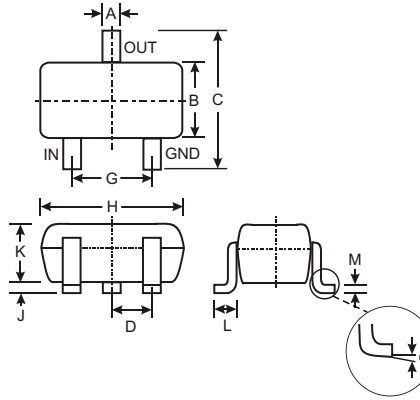


### Features

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

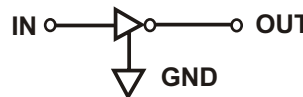
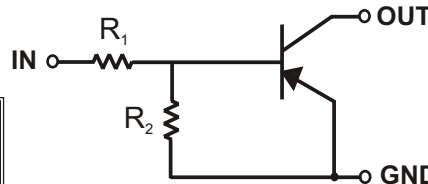
### Mechanical Data

- 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 3)
- 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 (NOM)	R2 (NOM)	MARKING
DDTA113ZKA	1K $\Omega$	10K $\Omega$	P02
DDTA123YKA	2.2K $\Omega$	10K $\Omega$	P05
DDTA123JKA	2.2K $\Omega$	47K $\Omega$	P06
DDTA143XKA	4.7K $\Omega$	10K $\Omega$	P09
DDTA143FKA	4.7K $\Omega$	22K $\Omega$	P10
DDTA143ZKA	4.7K $\Omega$	47K $\Omega$	P11
DDTA114YKA	10K $\Omega$	47K $\Omega$	P14
DDTA114WKA	10K $\Omega$	4.7K $\Omega$	P15
DDTA124XKA	22K $\Omega$	47K $\Omega$	P18
DDTA144VKA	47K $\Omega$	10K $\Omega$	P21
DDTA144WKA	47K $\Omega$	22K $\Omega$	P22



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>	DDTA113ZKA: +5 to -10 DDTA123YKA: +5 to -12 DDTA123JKA: +5 to -12 DDTA143XKA: +7 to -20 DDTA143FKA: +6 to -30 DDTA143ZKA: +5 to -30 DDTA114YKA: +6 to -40 DDTA114WKA: +10 to -30 DDTA124XKA: +10 to -40 DDTA144VKA: +15 to -40 DDTA144WKA: +10 to -40	V
Output Current	I <sub>O</sub>	DDTA113ZKA: -100 DDTA123YKA: -100 DDTA123JKA: -100 DDTA143XKA: -100 DDTA143FKA: -100 DDTA143ZKA: -100 DDTA114YKA: -70 DDTA114WKA: -100 DDTA124XKA: -50 DDTA144VKA: -30 DDTA144WKA: -30	mA
Output Current	I <sub>C</sub> (Max)	-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	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	V <sub>I(off)</sub>	-0.3 -0.3 -0.5 -0.3 -0.3 -0.5 -0.3 -0.8 -0.4 -1.0 -0.8	—	—		V	V <sub>CC</sub> = 5V, I <sub>O</sub> = 100μA
	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	V <sub>I(on)</sub>	—	—	-3.0 -3.0 -1.1 -2.5 -1.3 -1.3 -1.4 -3.0 -2.5 -5.0 -4.0		V	V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -5mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -3mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -5mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -1mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA
Output Voltage		V <sub>O(on)</sub>	—	-0.1	-0.3	V	I <sub>O</sub> /I <sub>I</sub> = -5mA/-0.25mA DDTA123JKA I <sub>O</sub> /I <sub>I</sub> = -5mA/-0.25mA DDTA143ZKA I <sub>O</sub> /I <sub>I</sub> = -5mA/-0.25mA DDTA114YKA I <sub>O</sub> /I <sub>I</sub> = -10mA/-0.5mA All Others	
Input Current	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	I <sub>I</sub>	—	—	-7.2 -3.8 -3.6 -1.8 -1.8 -1.8 -0.88 -0.88 -0.36 -0.16 -0.16	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	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	G <sub>I</sub>	-33 -33 -80 -30 -68 -80 -68 -24 -68 -33 -56	—	—		V <sub>O</sub> = -5V, I <sub>O</sub> = -10mA	
Input Resistor Tolerance		DR <sub>1</sub>	-30	—	+30	%	—	
Resistance Ratio Tolerance		DR <sub>2</sub> /R <sub>1</sub>	-20	—	+20	%	—	
Gain-Bandwidth Product*		f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> = 5mA, f = 100MHz	

