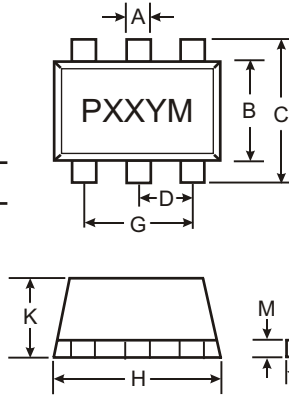


Features

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

Mechanical Data

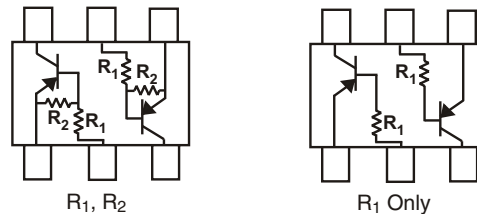
- Case: SOT-563, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208 (Note 2)
- Terminal Connections: See Diagram
- Weight: 0.005 grams (approx.)



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 Ω	22K Ω	P17
DDA144EH	47K Ω	47K Ω	P20
DDA143EH	4.7K Ω	4.7K Ω	P08
DDA114YH	10K Ω	47K Ω	P14
DDA123JH	2.2K Ω	47K Ω	P06
DDA114EH	10K Ω	10K Ω	P13
DDA143TH	4.7K Ω	-	P07
DDA114TH	10K Ω	-	P12



SCHEMATIC DIAGRAM, TOP VIEW

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage	V _{CC}	50	V
Input Voltage	V _{IN}	+10 to -40 +10 to -40 +10 to -30 +6 to -40 +5 to -12 +10 to -40 +5 V _{max} +5 V _{max}	V
Output Current	I _O	-30 -30 -100 -70 -100 -50 -100 -100	mA
Output Current	I _C (Max)	-100	mA
Power Dissipation	P _d	150	mW
Thermal Resistance, Junction to Ambient Air (Note 3)	R _{θJA}	833	°C/W
Operating and Storage and Temperature Range	T _j , T _{STG}	-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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic (DDA143TH & DDA114TH only)	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-50	—	—	V	$I_C = -50\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	-50	—	—	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	$I_E = -50\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	—	-0.5	μA	$V_{CB} = -50\text{V}$
Emitter Cutoff Current	I_{EBO}	—	—	-0.5	μA	$V_{EB} = -4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	-0.3	V	$I_C/I_B = -2.5\text{mA} / -0.25\text{mA}$ DDA143TH $I_C/I_B = -1\text{mA} / -0.1\text{mA}$ DDA114TH
DC Current Transfer Ratio	h_{FE}	100	250	600	—	$I_C = -1\text{mA}, V_{CE} = -5\text{V}$
Gain-Bandwidth Product*	f_T	—	250	—	MHz	$V_{CE} = -10\text{V}, I_E = 5\text{mA}, f = 100\text{MHz}$

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH	$V_{I(off)}$	-0.5	-1.1	—	V	$V_{CC} = -5\text{V}, I_O = -100\mu\text{A}$
	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH		$V_{I(on)}$	—	-1.9		
Output Voltage	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH	$V_{O(on)}$	—	-0.1	-0.3	V	$I_O/I_I = -10\text{mA} / -0.5\text{mA}$ $I_O/I_I = -10\text{mA} / -0.5\text{mA}$ $I_O/I_I = -10\text{mA} / -0.5\text{mA}$ $I_O/I_I = -5\text{mA} / -0.25\text{mA}$ $I_O/I_I = -5\text{mA} / -0.25\text{mA}$ $I_O/I_I = -10\text{mA} / -0.5\text{mA}$
Input Current	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH	I_I	—	—	-0.36 -0.18 -1.8 -0.88 -3.6 -0.88	mA	$V_I = -5\text{V}$
Output Current		$I_{O(off)}$	—	—	-0.5	μA	$V_{CC} = -50\text{V}, V_I = -0\text{V}$
DC Current Gain	DDA124EH DDA144EH DDA143EH DDA114YH DDA123JH DDA114EH	G_I	56 68 20 68 80 30	—	—	—	$V_O = -5\text{V}, I_O = -5\text{mA}$ $V_O = -5\text{V}, I_O = -5\text{mA}$ $V_O = -5\text{V}, I_O = -10\text{mA}$ $V_O = -5\text{V}, I_O = -10\text{mA}$ $V_O = -5\text{V}, I_O = -10\text{mA}$ $V_O = -5\text{V}, I_O = -5\text{mA}$
Gain-Bandwidth Product*		f_T	—	250	—	MHz	$V_{CE} = -10\text{V}, I_E = -5\text{mA}, f = 100\text{MHz}$

