NEW PRODUCT

DDTA (R1≠R2 SERIES) UA

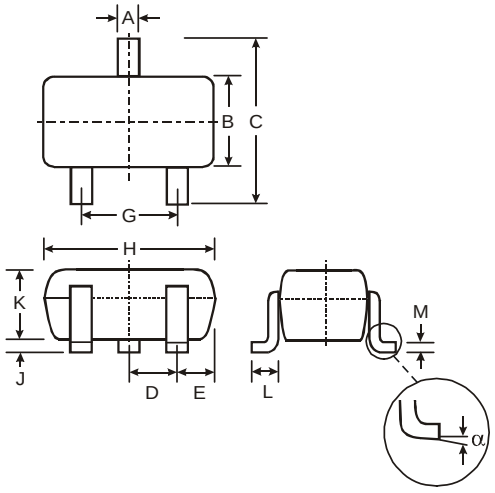
PNP PRE-BIASED SMALL SIGNAL SURFACE MOUNT TRANSISTOR

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 & 3)**

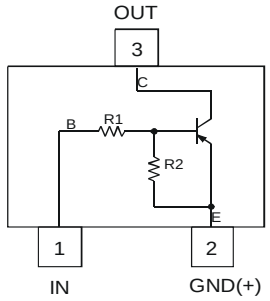
Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 3. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking Information: See Page 4
- Type Code: See Table Below
- Ordering Information: See Page 4
- Weight: 0.006 grams (approximate)

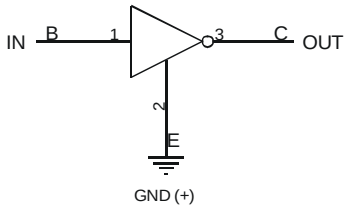


SOT-323		
Dim	**Min**	**Max**
A	0.25	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.18
α	0°	8°
All Dimensions in mm		

P/N	R1 (NOM)	R2 (NOM)	Type Code
DDTA113ZUA	1KΩ	10KΩ	P02
DDTA123YUA	2.2KΩ	10KΩ	P05
DDTA123JUA	2.2KΩ	47KΩ	P06
DDTA143XUA	4.7KΩ	10KΩ	P09
DDTA143FUA	4.7KΩ	22KΩ	P10
DDTA143ZUA	4.7KΩ	47KΩ	P11
DDTA114YUA	10KΩ	47KΩ	P14
DDTA114WUA	10KΩ	4.7KΩ	P15
DDTA124XUA	22KΩ	47KΩ	P18
DDTA144VUA	47KΩ	10KΩ	P21
DDTA144WUA	47KΩ	22KΩ	P22



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)	DDTA113ZUA	V_{IN}	+5 to -10	V
	DDTA123YUA		+5 to -12	
	DDTA123JUA		+5 to -12	
	DDTA143XUA		+7 to -20	
	DDTA143FUA		+6 to -30	
	DDTA143ZUA		+5 to -30	
	DDTA114YUA		+6 to -40	
	DDTA114WUA		+10 to -30	
	DDTA124XUA		+10 to -40	
	DDTA144VUA		+15 to -40	
	DDTA144WUA		+10 to -40	
Output Current	DDTA113ZUA	I_O	-100	mA
	DDTA123YUA		-100	
	DDTA123JUA		-100	
	DDTA143XUA		-100	
	DDTA143FUA		-100	
	DDTA143ZUA		-100	
	DDTA114YUA		-70	
	DDTA114WUA		-100	
	DDTA124XUA		-50	
	DDTA144VUA		-30	
	DDTA144WUA		-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.

