

# DDTA (R2-ONLY SERIES) UA

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

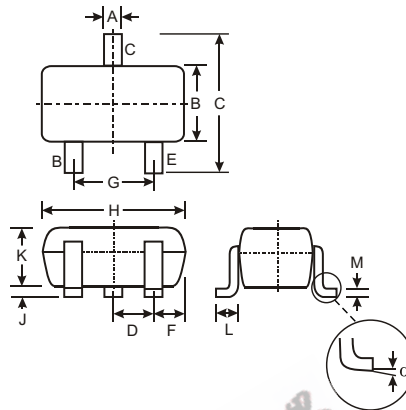
NEW PRODUCT

## Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R2 only
- Lead Free/RoHS Compliant (Note 2)**
- "Green" Device, Note 3 and 4**

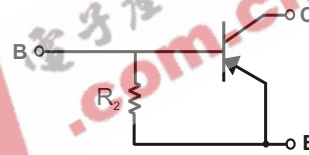
## Mechanical Data

- 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		

P/N	R2 (NOM)	Type Code
DDTA114GUA	10K	P26
DDTA124GUA	22K	P27
DDTA144GUA	47K	P28
DDTA115GUA	100K	P29



SCHEMATIC DIAGRAM

## Maximum Ratings @ T<sub>A</sub> = 25 C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-50	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5	V
Collector Current	I <sub>C</sub> (Max)	-100	mA
Power Dissipation	P <sub>d</sub>	200	mW
Thermal Resistance, Junction to Ambient Air (Note 1)	R <sub>JA</sub>	625	C/W
Operating and Storage and Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-55 to +150	C

- Note:
- Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
  - No purposefully added lead.
  - Diodes Inc.'s "Green" Policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  - 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 Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.

**Electrical Characteristics** @ T<sub>A</sub> = 25 C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV <sub>CBO</sub>	-50			V	I <sub>C</sub> = -50 A
Collector-Emitter Breakdown Voltage		BV <sub>CEO</sub>	-50			V	I <sub>C</sub> = -1mA
Emitter-Base Breakdown Voltage		BV <sub>EBO</sub>	5			V	I <sub>E</sub> = -720 A, DDTA114GUA I <sub>E</sub> = -330 A, DDTA124GUA I <sub>E</sub> = -160 A, DDTA144GUA I <sub>E</sub> = -72 A, DDTA115GUA
Collector Cutoff Current		I <sub>CBO</sub>			-0.5	A	V <sub>CB</sub> = -50V
Emitter Cutoff Current	DDTA114GUA DDTA124GUA DDTA144GUA DDTA115GUA	I <sub>EBO</sub>	-300 -140 -65 -30		-580 -260 -130 -58	A	V <sub>EB</sub> = -4V
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub>			-0.3	V	I <sub>C</sub> = -10mA, I <sub>B</sub> = -0.5mA
DC Current Transfer Ratio	DDTA114GUA DDTA124GUA DDTA144GUA DDTA115GUA	h <sub>FE</sub>	30 56 68 82				I <sub>C</sub> = -5mA, V <sub>CE</sub> = -5V
Bleeder Resistor (R <sub>2</sub> ) Tolerance		R <sub>2</sub>	-30		+30	%	
Gain-Bandwidth Product*		f <sub>T</sub>		250		MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> = 5mA, f = 100MHz

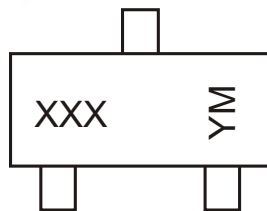
\* Transistor - For Reference Only

**Ordering Information** (Note 4 & 5)

Device	Packaging	Shipping
DDTA114GUA-7-F	SOT-323	3000/Tape & Reel
DDTA124GUA-7-F	SOT-323	3000/Tape & Reel
DDTA144GUA-7-F	SOT-323	3000/Tape & Reel
DDTA115GUA-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

