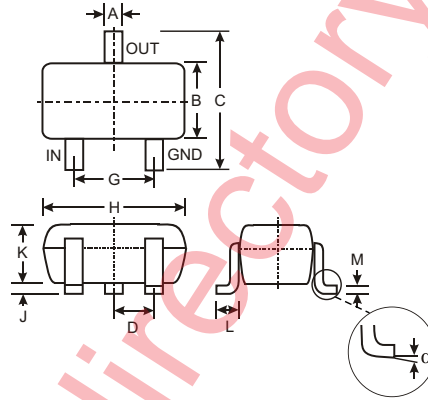


### Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistors, R1 = R2

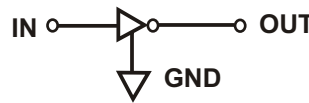
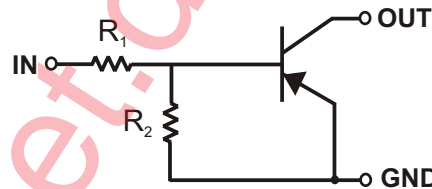
### Mechanical Data

- Case: SC-59, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code (See Diagrams & Page 2)
- Weight: 0.008 grams (approx.)
- Ordering Information (See Page 2)



SC-59		
Dim	Min	Max
A	0.35	0.50
B	1.50	1.70
C	2.70	3.00
D	0.95	
G	1.90	
H	2.90	3.10
J	0.013	0.10
K	1.00	1.30
L	0.35	0.55
M	0.10	0.20
$\alpha$	0°	8°
All Dimensions in mm		

P/N	R1, R2 (NOM)	MARKING
DDTA123EKA	2.2K $\Omega$	P04
DDTA143EKA	4.7K $\Omega$	P08
DDTA114EKA	10K $\Omega$	P13
DDTA124EKA	22K $\Omega$	P17
DDTA144EKA	47K $\Omega$	P20
DDTA115EKA	100K $\Omega$	P24



SCHEMATIC DIAGRAM

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

Characteristic	Symbol	Value	Unit
Supply Voltage, (3) to (1)	V <sub>CC</sub>	-50	V
Input Voltage, (2) to (1)	V <sub>IN</sub>	DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA +10 to -12 +10 to -30 +10 to -40 +10 to -40 +10 to -40 +10 to -40 +10 to -40	V
Output Current	I <sub>O</sub>	DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA -100 -100 -50 -30 -100 -20	mA
Output Current	I <sub>C</sub> (Max)	All -100	mA
Power Dissipation	P <sub>d</sub>	200	mW
Thermal Resistance, Junction to Ambient Air (Note 1)	R <sub>θJA</sub>	625	°C/W
Operating and Storage and Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

Note: 1. Mounted on FR4 PC 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		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage		V <sub>I(off)</sub>	-0.5	-1.1	—	V	V <sub>CC</sub> = -5V, I <sub>O</sub> = -100μA
		V <sub>I(on)</sub>	—	-1.9	-3		V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA, DDTA123EKA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA, DDTA143EKA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -10mA, DDTA114EKA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -5mA, DDTA124EKA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA, DDTA144EKA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -1mA, DDTA115EKA
Output Voltage		V <sub>O(on)</sub>	—	-0.1	-0.3	V	I <sub>O</sub> /I <sub>I</sub> = -10mA/-0.5mA, DDTA123EKA I <sub>O</sub> /I <sub>I</sub> = -10mA/-0.5mA, DDTA143EKA I <sub>O</sub> /I <sub>I</sub> = -10mA/-0.5mA, DDTA114EKA I <sub>O</sub> /I <sub>I</sub> = -10mA/-0.5mA, DDTA124EKA I <sub>O</sub> /I <sub>I</sub> = -10mA/-0.5mA, DDTA144EKA I <sub>O</sub> /I <sub>I</sub> = -5mA/-0.25mA, DDTA115EKA
Input Current	DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA	I <sub>I</sub>	—	—	-3.8 -1.8 -0.88 -0.36 -0.18 -0.15	mA	V <sub>I</sub> = -5V
Output Current		I <sub>O(off)</sub>	—	—	-0.5	μA	V <sub>CC</sub> = -50V, V <sub>I</sub> = 0V
DC Current Gain	DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA	G <sub>I</sub>	20 20 30 56 68 82	—	—	—	V <sub>O</sub> = -5V, I <sub>O</sub> = -20mA V <sub>O</sub> = -5V, I <sub>O</sub> = -10mA 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> = -5mA V <sub>O</sub> = -5V, I <sub>O</sub> = -5mA
Input Resistor (R <sub>1</sub> ) Tolerance		DR <sub>1</sub>	-30	—	+30	%	—
Resistance Ratio		R <sub>2</sub> /R <sub>1</sub>	0.8	1	1.2	—	—
Gain-Bandwidth Product*		f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> = 5mA, f = 100MHz

