DDTA (R1≠R2 SERIES) KA

PNP PRE-BIASED SMALL SIGNAL SC-59 SURFACE MOUNT TRANSISTOR

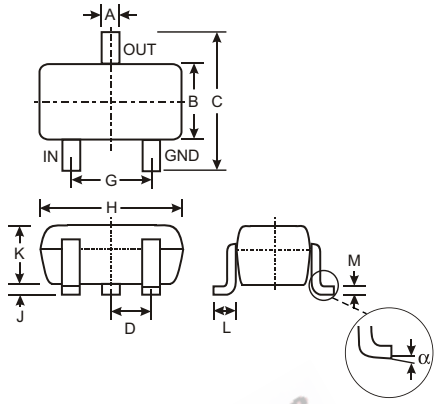
NEW PRODUCT

Features

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

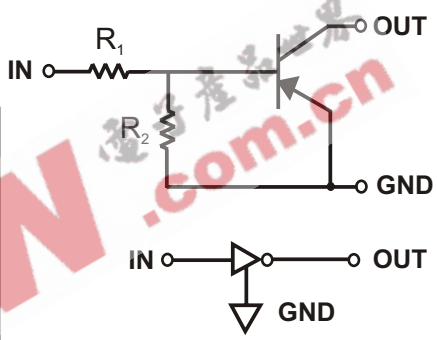
Mechanical Data

- 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
α	0°	8°
All Dimensions in mm		

P/N	R1 (NOM)	R2 (NOM)	MARKING
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



SCHEMATIC DIAGRAM

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (1)		V_{CC}	-50	V
Input Voltage, (2) to (1)	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	V_{IN}	+5 to -10 +5 to -12 +5 to -12 +7 to -20 +6 to -30 +5 to -30 +6 to -40 +10 to -30 +10 to -40 +15 to -40 +10 to -40	V
Output Current	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	I_O	-100 -100 -100 -100 -100 -100 -70 -100 -50 -30 -30	mA
Output Current	All	I_C (Max)	-100	mA
Power Dissipation		P_d	200	mW
Thermal Resistance, Junction to Ambient Air (Note 1)		$R_{\theta JA}$	625	°C/W
Operating and Storage and Temperature Range		T_j, T_{STG}	-55 to +150	°C

Note: 1. Mounted on FR4 PC Board with recommended pad layout at http://www.diodes.com/datasheets/ap02001.pdf.

NEW PRODUCT

Electrical Characteristics @ T_A = 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	$V_{I(off)}$	-0.3 -0.3 -0.5 -0.3 -0.3 -0.5 -0.3 -0.8 -0.4 -1.0 -0.8	—	—	V	V_{CC} = 5V, I_O = 100μA
	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	$V_{I(on)}$	—	—	-3.0 -3.0 -1.1 -2.5 -1.3 -1.3 -1.4 -3.0 -2.5 -5.0 -4.0		V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -5mA V_O = -0.3V, I_O = -20mA V_O = -0.3V, I_O = -3mA V_O = -0.3V, I_O = -5mA V_O = -0.3V, I_O = -1mA V_O = -0.3V, I_O = -2mA V_O = -0.3V, I_O = -2mA V_O = -0.3V, I_O = -2mA 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
Input Current	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	I_I	—	—	-7.2 -3.8 -3.6 -1.8 -1.8 -1.8 -0.88 -0.88 -0.36 -0.16 -0.16	mA	V_I = -5V
Output Current		$I_{O(off)}$	—	—	-0.5	μA	V_{CC} = -50V, V_I = 0V
DC Current Gain	DDTA113ZKA DDTA123YKA DDTA123JKA DDTA143XKA DDTA143FKA DDTA143ZKA DDTA114YKA DDTA114WKA DDTA124XKA DDTA144VKA DDTA144WKA	G_I	-33 -33 -80 -30 -68 -80 -68 -24 -68 -33 -56	—	—	—	V_O = -5V, I_O = -10mA
Input Resistor Tolerance		DR_1	-30	—	+30	%	—
Resistance Ratio Tolerance		DR_2/R_1	-20	—	+20	%	—
Gain-Bandwidth Product*		f_T	—	250	—	MHz	V_{CE} = -10V, I_E = 5mA, f = 100MHz

* Transistor - For Reference Only

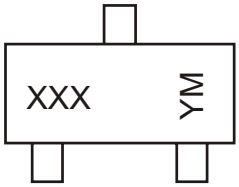
Ordering Information (Note 2)

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.