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NEW PRODUCT

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

Characteristic		Symbol	Value	Unit
Output Current	All	I_C (Max)	-100	mA
Power Dissipation		P_d	200	mW
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 as shown on Diodes Inc., suggested pad layout document AP02001, which can be found on our website 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
	DDTA113ZUA	$V_{I(off)}$	-0.3	—	—	V	V_{CC} = 5V, I_O = 100μA
	DDTA123YUA		-0.3				
	DDTA123JUA		-0.5				
	DDTA143XUA		-0.3				
	DDTA143FUA		-0.3				
	DDTA143ZUA		-0.5				
	DDTA114YUA		-0.3				
	DDTA114WUA		-0.8				
	DDTA124XUA		-0.4				
	DDTA144VUA		-1.0				
	DDTA144WUA		-0.8				
Input Voltage	DDTA113ZUA	$V_{I(on)}$	—	—	-3.0		V_O = -0.3V, I_O = -20mA
	DDTA123YUA				-3.0		V_O = -0.3V, I_O = -20mA
	DDTA123JUA				-1.1		V_O = -0.3V, I_O = -5mA
	DDTA143XUA				-2.5		V_O = -0.3V, I_O = -20mA
	DDTA143FUA				-1.3		V_O = -0.3V, I_O = -3mA
	DDTA143ZUA				-1.3		V_O = -0.3V, I_O = -5mA
	DDTA114YUA				-1.4		V_O = -0.3V, I_O = -1mA
	DDTA114WUA				-3.0		V_O = -0.3V, I_O = -2mA
	DDTA124XUA				-2.5		V_O = -0.3V, I_O = -2mA
	DDTA144VUA				-5.0		V_O = -0.3V, I_O = -2mA
	DDTA144WUA				-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 DDTA123JUA I_O/I_I = -5mA/-0.25mA DDTA143ZUA I_O/I_I = -5mA/-0.25mA DDTA114YUA I_O/I_I = -10mA/-0.5mA All Others
	DDTA113ZUA	I_I	—	—	-7.2	mA	V_I = -5V
	DDTA123YUA				-3.8		
	DDTA123JUA				-3.6		
	DDTA143XUA				-1.8		
	DDTA143FUA				-1.8		
Input Current	DDTA143ZUA				-1.8		
	DDTA114YUA				-0.88		
	DDTA114WUA				-0.88		
	DDTA124XUA				-0.36		
	DDTA144VUA				-0.16		
	DDTA144WUA				-0.16		
Output Current		$I_{O(off)}$	—	—	-0.5	μA	V_{CC} = -50V, V_I = 0V
	DDTA113ZUA	G_I	-33	—	—	—	V_O = -5V, I_O = -10mA
	DDTA123YUA		-33				
	DDTA123JUA		-80				
	DDTA143XUA		-30				
	DDTA143FUA		-68				
DC Current Gain	DDTA143ZUA		-80				
	DDTA114YUA		-68				
	DDTA114WUA		-24				
	DDTA124XUA		-68				
	DDTA144VUA		-33				
	DDTA144WUA		-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