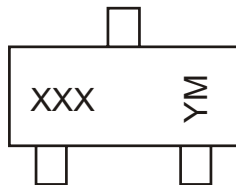
\* Transistor - For Reference Only

**Ordering Information** (Note 2)

Device	Packaging	Shipping
DDTA123EKA-7	SC-59	3000/Tape & Reel
DDTA143EKA-7	SC-59	3000/Tape & Reel
DDTA114EKA-7	SC-59	3000/Tape & Reel
DDTA124EKA-7	SC-59	3000/Tape & Reel
DDTA144EKA-7	SC-59	3000/Tape & Reel
DDTA115EKA-7	SC-59	3000/Tape & Reel

Notes: 2. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



XXX = Product Type Marking Code  
See Sheet 1 Diagrams  
YM = Date Code Marking  
Y = Year ex: N = 2002  
M = Month ex: 9 = September

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009
Code	N	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 - DDTA143EKA

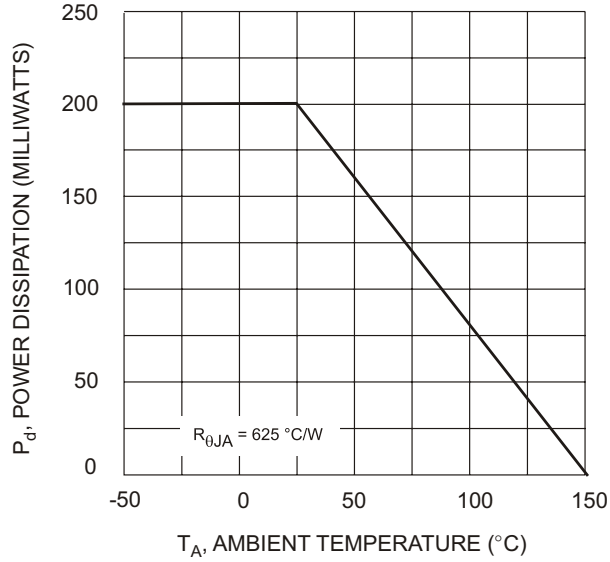


Fig. 1 Derating Curve

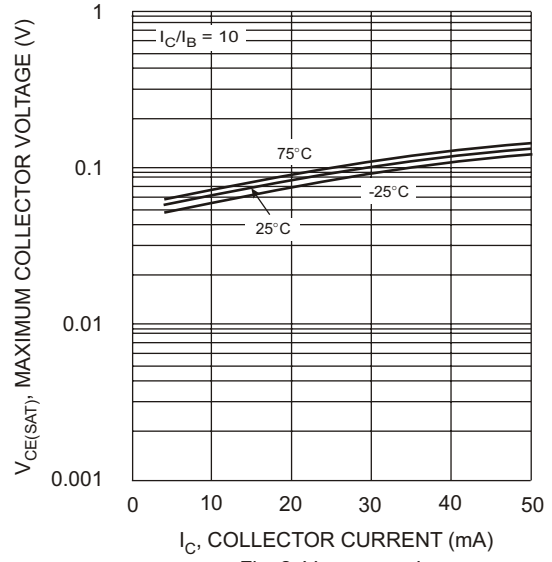


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

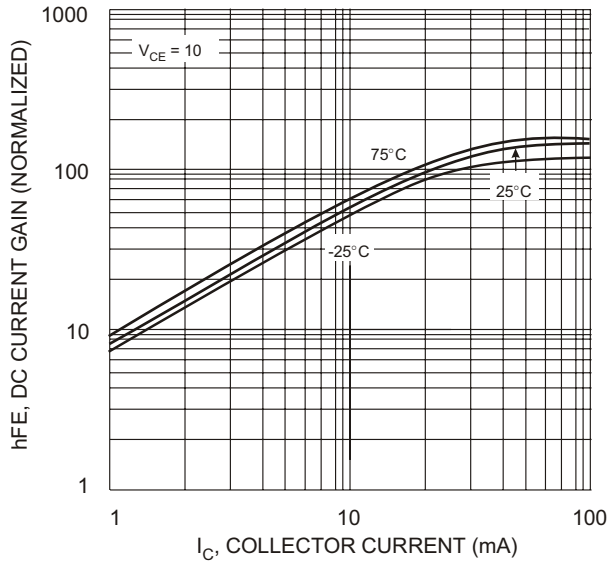


Fig. 3 DC CURRENT GAIN

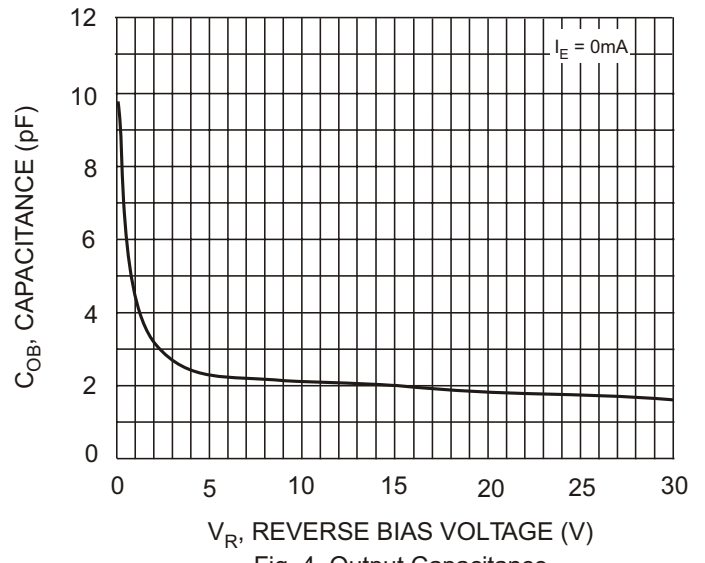


Fig. 4 Output Capacitance

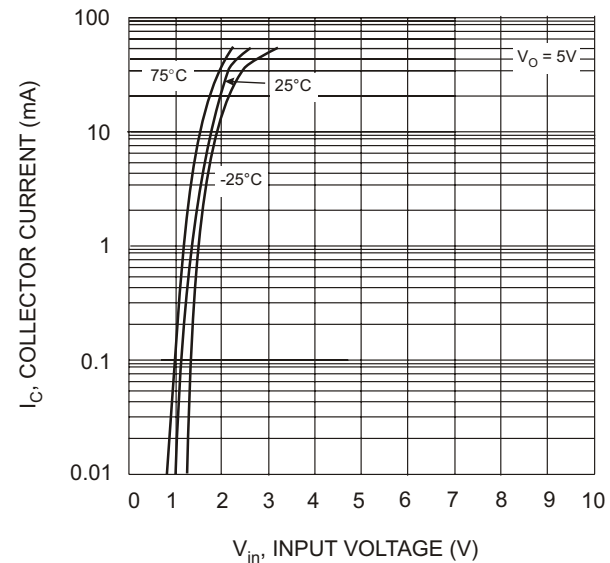


Fig. 5 Collector Current Vs. Input Voltage

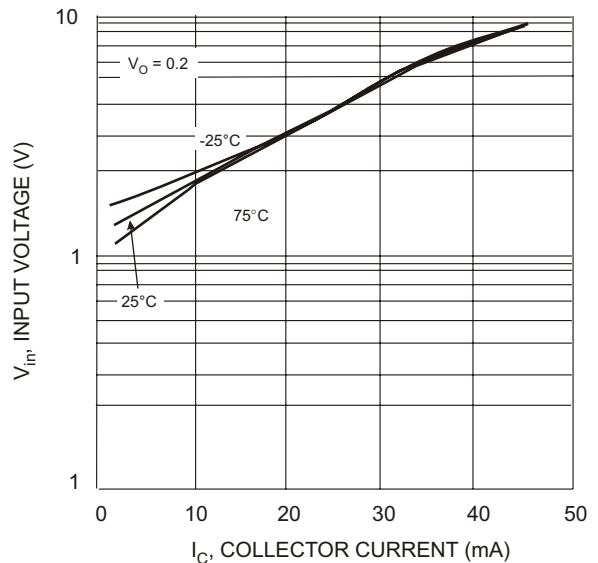


Fig. 6 Input Voltage vs. Collector Current