DDTA (R1≠R2 SERIES) UA

PNP PRE-BIASED SMALL SIGNAL SOT-323 SURFACE MOUNT TRANSISTOR

NEW PRODUCT

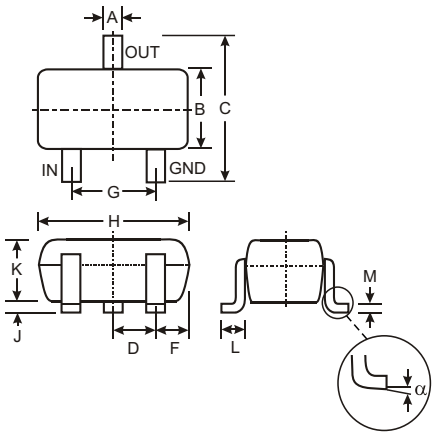
Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistors, R1≠R2
- **Available in Lead Free/RoHS Compliant Version (Note 2)**

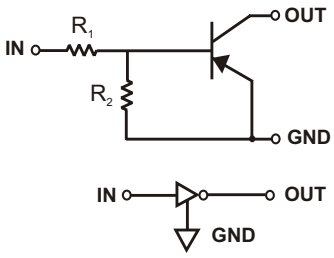
Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic. 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
- Also Available in Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe). Please see Ordering Information, Note 4, on Page 2
- Marking: Date Code and Type Code, See Page 3
- Type Code: See Table Below
- Ordering Information (See Page 2)
- Weight: 0.006 grams (approximate)

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



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		



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)	DDTA113ZUA DDTA123YUA DDTA123JUA DDTA143XUA DDTA143FUA DDTA143ZUA DDTA114YUA DDTA114WUA DDTA124XUA DDTA144VUA DDTA144WUA	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	DDTA113ZUA DDTA123YUA DDTA123JUA DDTA143XUA DDTA143FUA DDTA143ZUA DDTA114YUA DDTA114WUA DDTA124XUA DDTA144VUA DDTA144WUA	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.
2. No purposefully added lead.

Electrical Characteristics @ $T_A = 25°C$ unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDTA113ZUA DDTA123YUA DDTA123JUA DDTA143XUA DDTA143FUA DDTA143ZUA DDTA114YUA DDTA114WUA DDTA124XUA DDTA144VUA DDTA144WUA	$V_{I(off)}$	-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
	DDTA113ZUA DDTA123YUA DDTA123JUA DDTA143XUA DDTA143FUA DDTA143ZUA DDTA114YUA DDTA114WUA DDTA124XUA DDTA144VUA DDTA144WUA	$V_{I(on)}$	—	—	-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 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
Input Current	DDTA113ZUA DDTA123YUA DDTA123JUA DDTA143XUA DDTA143FUA DDTA143ZUA DDTA114YUA DDTA114WUA DDTA124XUA DDTA144VUA DDTA144WUA	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	DDTA113ZUA DDTA123YUA DDTA123JUA DDTA143XUA DDTA143FUA DDTA143ZUA DDTA114YUA DDTA114WUA DDTA124XUA DDTA144VUA DDTA144WUA	G_I	-33 -33 -80 -30 -68 -80 -68 -24 -68 -33 -56	—	—	—	V_O = -5V, I_O = -10mA
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

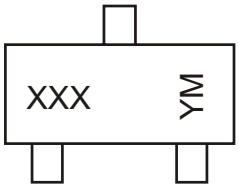
Ordering Information (Note 3)

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

Notes: 3. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.
4. For Lead Free/RoHS Compliant version part number, please add "-F" suffix to the part number above. Example: DDTA144WUA-7-F.

NEW PRODUCT

Marking Information



XXX = Product Type Marking Code, See Table on Page 1
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 - DDTA123JUA

