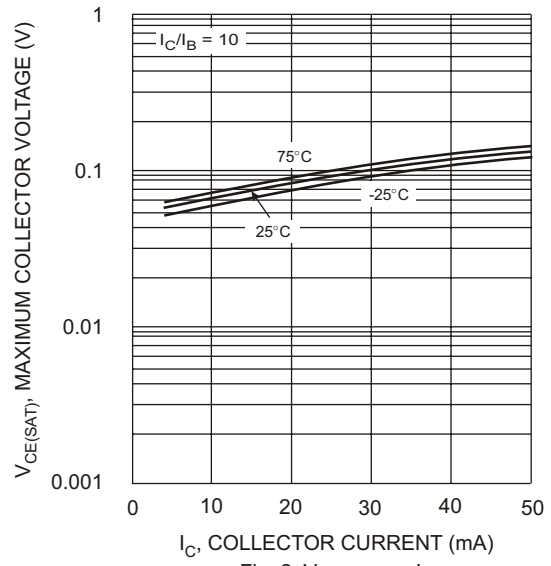
Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**TYPICAL CURVES - DDA143EH**

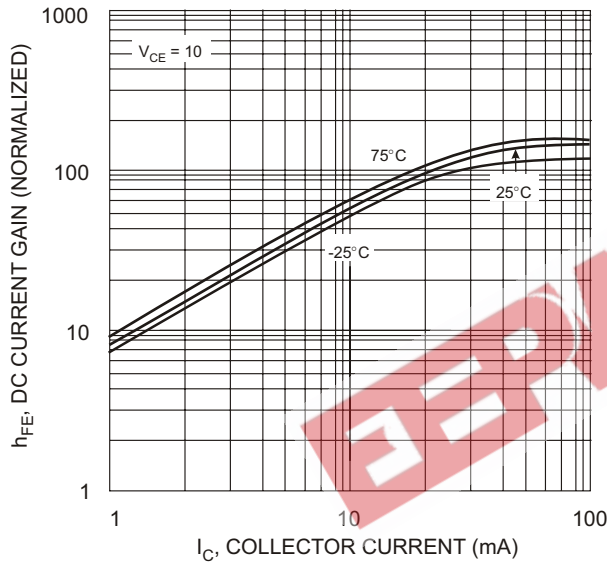
**NEW PRODUCT**



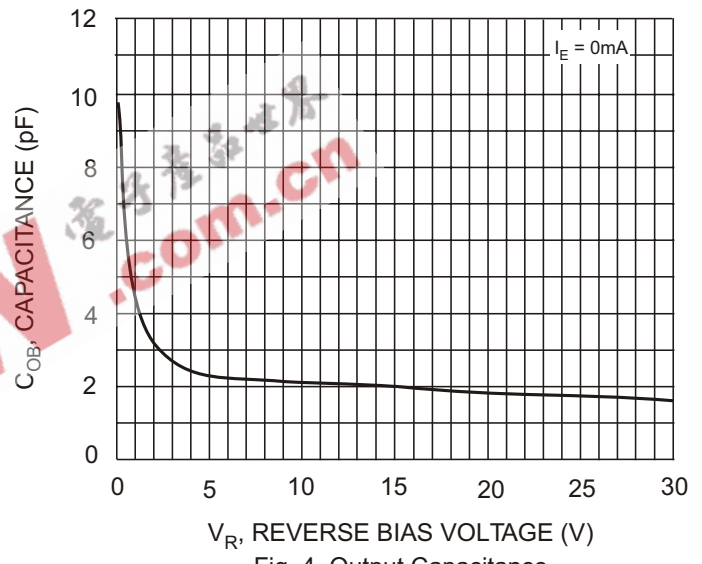
**Fig. 1 Derating Curve**



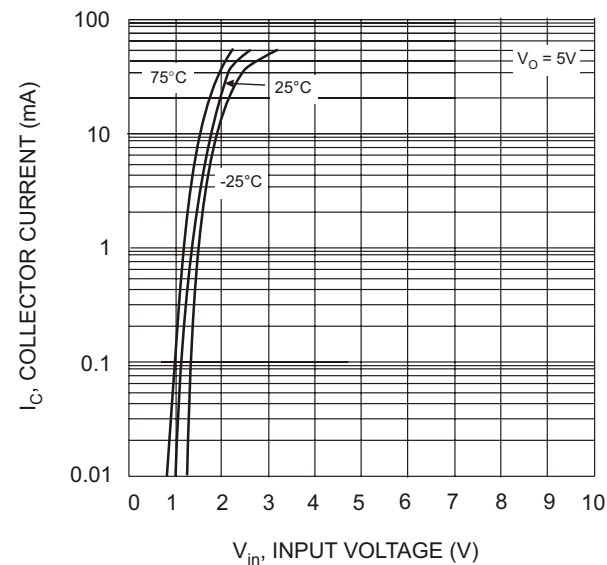
**Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$**



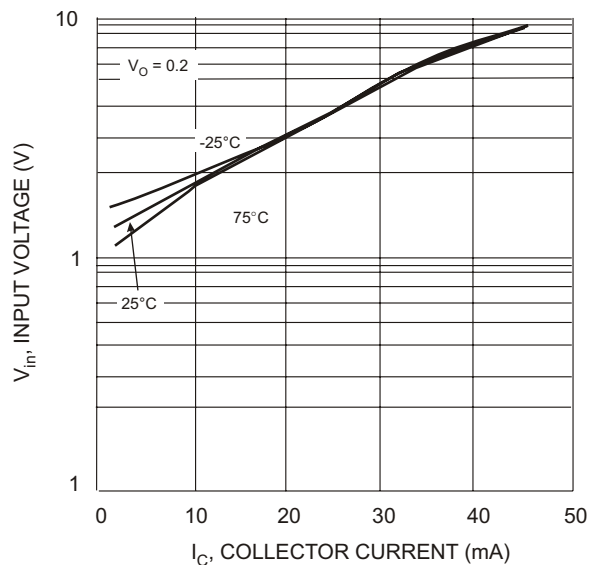
**Fig. 3 DC Current Gain**



**Fig. 4 Output Capacitance**



**Fig. 5 Collector Current Vs. Input Voltage**



**Fig. 6 Input Voltage vs. Collector Current**