DDTA (R1-ONLY SERIES) UA

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

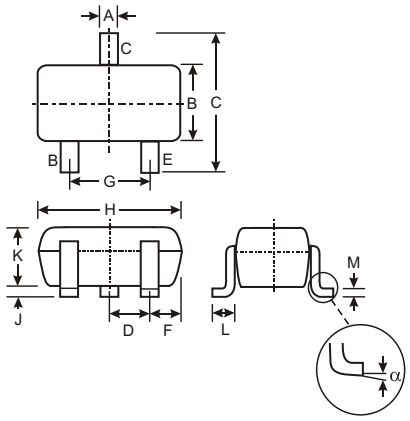
NEW PRODUCT

Features

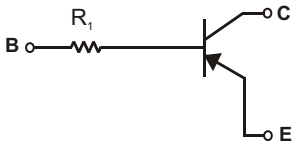
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R1 only
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device, Note 3 and 4**

Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. 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: Date Code and Type Code, See Page 2
- Type Code: See Table Below
- Ordering Information (See Page 2)
- 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
	0	8
All Dimensions in mm		



SCHEMATIC DIAGRAM

P/N	R1 (NOM)	Type Code
DDTA113TUA	1K	P01
DDTA123TUA	2.2K	P03
DDTA143TUA	4.7K	P07
DDTA114TUA	10K	P12
DDTA124TUA	22K	P16
DDTA144TUA	47K	P19
DDTA115TUA	100K	P23
DDTA125TUA	200K	P25

Maximum Ratings @ T_A = 25 C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C (Max)	-100	mA
Power Dissipation	P_d	200	mW
Thermal Resistance, Junction to Ambient Air (Note 1)	R_{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.
3. Diodes Inc.'s "Green" Policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
4. Product manufactured with date code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to date code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

NEW PRODUCT

Electrical Characteristics @ T_A = 25 C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-50			V	I_C = -50 A
Collector-Emitter Breakdown Voltage	BV_{CEO}	-50			V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5			V	I_E = -50 A
Collector Cutoff Current	I_{CBO}			-0.5	A	V_{CB} = -50V
Emitter Cutoff Current	I_{EBO}			-0.5	A	V_{EB} = -4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.3	V	I_C/I_B = -10mA/-1mA DDTA113TUA I_C/I_B = -5mA/-0.5mA DDTA123TUA I_C/I_B = -2.5mA/-.25mA DDTA143TUA I_C/I_B = -1mA/-.1mA DDTA114TUA I_C/I_B = -5mA-/0.5mA DDTA124TUA I_C/I_B = -2.5mA/-.25mA DDTA144TUA I_C/I_B = -1mA/-0.1mA DDTA115TUA I_C/I_B = -.5mA/-.05mA DDTA125TUA
DC Current Transfer Ratio	h_{FE}	100	250	600		I_C = -1mA, V_{CE} = -5V
Input Resistor (R_1) Tolerance	R_1	-30		+30	%	
Gain-Bandwidth Product*	f_T		250		MHz	V_{CE} = -10V, I_E = 5mA, f = 100MHz

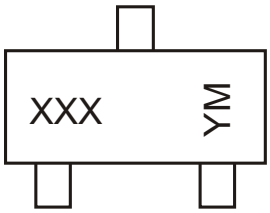
* Transistor - For Reference Only

Ordering Information (Note 4 & 5)

Device	Packaging	Shipping
DDTA113TUA-7-F	SOT-323	3000/Tape & Reel
DDTA123TUA-7-F	SOT-323	3000/Tape & Reel
DDTA143TUA-7-F	SOT-323	3000/Tape & Reel
DDTA114TUA-7-F	SOT-323	3000/Tape & Reel
DDTA124TUA-7-F	SOT-323	3000/Tape & Reel
DDTA144TUA-7-F	SOT-323	3000/Tape & Reel
DDTA115TUA-7-F	SOT-323	3000/Tape & Reel
DDTA125TUA-7-F	SOT-323	3000/Tape & Reel

Notes: 4. Product manufactured with date code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to date code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
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: 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 - DDTA114TUA