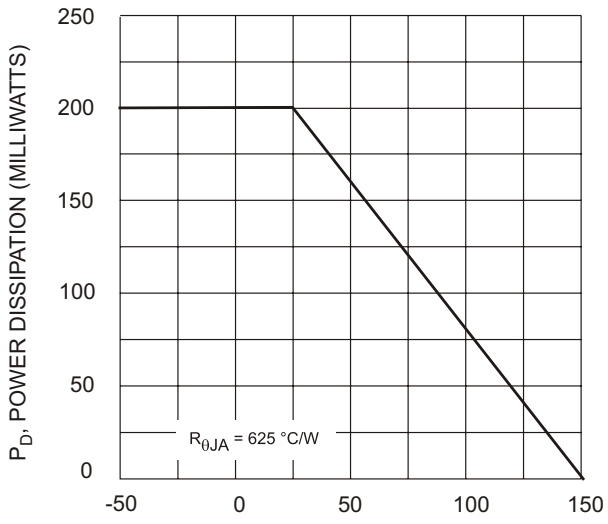


Fig. 1 Derating Curve

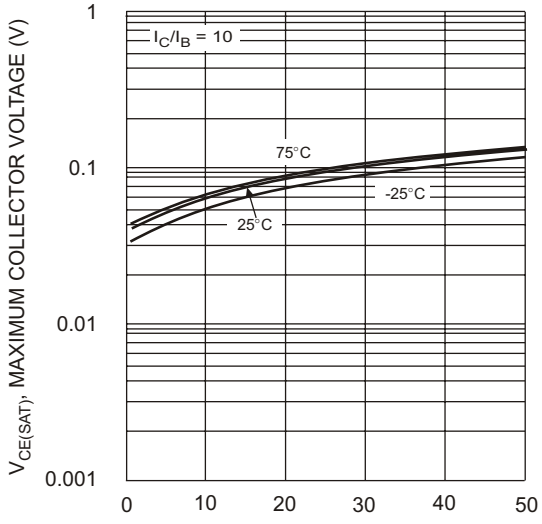


Fig. 2 $V_{CE(SAT)}$ vs. I_C

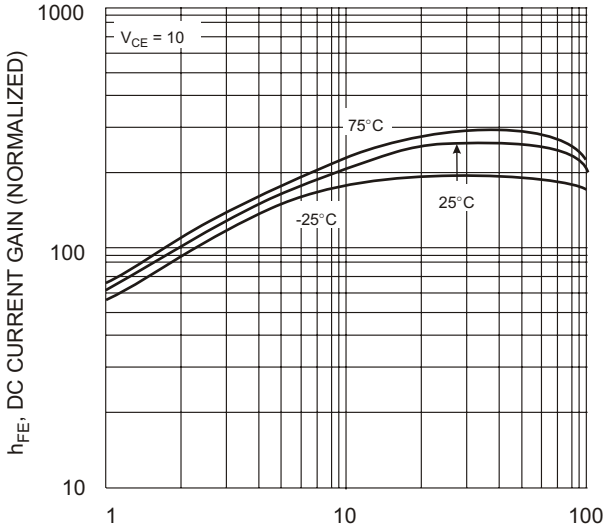


Fig. 3 DC CURRENT GAIN

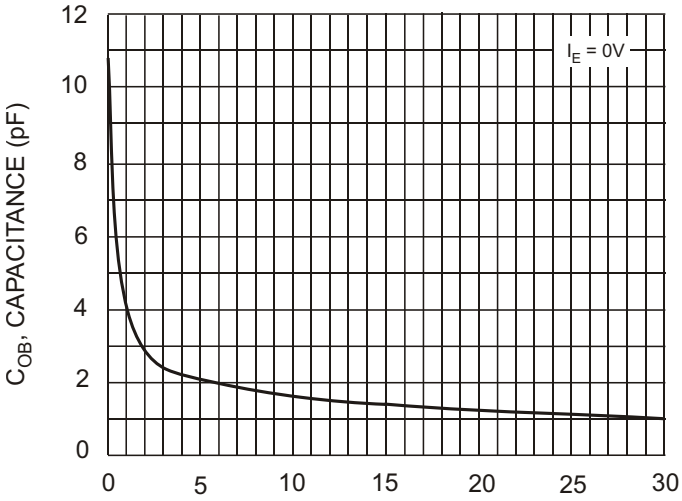


Fig. 4 Output Capacitance

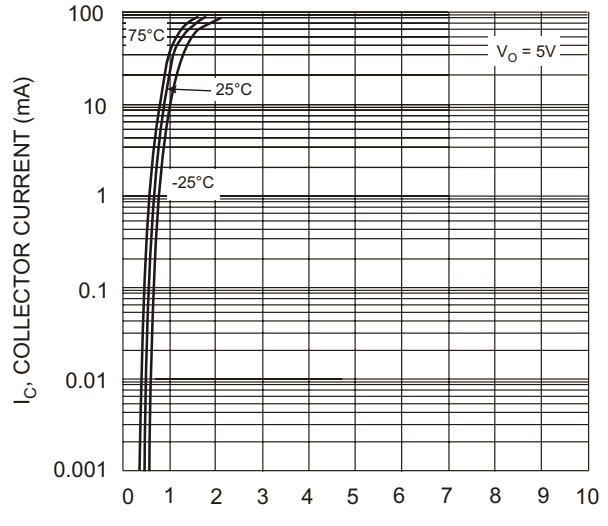


Fig. 5 Collector Current Vs. Input Voltage

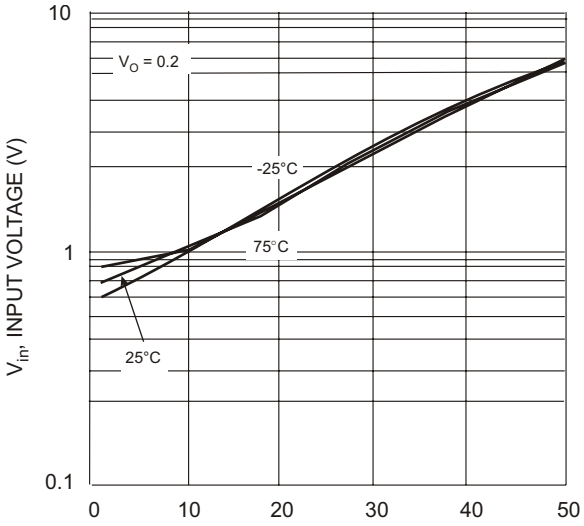


Fig. 6 Input Voltage vs. Collector Current