THE DATASHEET OF

DDTA114YKA-7-F

DDTA (R1≠R2 SERIES) KA

PNP PRE-BIASED SMALL SIGNAL SURFACE MOUNT TRANSISTOR

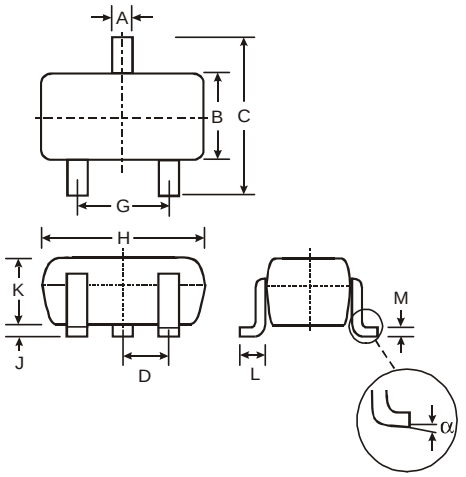
Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistors, R1≠R2
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device, Note 2 and 3**

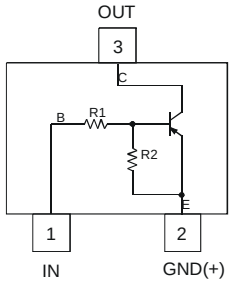
Mechanical Data

- Case: SC-59
- Case material: Molded Plastic, "Green" Molding Compound, Note 3. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Table Below & Page 4
- Ordering Information: See Page 4
- Weight: 0.008 grams (approximate)

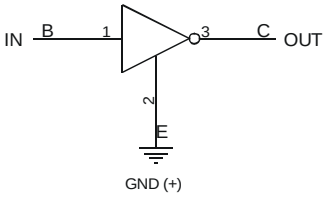
P/N	R1 (NOM)	R2 (NOM)	Type Code
DDTA113ZKA	1KΩ	10KΩ	P02
DDTA123YKA	2.2KΩ	10KΩ	P05
DDTA123JKA	2.2KΩ	47KΩ	P06
DDTA143XKA	4.7KΩ	10KΩ	P09
DDTA143FKA	4.7KΩ	22KΩ	P10
DDTA143ZKA	4.7KΩ	47KΩ	P11
DDTA114YKA	10KΩ	47KΩ	P14
DDTA114WKA	10KΩ	4.7KΩ	P15
DDTA124XKA	22KΩ	47KΩ	P18
DDTA144VKA	47KΩ	10KΩ	P21
DDTA144WKA	47KΩ	22KΩ	P22



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
α	0°	8°
All Dimensions in mm		



Schematic and Pin Configuration



Equivalent Inverter Circuit

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (2)		V_{CC}	-50	V
Input Voltage, (1) to (2)	DDTA113ZKA	V_{IN}	+5 to -10	V
	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	
Output Current	DDTA113ZKA	I_O	-100	mA
	DDTA123YKA		-100	
	DDTA123JKA		-100	
	DDTA143XKA		-100	
	DDTA143FKA		-100	
	DDTA143ZKA		-100	
	DDTA114YKA		-70	
	DDTA114WKA		-100	
	DDTA124XKA		-50	
	DDTA144VKA		-30	
	DDTA144WKA		-30	

Notes:
1. No purposefully added lead.
2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
3. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

Maximum Ratings (continued) @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation	P_d	200	mW
Output Current All	I_C (Max)	-100	mA
Thermal Resistance, Junction to Ambient Air (Note 4)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