NEW PRODUCT

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

NEW PRODUCT

TYPICAL CURVES - DDTA123JKA

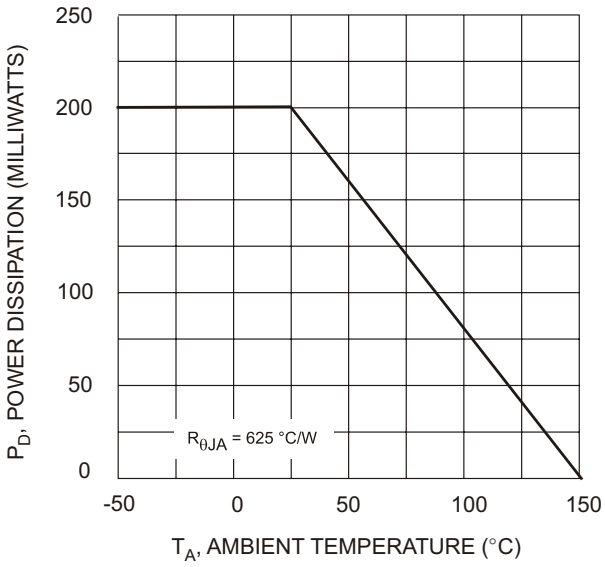


Fig. 1 Derating Curve

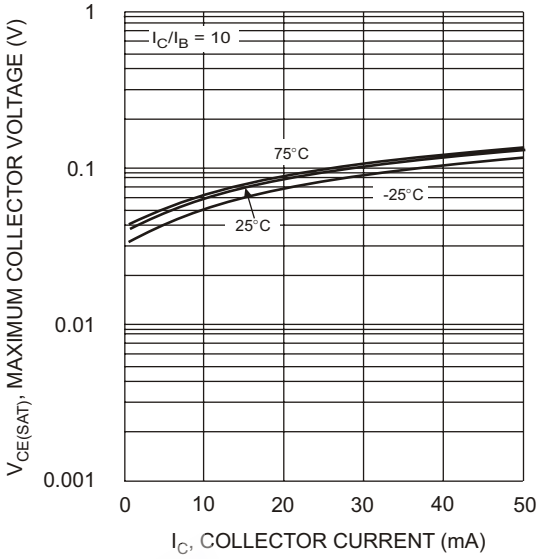


Fig. 2 $V_{CE(SAT)}$ vs. I_C

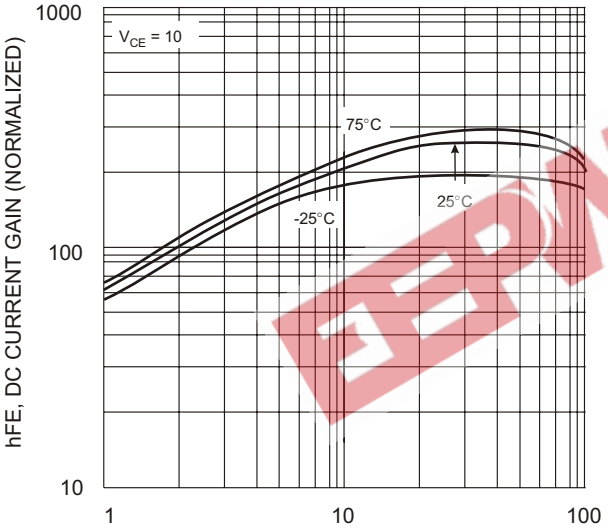


Fig. 3 DC CURRENT GAIN

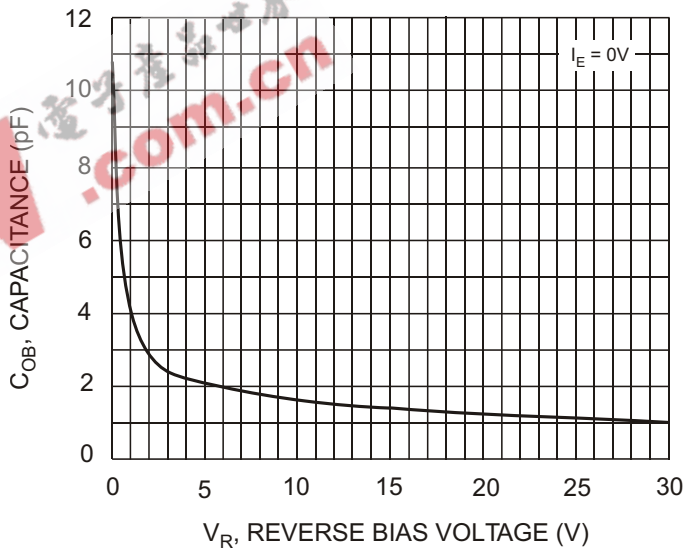


Fig. 4 Output Capacitance

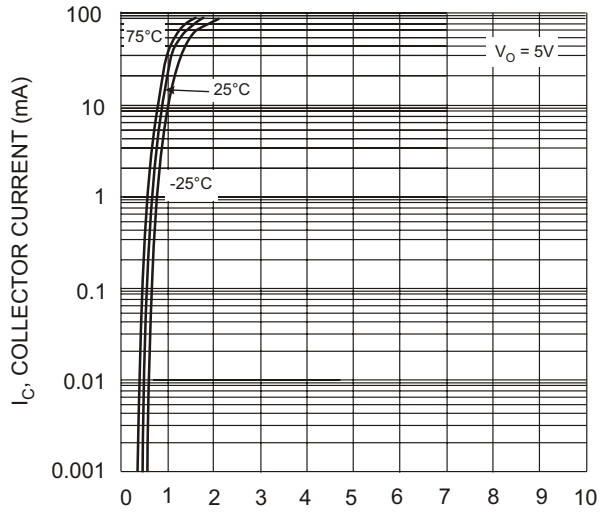


Fig. 5 Collector Current Vs. Input Voltage

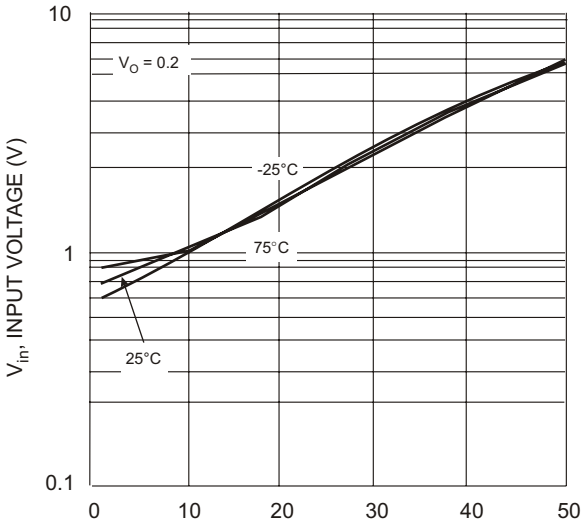


Fig. 6 Input Voltage vs. Collector Current