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Typical Curves – DDTA123JUA

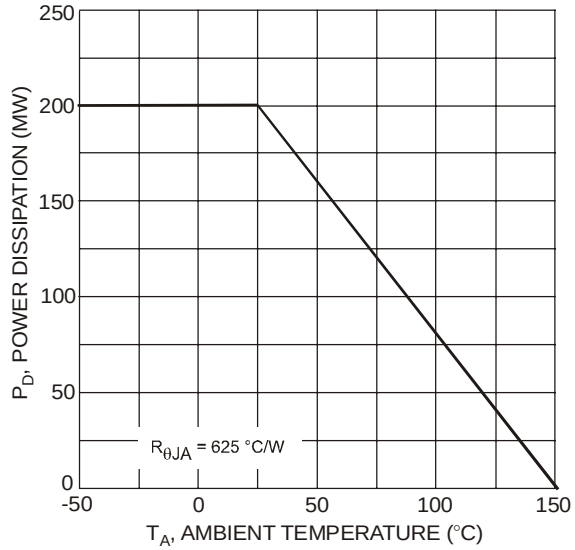

Fig. 1 Derating Curve

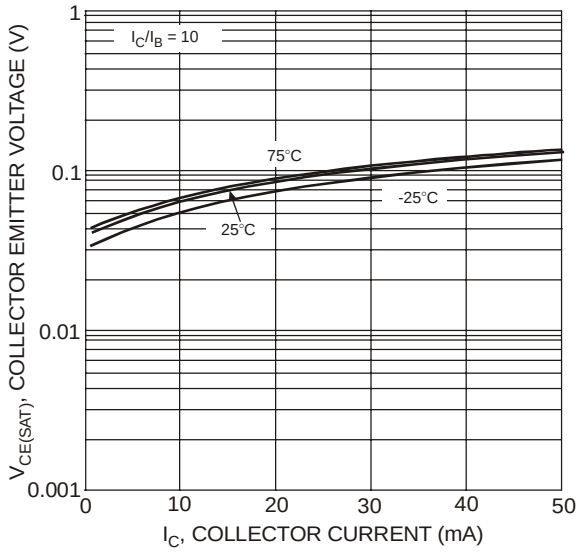

Fig. 2 $V_{CE(SAT)}$ vs. I_C

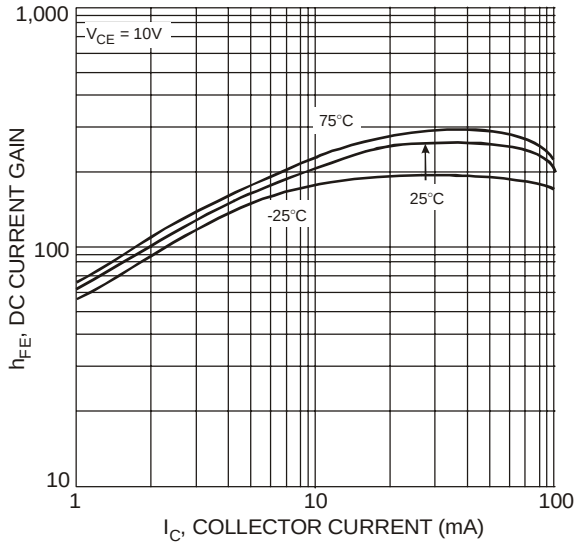

Fig. 3 DC Current Gain

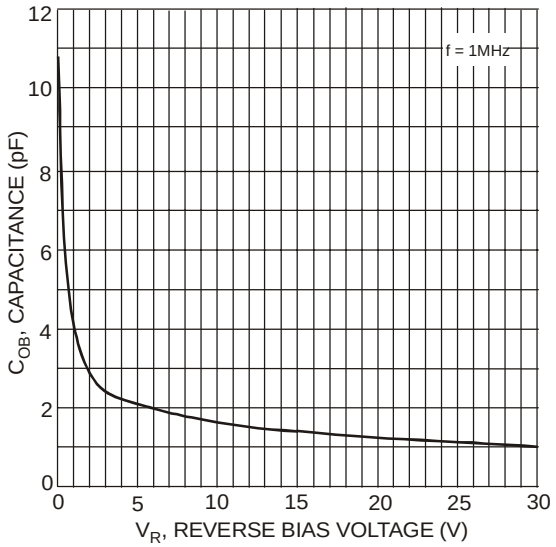

Fig. 4 Output Capacitance

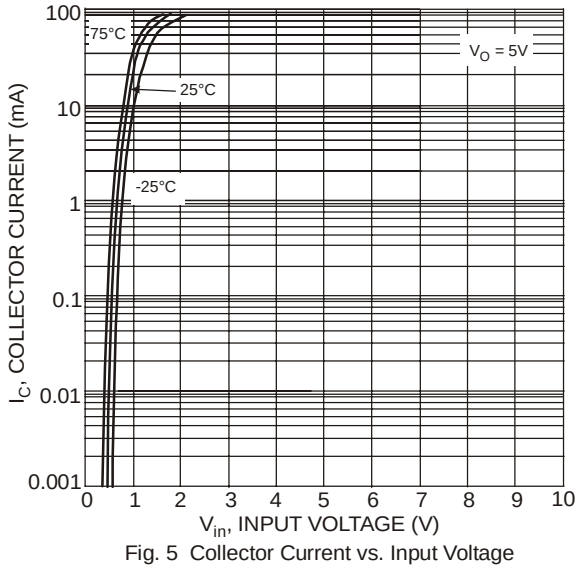

Fig. 5 Collector Current vs. Input Voltage

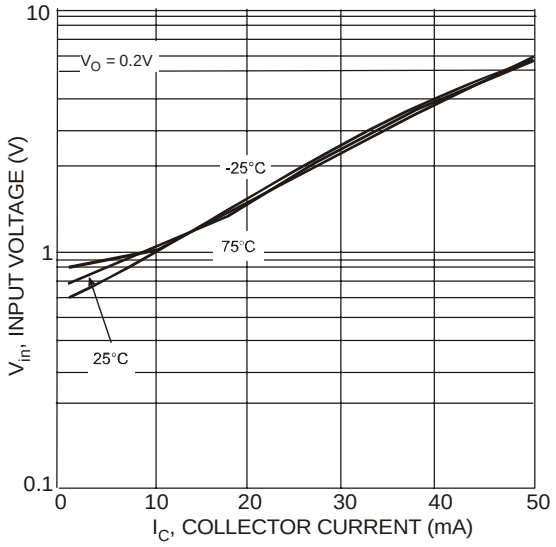

Fig. 6 Input Voltage vs. Collector Current

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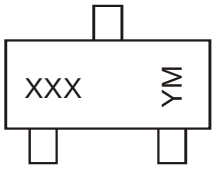
Ordering Information (Note 3 & 5)

Device	Packaging	Shipping
DDTA113ZUA-7-F	SOT-323	3000/Tape & Reel
DDTA123YUA-7-F	SOT-323	3000/Tape & Reel
DDTA123JUA-7-F	SOT-323	3000/Tape & Reel
DDTA143XUA-7-F	SOT-323	3000/Tape & Reel
DDTA143FUA-7-F	SOT-323	3000/Tape & Reel
DDTA143ZUA-7-F	SOT-323	3000/Tape & Reel
DDTA114YUA-7-F	SOT-323	3000/Tape & Reel
DDTA114WUA-7-F	SOT-323	3000/Tape & Reel
DDTA124XUA-7-F	SOT-323	3000/Tape & Reel
DDTA144VUA-7-F	SOT-323	3000/Tape & Reel
DDTA144WUA-7-F	SOT-323	3000/Tape & Reel

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

Marking Information



XXX = 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	2006	2007	2008	2009	2010	2011	2012
Code	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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Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331