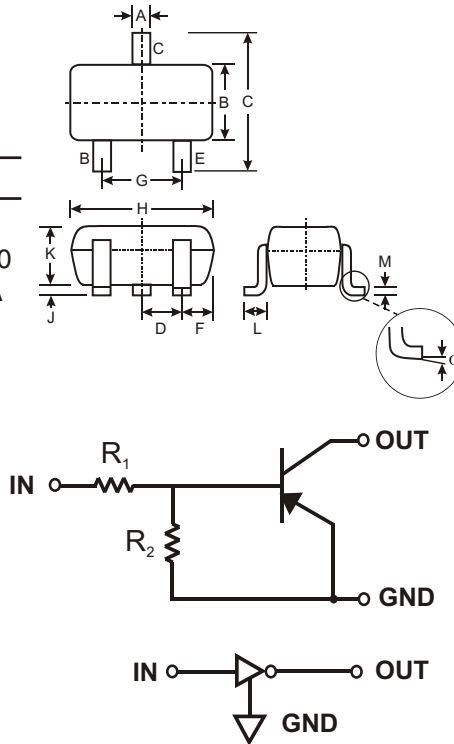


Features

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

Mechanical Data

- Case: SOT-23, 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.)



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.85	0.80
α	0°	8°
All Dimensions in mm		

P/N	R1 (NOM)	R2 (NOM)	MARKING
DDTA113ZCA	1K Ω	10K Ω	P02
DDTA123YCA	2.2K Ω	10K Ω	P05
DDTA123JCA	2.2K Ω	47K Ω	P06
DDTA143XCA	4.7K Ω	10K Ω	P09
DDTA143FCA	4.7K Ω	22K Ω	P10
DDTA143ZCA	4.7K Ω	47K Ω	P11
DDTA114YCA	10K Ω	47K Ω	P14
DDTA114WCA	10K Ω	4.7K Ω	P15
DDTA124XCA	22K Ω	47K Ω	P18
DDTA144VCA	47K Ω	10K Ω	P21
DDTA144WCA	47K Ω	22K Ω	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)	V _{IN}	DDTA113ZCA: +5 to -10 DDTA123YCA: +5 to -12 DDTA123JCA: +5 to -12 DDTA143XCA: +7 to -20 DDTA143FCA: +6 to -30 DDTA143ZCA: +5 to -30 DDTA114YCA: +6 to -40 DDTA114WCA: +10 to -30 DDTA124XCA: +10 to -40 DDTA144VCA: +15 to -40 DDTA144WCA: +10 to -40	V
Output Current	I _O	DDTA113ZCA: -100 DDTA123YCA: -100 DDTA123JCA: -100 DDTA143XCA: -100 DDTA143FCA: -100 DDTA143ZCA: -100 DDTA114YCA: -70 DDTA114WCA: -100 DDTA124XCA: -50 DDTA144VCA: -30 DDTA144WCA: -30	mA
Output Current	I _C (Max)	-100	mA
Power Dissipation	P _d	200	mW
Thermal Resistance, Junction to Ambient Air (Note 1)	R _{θJA}	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>.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition	
Input Voltage	DDTA113ZCA DDTA123YCA DDTA123JCA DDTA143XCA DDTA143FCA DDTA143ZCA DDTA114YCA DDTA114WCA DDTA124XCA DDTA144VCA DDTA144WCA	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
	DDTA113ZCA DDTA123YCA DDTA123JCA DDTA143XCA DDTA143FCA DDTA143ZCA DDTA114YCA DDTA114WCA DDTA124XCA DDTA144VCA DDTA144WCA	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	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 DDTA123JCA I _O /I _I = -5mA/-0.25mA DDTA143ZCA I _O /I _I = -5mA/-0.25mA DDTA114YCA I _O /I _I = -10mA/-0.5mA All Others	
Input Current	DDTA113ZCA DDTA123YCA DDTA123JCA DDTA143XCA DDTA143FCA DDTA143ZCA DDTA114YCA DDTA114WCA DDTA124XCA DDTA144VCA DDTA144WCA	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	DDTA113ZCA DDTA123YCA DDTA123JCA DDTA143XCA DDTA143FCA DDTA143ZCA DDTA114YCA DDTA114WCA DDTA124XCA DDTA144VCA DDTA144WCA	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	