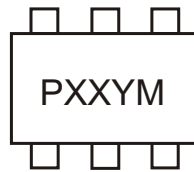
* Transistor - For Reference Only

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

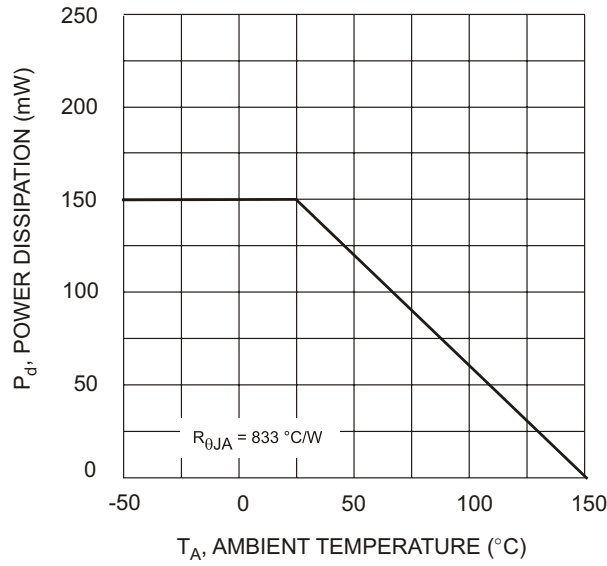


Fig. 1 Derating Curve

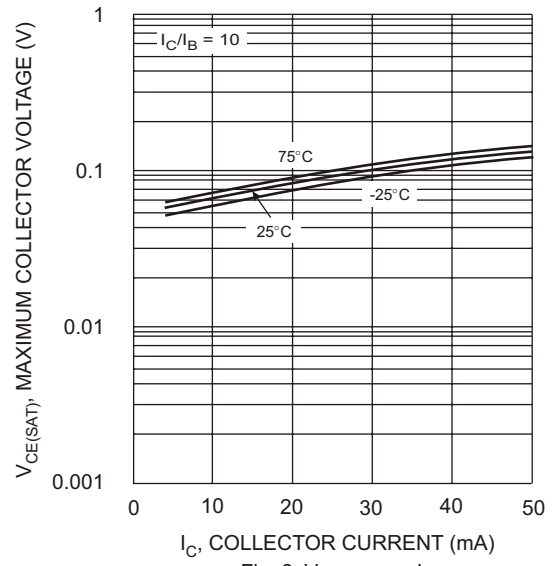


Fig. 2 $V_{CE(SAT)}$ vs. I_C

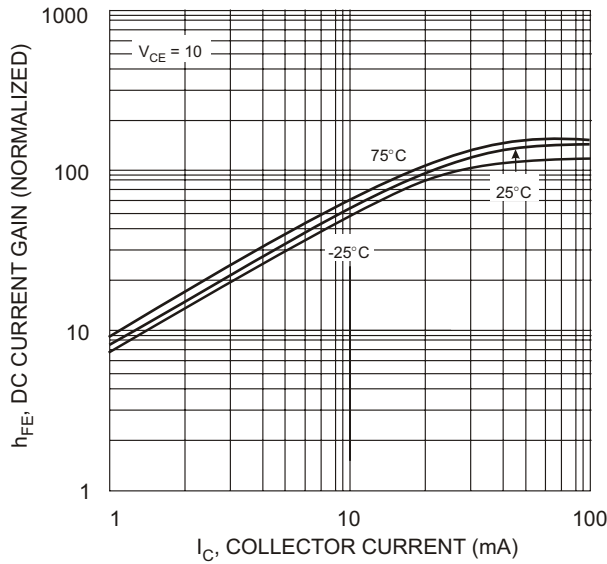


