

# DDTA (R2-ONLY SERIES) UA

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

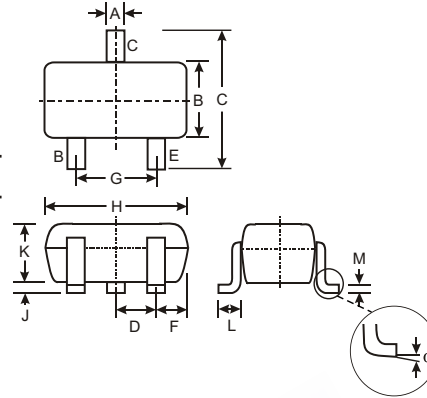
NEW PRODUCT

## Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R2 only

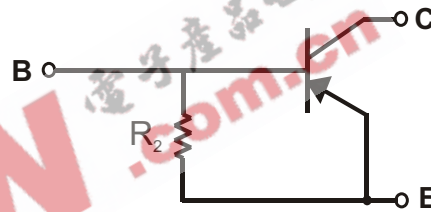
## Mechanical Data

- Case: SOT-323, 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 2)
- Weight: 0.006 grams (approx.)
- Ordering Information (See Page 2)



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)	MARKING
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: 1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.

## Electrical Characteristics @ $T_A = 25\text{ C}$ unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		$BV_{CBO}$	-50			V	$I_C = -50\text{ A}$
Collector-Emitter Breakdown Voltage		$BV_{CEO}$	-50			V	$I_C = -1\text{ mA}$
Emitter-Base Breakdown Voltage		$BV_{EBO}$	5			V	$I_E = -720\text{ A}$ , DDTA114GUA $I_E = -330\text{ A}$ , DDTA124GUA $I_E = -160\text{ A}$ , DDTA144GUA $I_E = -72\text{ A}$ , DDTA115GUA
Collector Cutoff Current		$I_{CBO}$			-0.5	A	$V_{CB} = -50\text{ V}$
Emitter Cutoff Current	DDTA114GUA DDTA124GUA DDTA144GUA DDTA115GUA	$I_{EBO}$	-300 -140 -65 -30		-580 -260 -130 -58	A	$V_{EB} = -4\text{ V}$
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			-0.3	V	$I_C = -10\text{ mA}$ , $I_B = -0.5\text{ mA}$
DC Current Transfer Ratio	DDTA114GUA DDTA124GUA DDTA144GUA DDTA115GUA	$h_{FE}$	30 56 68 82				$I_C = -5\text{ mA}$ , $V_{CE} = -5\text{ V}$
Bleeder Resistor ( $R_2$ ) Tolerance		$DR_2$	-30		+30	%	
Gain-Bandwidth Product*		$f_T$		250		MHz	$V_{CE} = -10\text{ V}$ , $I_E = 5\text{ mA}$ , $f = 100\text{ MHz}$