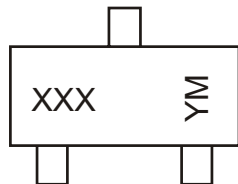
* Transistor - For Reference Only

Ordering Information (Note 2)

Device	Packaging	Shipping
DDTA113ZCA-7	SOT-23	3000/Tape & Reel
DDTA123YCA-7	SOT-23	3000/Tape & Reel
DDTA123JCA-7	SOT-23	3000/Tape & Reel
DDTA143XCA-7	SOT-23	3000/Tape & Reel
DDTA143FCA-7	SOT-23	3000/Tape & Reel
DDTA143ZCA-7	SOT-23	3000/Tape & Reel
DDTA114YCA-7	SOT-23	3000/Tape & Reel
DDTA114WCA-7	SOT-23	3000/Tape & Reel
DDTA124XCA-7	SOT-23	3000/Tape & Reel
DDTA144VCA-7	SOT-23	3000/Tape & Reel
DDTA144WCA-7	SOT-23	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 - DDTA123JCA

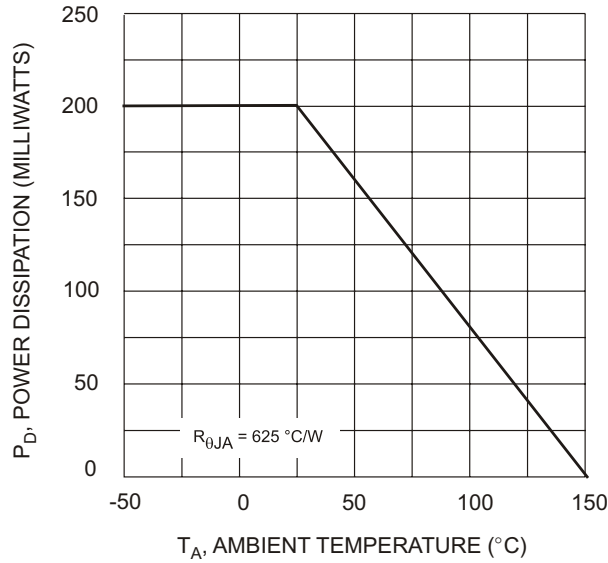


Fig. 1 Derating Curve

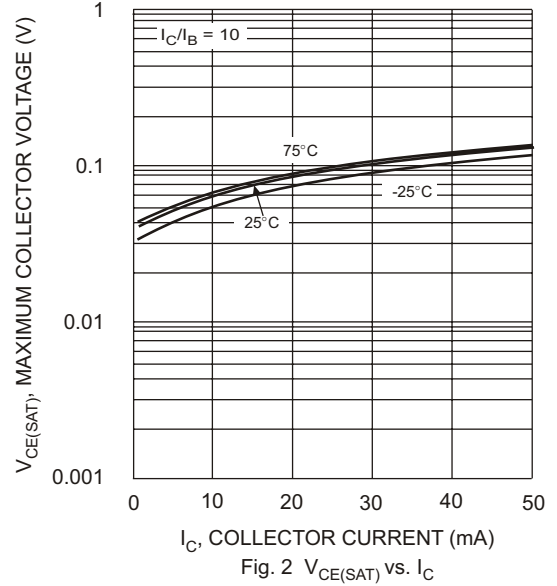


Fig. 2 $V_{CE(SAT)}$ vs. I_C

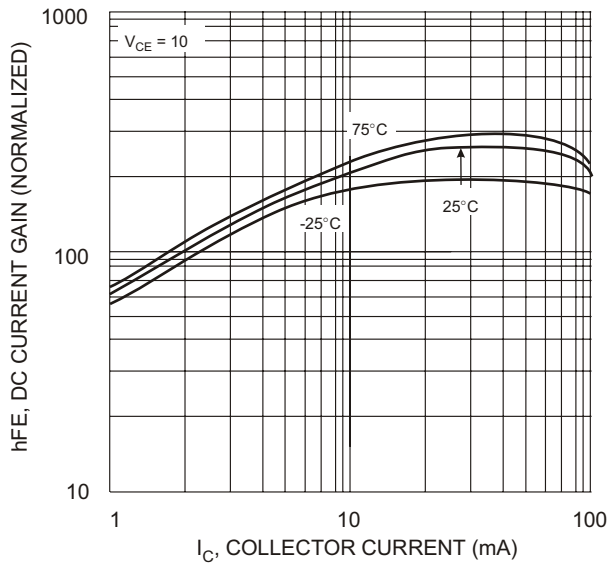


Fig. 3 DC CURRENT GAIN

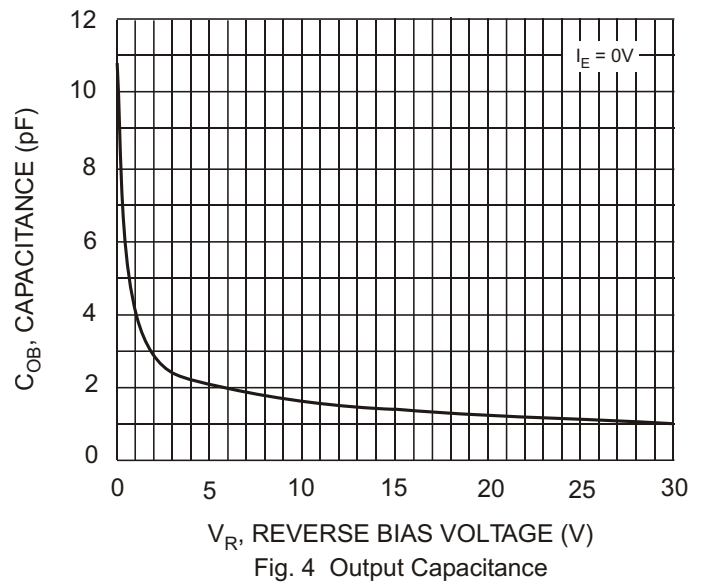


Fig. 4 Output Capacitance

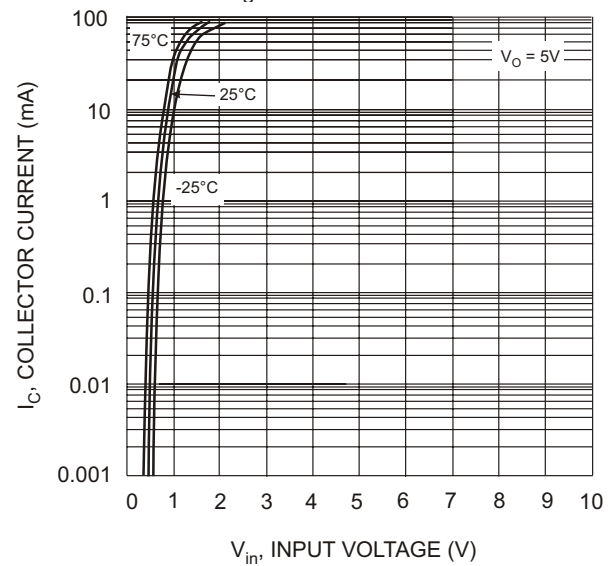


Fig. 5 Collector Current Vs. Input Voltage

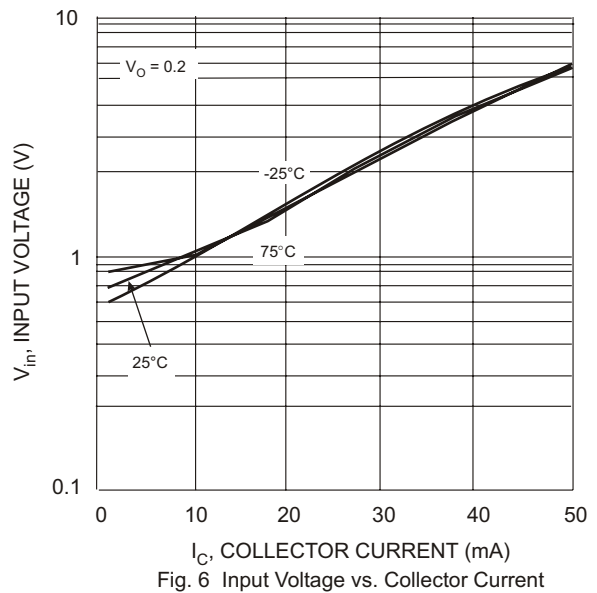


Fig. 6 Input Voltage vs. Collector Current