Notes: 4. Mounted on FR4 PC Board with recommended pad layout at http://www.diodes.com/datasheets/ap02001.pdf.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
	DDTA113ZKA	$V_{I(off)}$	-0.3	—	—		V_{CC} = 5V, I_O = 100μA
	DDTA123YKA		-0.3				
	DDTA123JKA		-0.5				
	DDTA143XKA		-0.3				
	DDTA143FKA		-0.3				
	DDTA143ZKA		-0.5				
	DDTA114YKA		-0.3				
	DDTA114WKA		-0.8				
	DDTA124XKA		-0.4				
	DDTA144VKA		-1.0				
	DDTA144WKA		-0.8				
Input Voltage	DDTA113ZKA	$V_{I(on)}$	—	—	-3.0	V	V_O = -0.3V, I_O = -20mA
	DDTA123YKA				-3.0		V_O = -0.3V, I_O = -20mA
	DDTA123JKA				-1.1		V_O = -0.3V, I_O = -5mA
	DDTA143XKA				-2.5		V_O = -0.3V, I_O = -20mA
	DDTA143FKA				-1.3		V_O = -0.3V, I_O = -3mA
	DDTA143ZKA				-1.3		V_O = -0.3V, I_O = -5mA
	DDTA114YKA				-1.4		V_O = -0.3V, I_O = -1mA
	DDTA114WKA				-3.0		V_O = -0.3V, I_O = -2mA
	DDTA124XKA				-2.5		V_O = -0.3V, I_O = -2mA
	DDTA144VKA				-5.0		V_O = -0.3V, I_O = -2mA
	DDTA144WKA				-4.0		V_O = -0.3V, I_O = -2mA
Output Voltage		$V_{O(on)}$	—	-0.1	-0.3	V	I_O/I_I = -5mA/-0.25mA DDTA123JKA I_O/I_I = -5mA/-0.25mA DDTA143ZKA I_O/I_I = -5mA/-0.25mA DDTA114YKA I_O/I_I = -10mA/-0.5mA All Others
	DDTA113ZKA	I_I	—	—	-7.2	mA	V_I = -5V
	DDTA123YKA				-3.8		
	DDTA123JKA				-3.6		
	DDTA143XKA				-1.8		
	DDTA143FKA				-1.8		
Input Current	DDTA143ZKA				-1.8		
	DDTA114YKA				-0.88		
	DDTA114WKA				-0.88		
	DDTA124XKA				-0.36		
	DDTA144VKA				-0.16		
	DDTA144WKA				-0.16		
Output Current		$I_{O(off)}$	—	—	-0.5	μA	V_{CC} = -50V, V_I = 0V
	DDTA113ZKA	G_I	-33	—	—	—	V_O = -5V, I_O = -10mA
	DDTA123YKA		-33				
	DDTA123JKA		-80				
	DDTA143XKA		-30				
	DDTA143FKA		-68				
DC Current Gain	DDTA143ZKA		-80				
	DDTA114YKA		-68				
	DDTA114WKA		-24				
	DDTA124XKA		-68				
	DDTA144VKA		-33				
	DDTA144WKA		-56				
Input Resistor Tolerance		ΔR_1	-30	—	+30	%	—
Resistance Ratio Tolerance		$\Delta R_2/R_1$	-20	—	+20	%	—
Gain-Bandwidth Product*		f_T	—	250	—	MHz	V_{CE} = -10V, I_E = 5mA, f = 100MHz