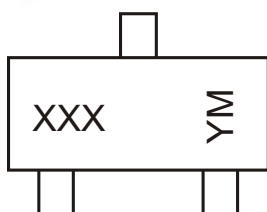
\* Transistor - For Reference Only

## Ordering Information (Note 2)

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

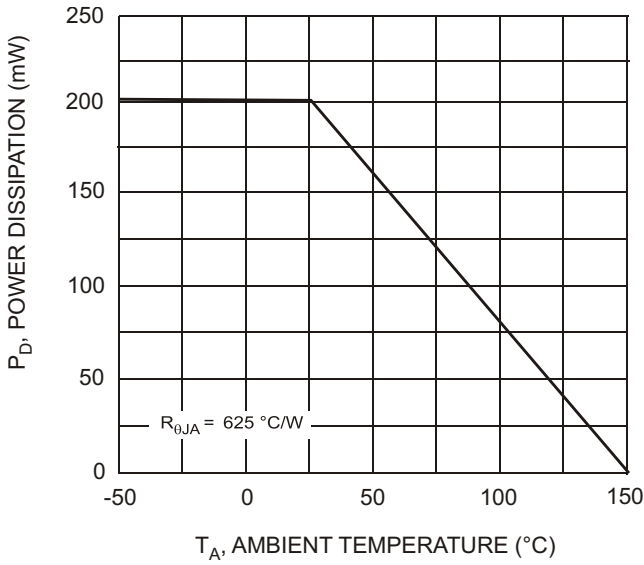


Fig. 1, Derating Curve

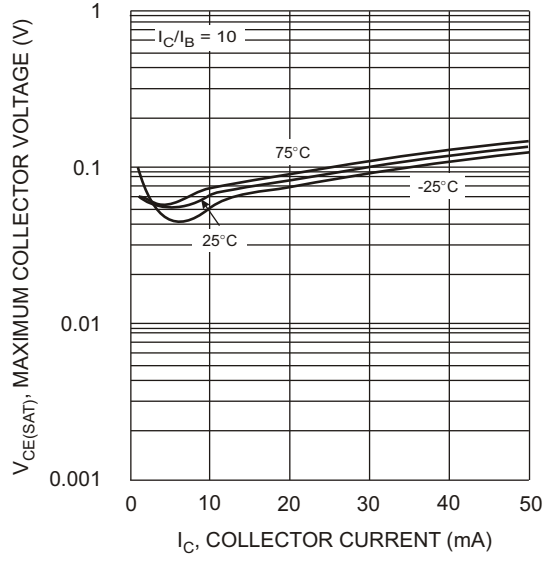


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

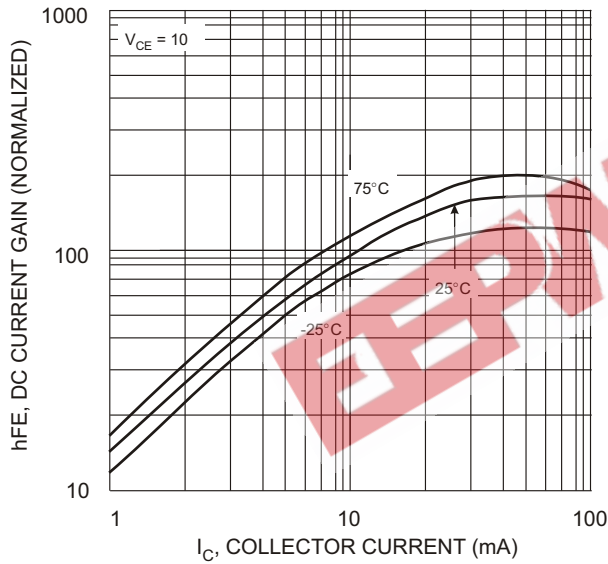


Fig. 3 DC CURRENT GAIN

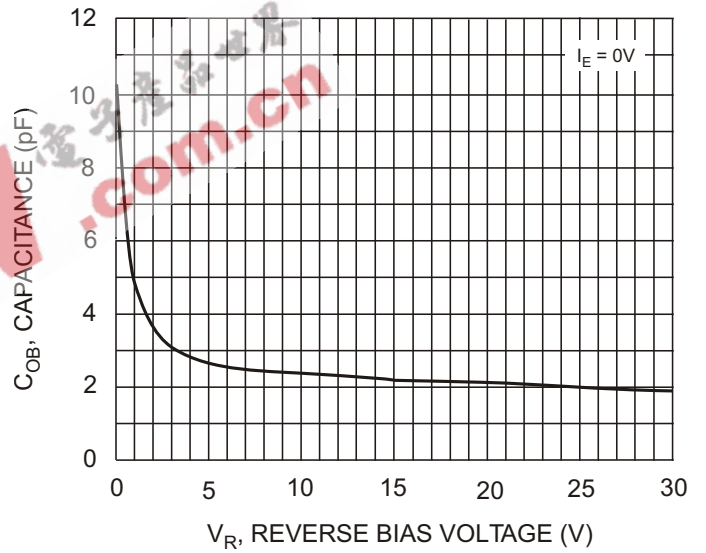


Fig. 4 Output Capacitance

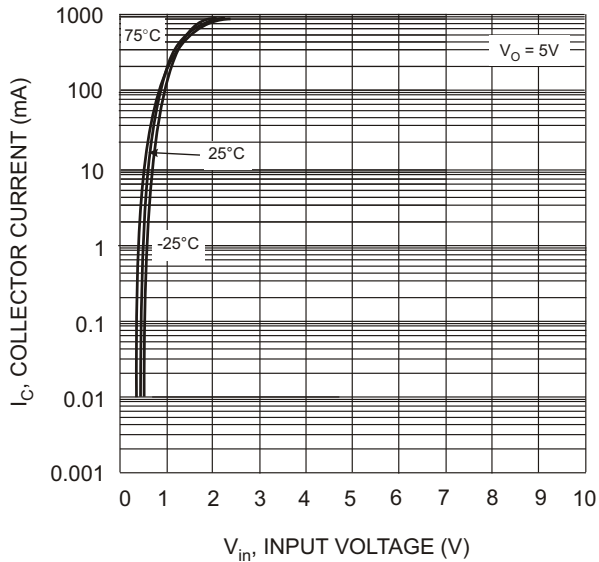


Fig. 5 Collector Current Vs. Input Voltage

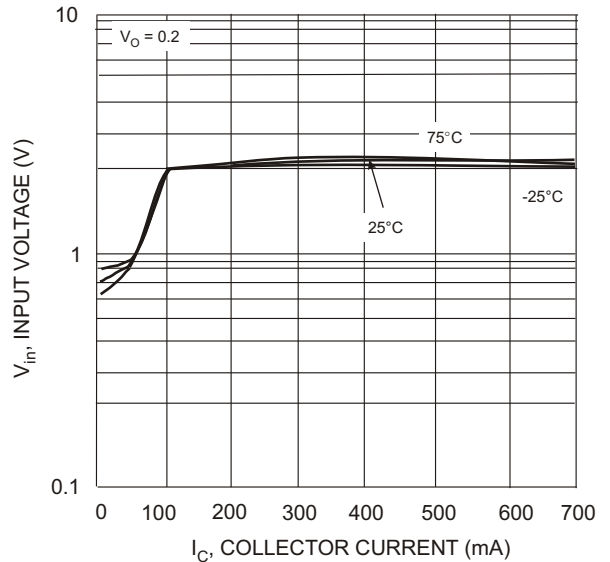


Fig. 6 Input Voltage vs. Collector Current