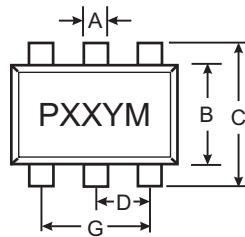


### Features

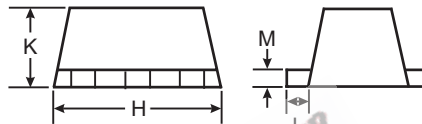
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDC)
- Built-In Biasing Resistors
- **Lead Free By Design/RoHS Compliant (Note 3)**

### 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 (approx.)

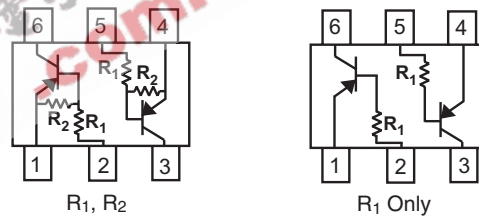


SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.25
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	0.50		
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.56	0.60	0.60
L	0.15	0.25	0.20
M	0.10	0.18	0.11
All Dimensions in mm			



SEE NOTE 1

P/N	R1	R2	MARKING
DDA124EH	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



SCHMATIC DIAGRAM, TOP VIEW

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

Characteristic	Symbol	Value	Unit
Supply Voltage (6) to (1) and (3) to (4)	V <sub>CC</sub>	-50	V
Input Voltage (2) to (1) and (5) to (4)	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 2)	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. Mounted on FR4 Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. No purposefully added lead.

**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	V <sub>I(off)</sub>	-0.5 -0.5 -0.5 -0.3 -0.5 -0.5	-1.1 -1.1 -1.1 — — -1.1	—	V	V <sub>CC</sub> = -5V, I <sub>O</sub> = -100μA
Output Voltage	V <sub>O(on)</sub>	—	-0.1	-0.3	V	I <sub>O</sub> /I <sub>I</sub> = -10mA / -0.5mA I <sub>O</sub> /I <sub>I</sub> = -10mA / -0.5mA I <sub>O</sub> /I <sub>I</sub> = -10mA / -0.5mA I <sub>O</sub> /I <sub>I</sub> = -5mA / -0.25mA I <sub>O</sub> /I <sub>I</sub> = -5mA / -0.25mA I <sub>O</sub> /I <sub>I</sub> = -10mA / -0.5mA
Output Current	I <sub>O(off)</sub>	—	—	-0.5	μA	V <sub>CC</sub> = -50V, V <sub>I</sub> = -0V
Gain-Bandwidth Product*	f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> = -5mA, f = 100MHz

