

# DDTA (R2-ONLY SERIES) CA

PNP PRE-BIASED SMALL SIGNAL SOT-23  
SURFACE MOUNT TRANSISTOR

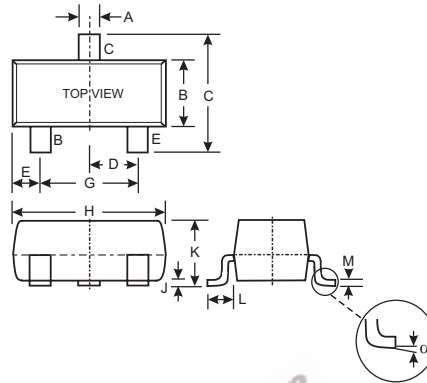
NEW PRODUCT

## Features

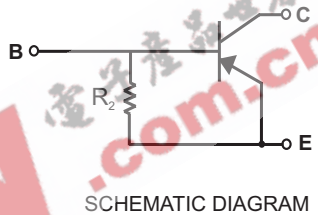
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R2 only
- **Lead Free/RoHS Compliant (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT-23
- 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
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking: Date Code and Type Code (See Table Below & Page 2)
- Ordering Information (See Page 2)
- Weight: 0.008 grams (approximate)



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
$\alpha$	0°	8°
All Dimensions in mm		



P/N	R2 (NOM)	Type Code
DDTA114GCA	10K $\Omega$	P26
DDTA124GCA	22K $\Omega$	P27
DDTA144GCA	47K $\Omega$	P28
DDTA115GCA	100K $\Omega$	P29

## 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>θJA</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>.  
2. No purposefully added lead.

**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> = -50μA
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> = -720μA, DDTA114GCA I <sub>E</sub> = -330μA, DDTA124GCA I <sub>E</sub> = -160μA, DDTA144GCA I <sub>E</sub> = -72μA, DDTA115GCA
Collector Cutoff Current		I <sub>CBO</sub>	—	—	-0.5	μA	V <sub>CB</sub> = -50V
Emitter Cutoff Current	DDTA114GCA DDTA124GCA DDTA144GCA DDTA115GCA	I <sub>EBO</sub>	-300 -140 -65 -30	—	-580 -260 -130 -58	μA	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	DDTA114GCA DDTA124GCA DDTA144GCA DDTA115GCA	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		ΔR <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

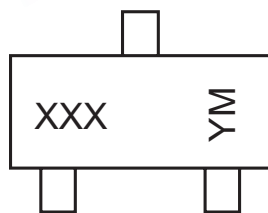
\* Transistor - For Reference Only

**Ordering Information** (Note 3)

Device	Packaging	Shipping
DDTA114GCA-7-F	SOT-23	3000/Tape & Reel
DDTA124GCA-7-F	SOT-23	3000/Tape & Reel
DDTA144GCA-7-F	SOT-23	3000/Tape & Reel
DDTA115GCA-7-F	SOT-23	3000/Tape & Reel