Fig. 3 DC Current Gain

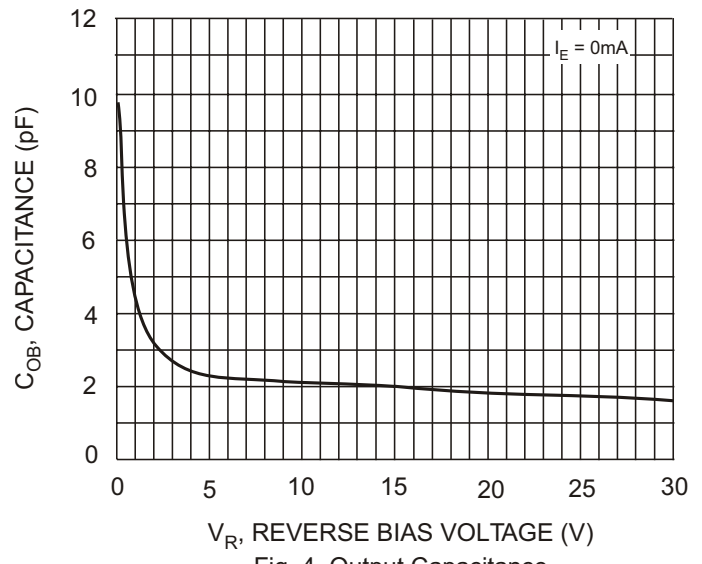


Fig. 4 Output Capacitance

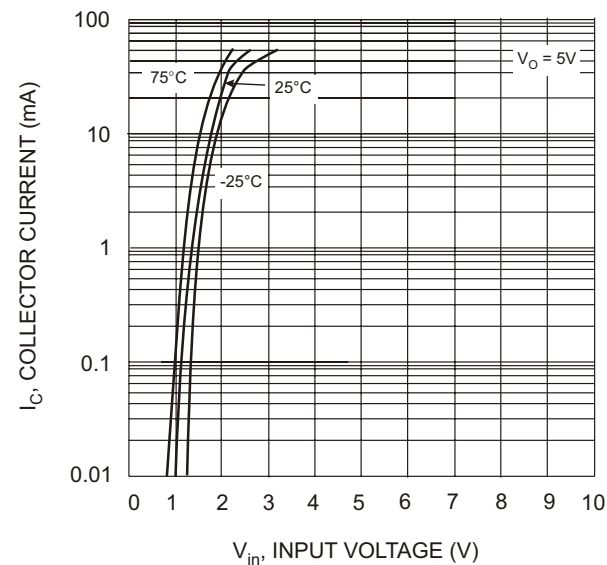


Fig. 5 Collector Current Vs. Input Voltage

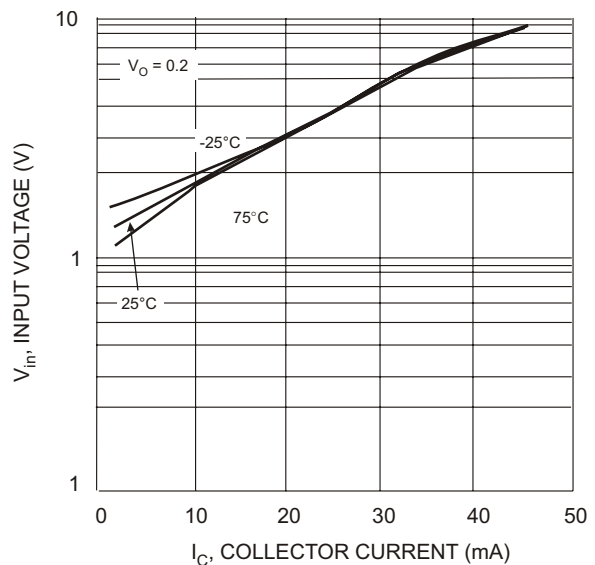


Fig. 6 Input Voltage vs. Collector Current



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