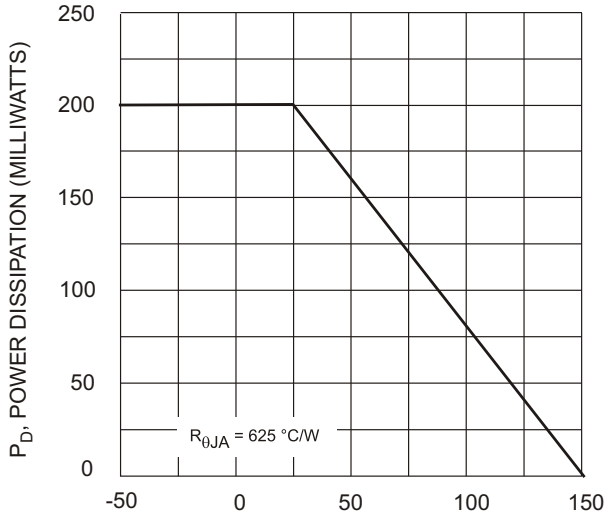


Fig. 1 Derating Curve

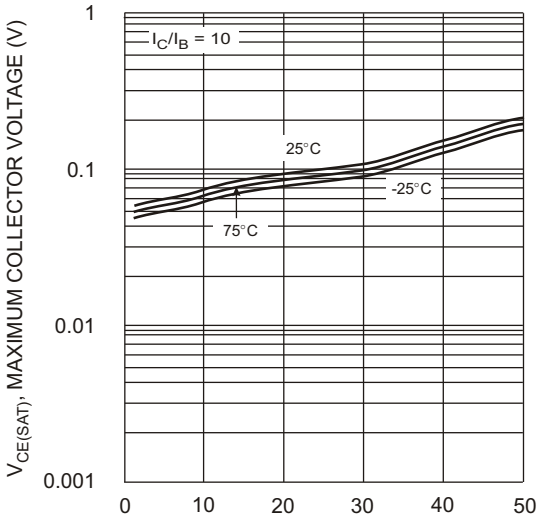


Fig. 2 $V_{CE(SAT)}$ vs. I_C

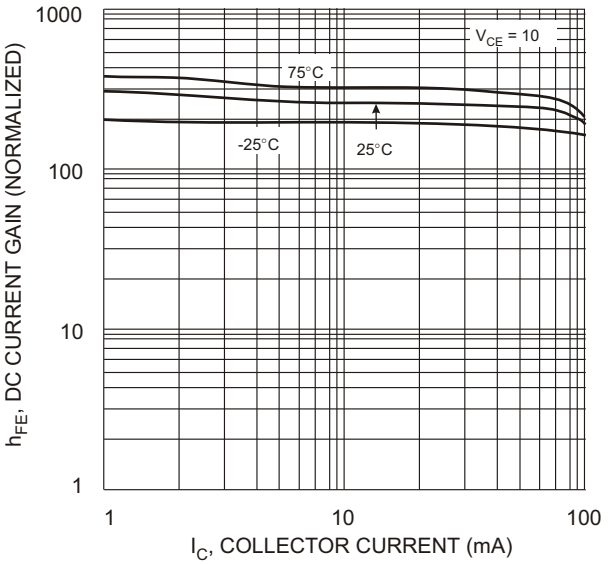


Fig. 3 DC Current Gain

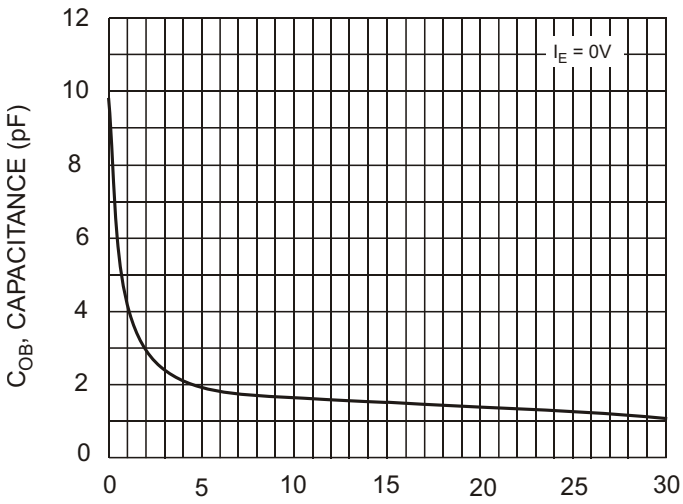


Fig. 4 Output Capacitance

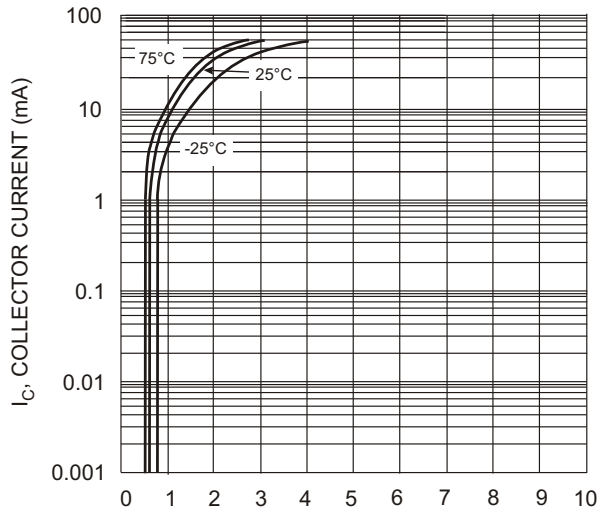


Fig. 5 Collector Current Vs. Input Voltage

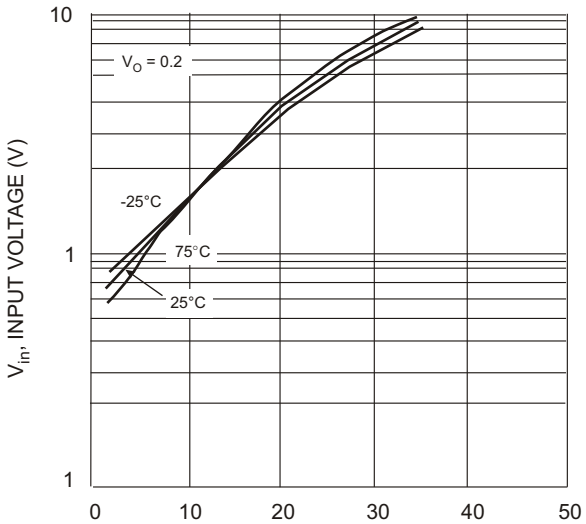


Fig. 6 Input Voltage vs. Collector Current

NEW PRODUCT

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