**TYPICAL CURVES - DDTA114GUA**

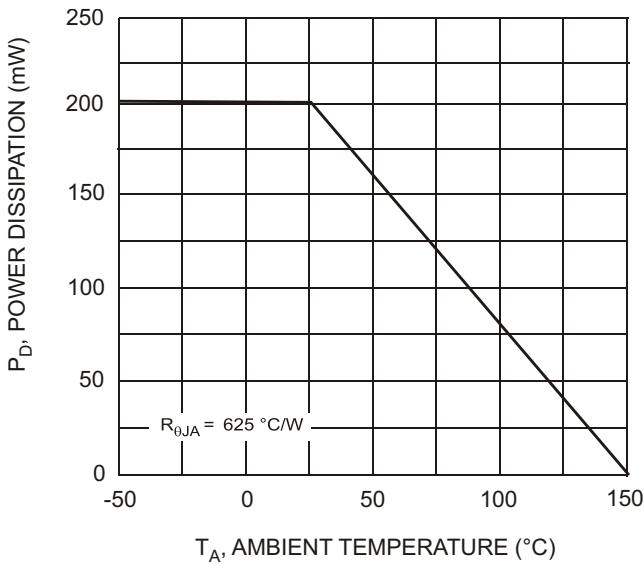


Fig. 1, Derating Curve

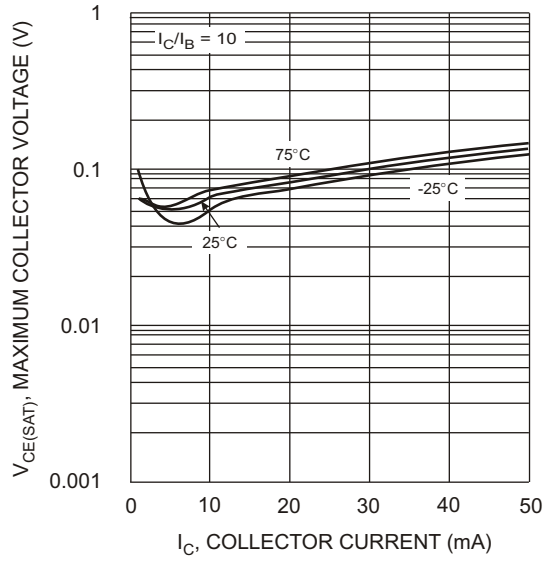


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

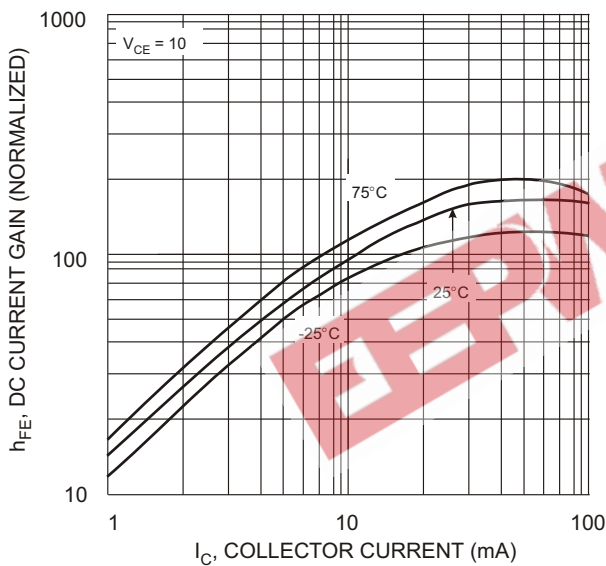


Fig. 3 DC CURRENT GAIN

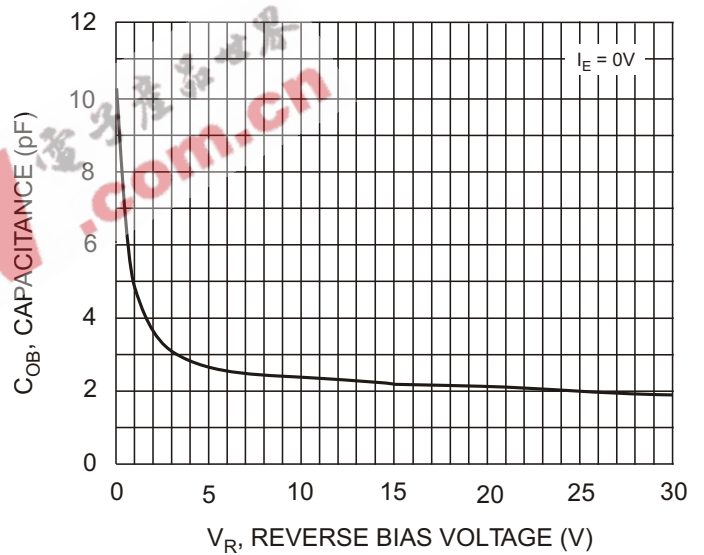


Fig. 4 Output Capacitance

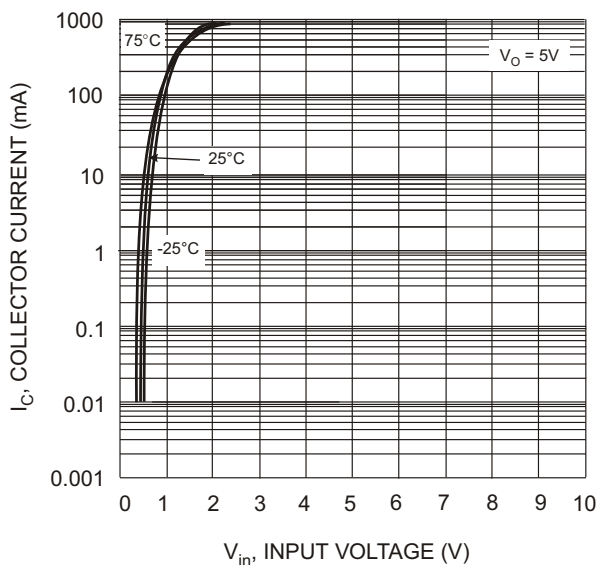


Fig. 5 Collector Current Vs. Input Voltage

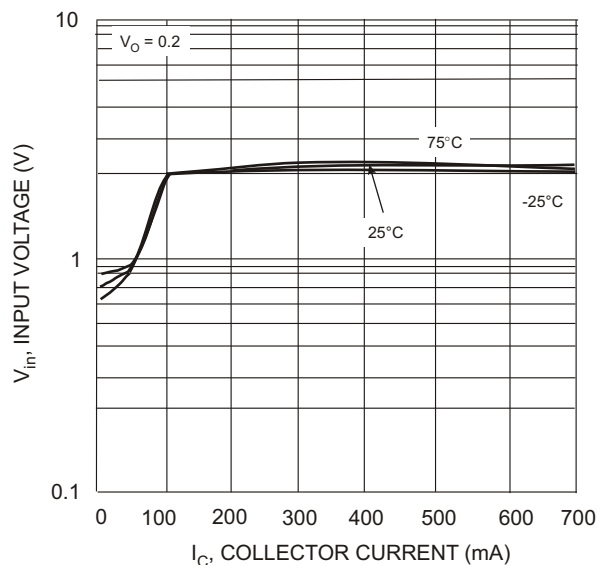


Fig. 6 Input Voltage vs. Collector Current

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