* Transistor - For Reference Only

Typical Curves – DDTA123JKA

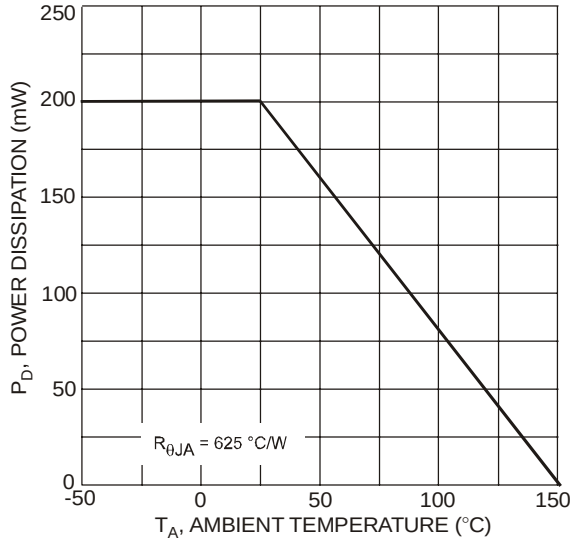


Fig. 1 Derating Curve

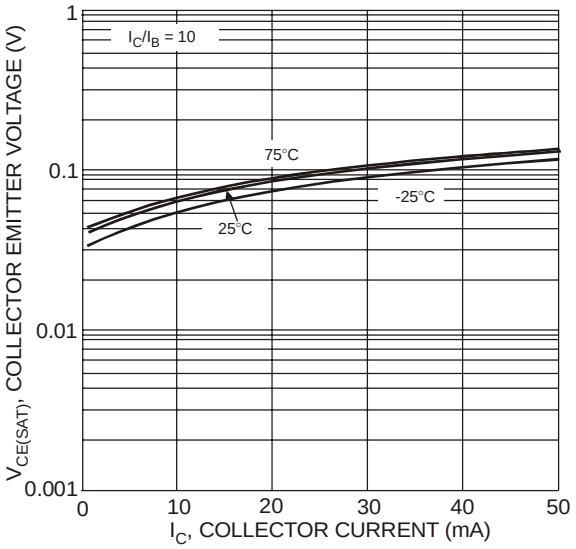


Fig. 2 $V_{CE(SAT)}$ vs. I_C

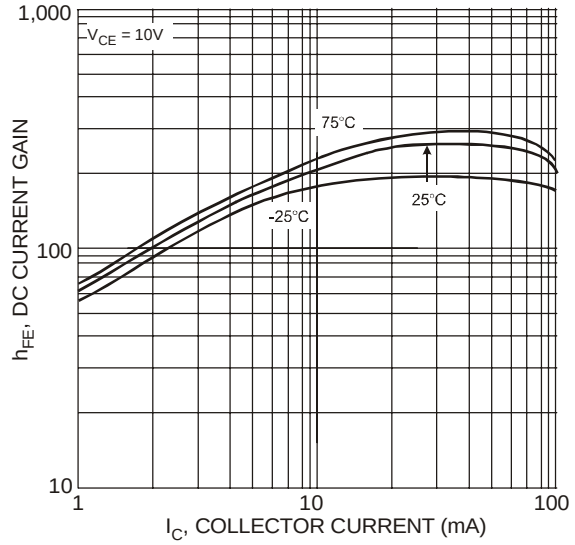


Fig. 3 DC Current Gain

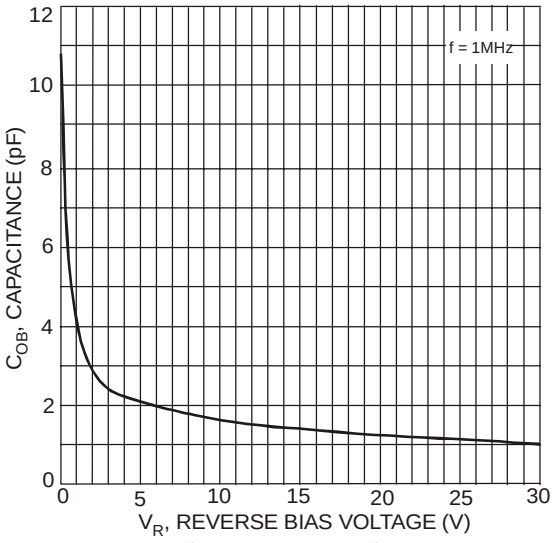


Fig. 4 Output Capacitance

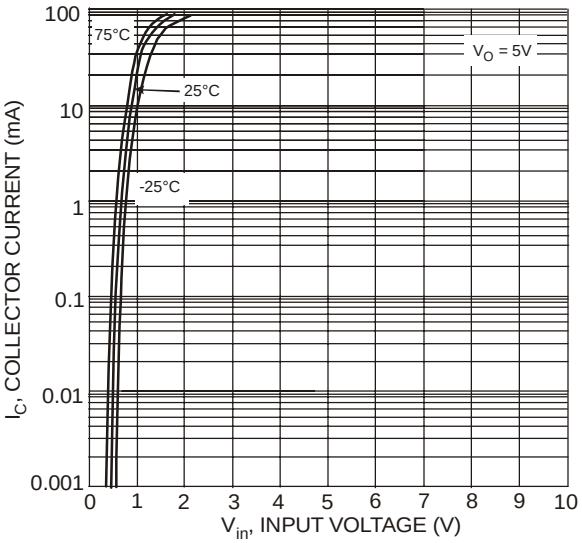


Fig. 5 Collector Current vs. Input Voltage

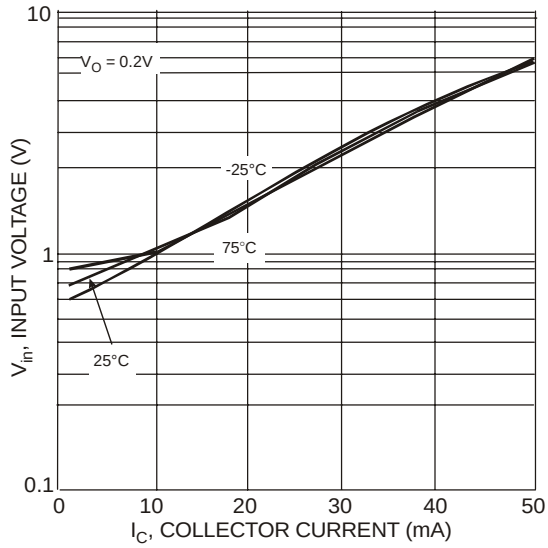


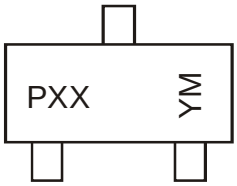
Fig. 6 Input Voltage vs. Collector Current

Ordering Information (Note 3 & 5)

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

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



PXX = Product Type Marking Code, See Table on Page 1
YM = Date Code Marking
Y = Year ex: T = 2006
M = Month ex: 9 = September

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	N	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

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