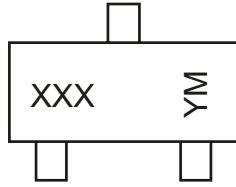
\* Transistor - For Reference Only

**Ordering Information** (Note 2)

Device	Packaging	Shipping
DDTA113ZKA-7	SC-59	3000/Tape & Reel
DDTA123YKA-7	SC-59	3000/Tape & Reel
DDTA123JKA-7	SC-59	3000/Tape & Reel
DDTA143XKA-7	SC-59	3000/Tape & Reel
DDTA143FKA-7	SC-59	3000/Tape & Reel
DDTA143ZKA-7	SC-59	3000/Tape & Reel
DDTA114YKA-7	SC-59	3000/Tape & Reel
DDTA114WKA-7	SC-59	3000/Tape & Reel
DDTA124XKA-7	SC-59	3000/Tape & Reel
DDTA144VKA-7	SC-59	3000/Tape & Reel
DDTA144WKA-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

<b>Year</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Code</b>	N	P	R	S	T	U	V	W

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

TYPICAL CURVES - DDTA123JKA

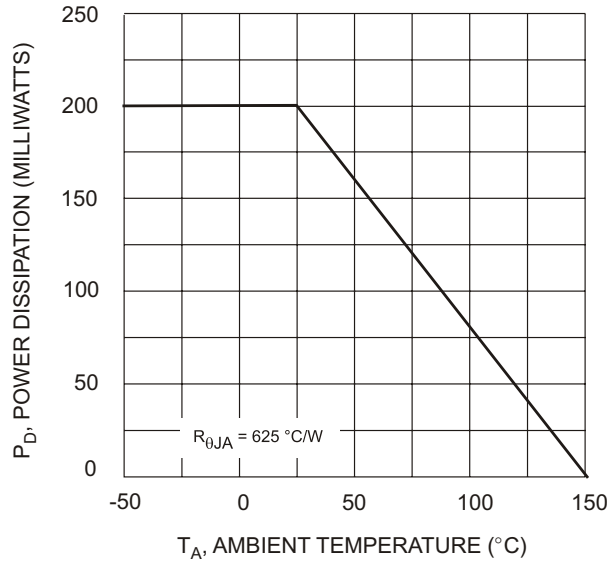


Fig. 1 Derating Curve

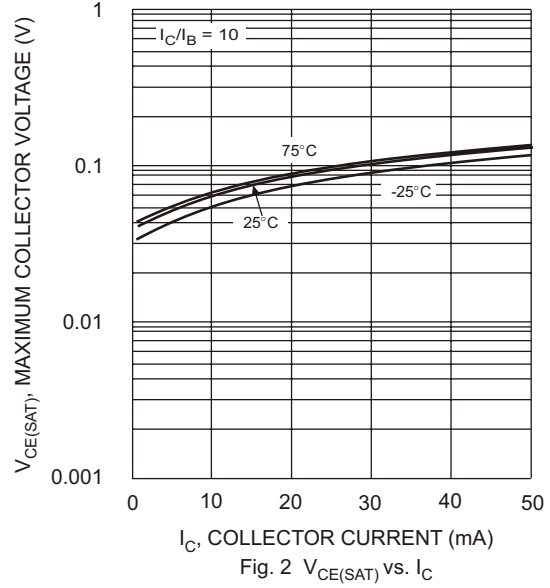


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

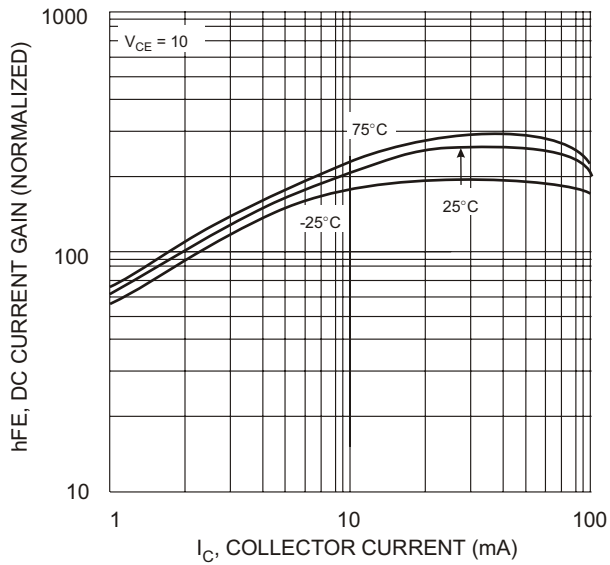


Fig. 3 DC CURRENT GAIN

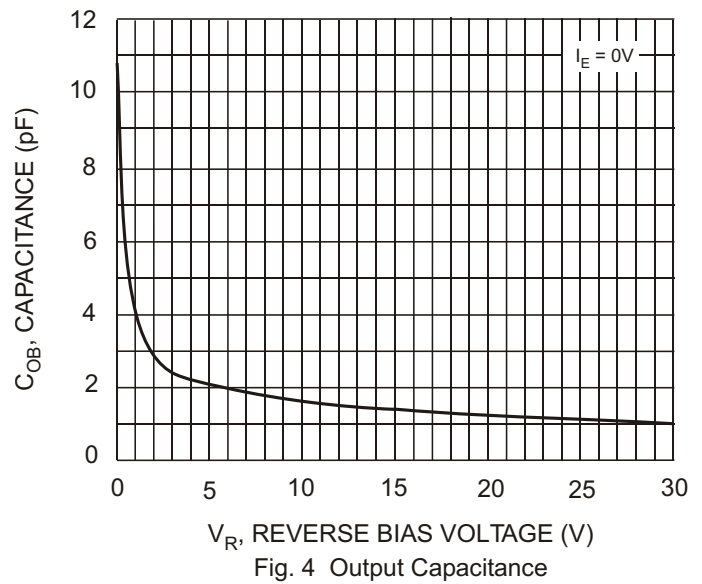


Fig. 4 Output Capacitance

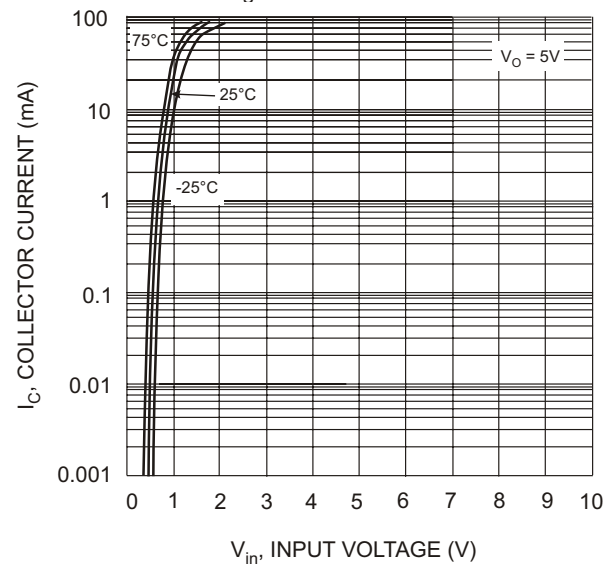


Fig. 5 Collector Current Vs. Input Voltage

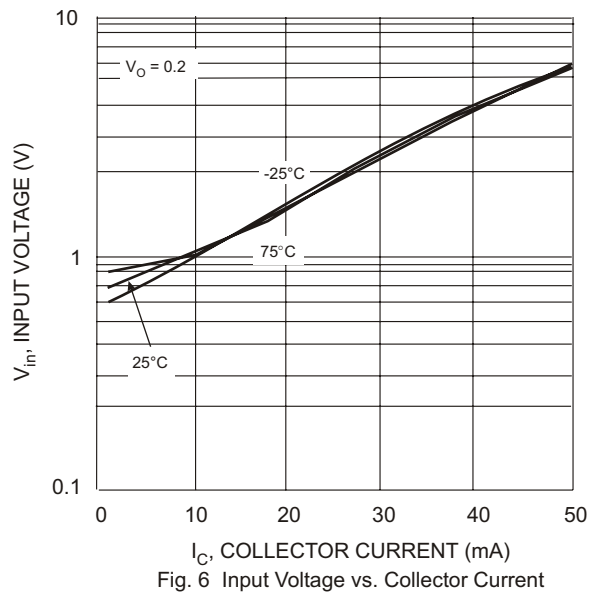


Fig. 6 Input Voltage vs. Collector Current