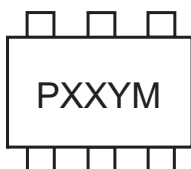
\* Transistor - For Reference Only

## 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: 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

**TYPICAL CURVES - DDA143EH**

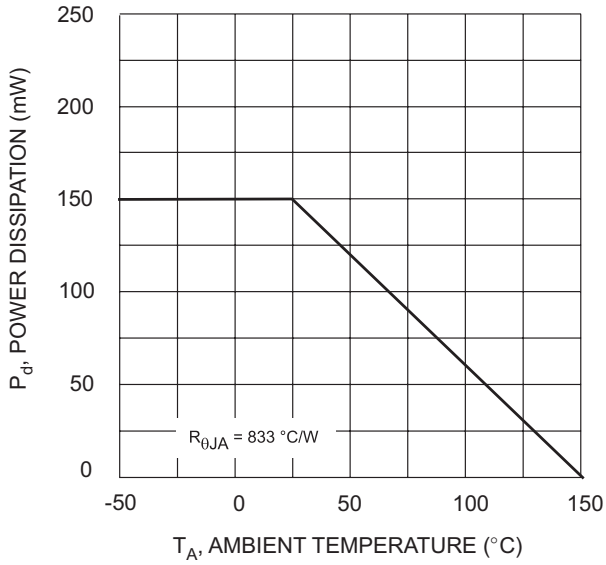


Fig. 1 Derating Curve

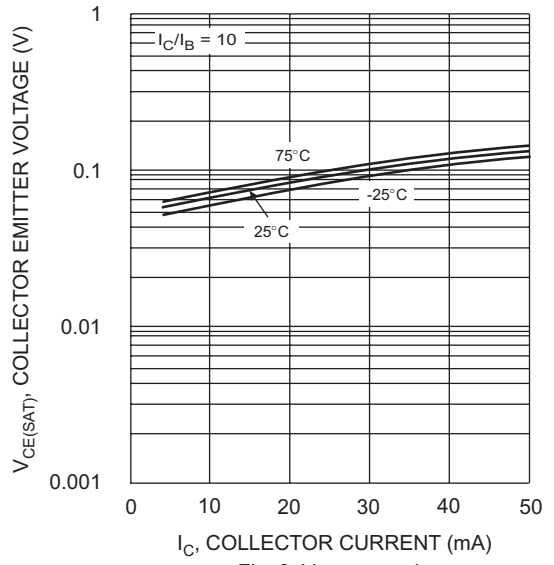


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

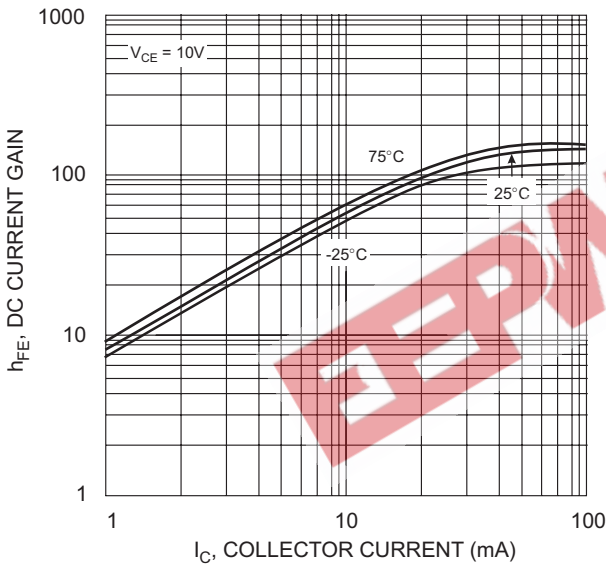


Fig. 3 DC Current Gain

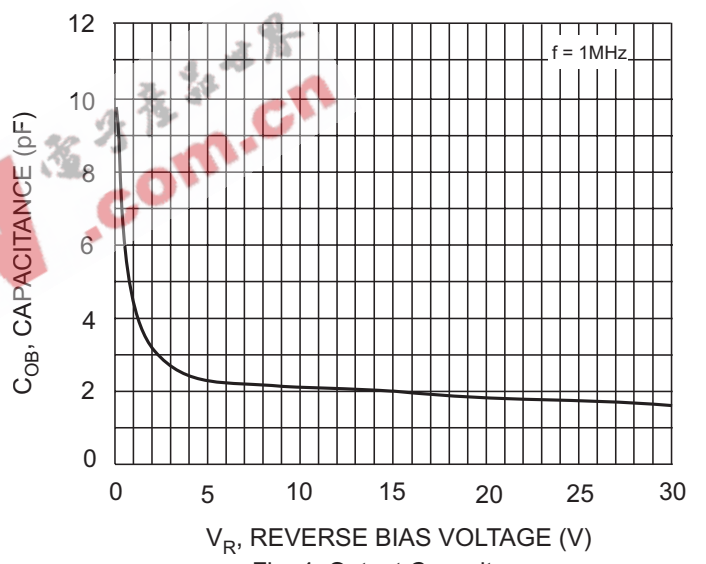


Fig. 4 Output Capacitance

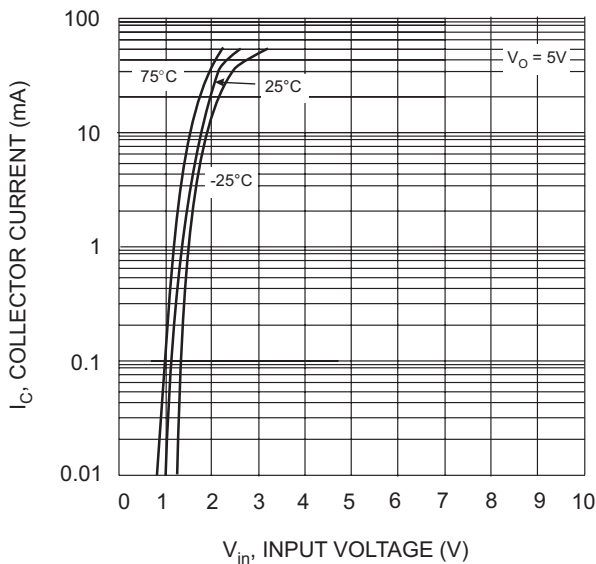


Fig. 5 Collector Current Vs. Input Voltage

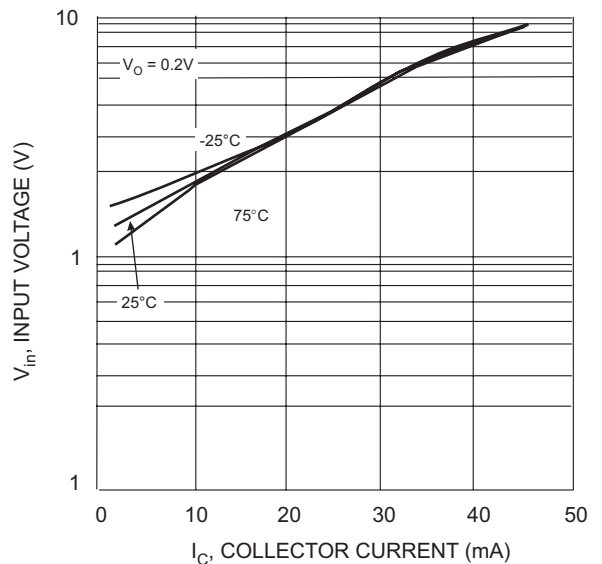


Fig. 6 Input Voltage vs. Collector Current

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