Notes: 3. 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 - DDTA114GCA**

**NEW PRODUCT**

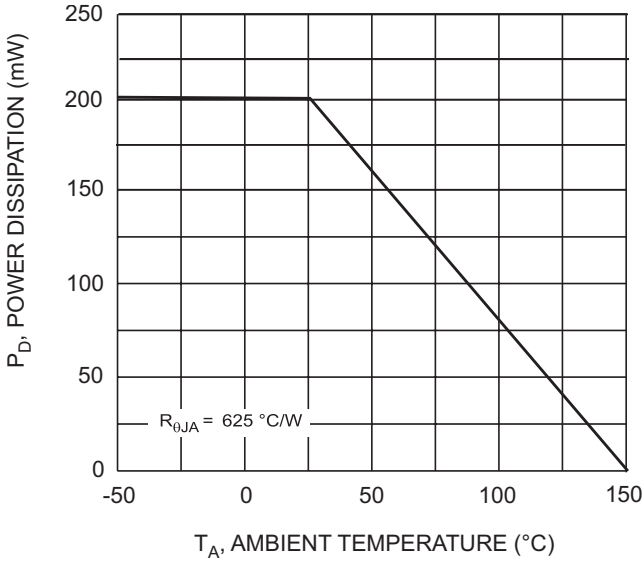


Fig. 1, Derating Curve

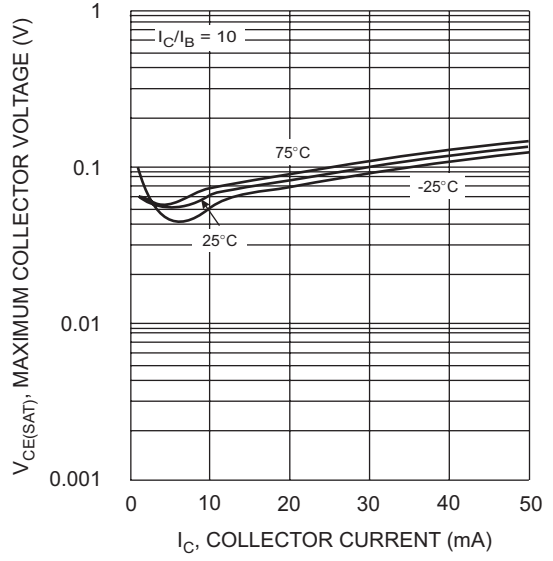


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

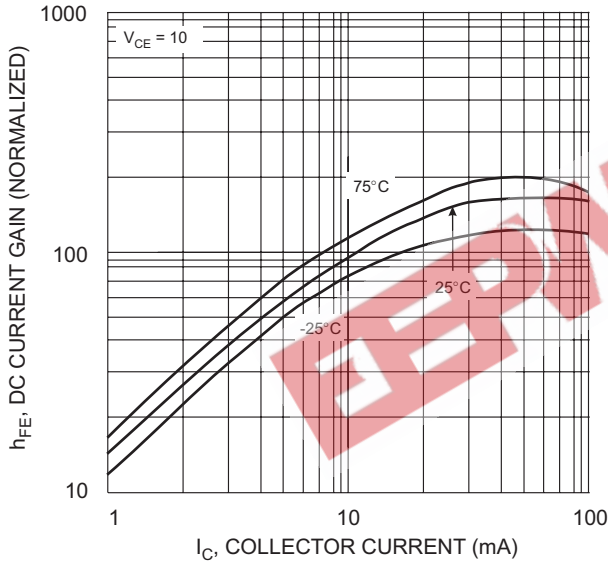


Fig. 3 DC CURRENT GAIN

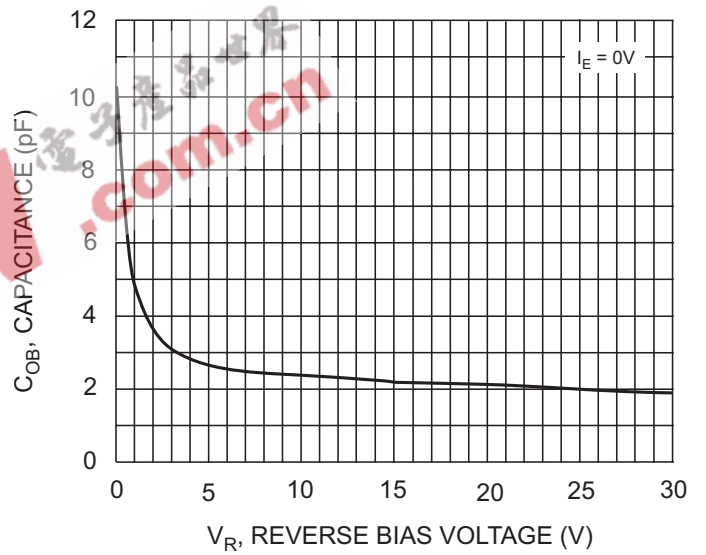


Fig. 4 Output Capacitance

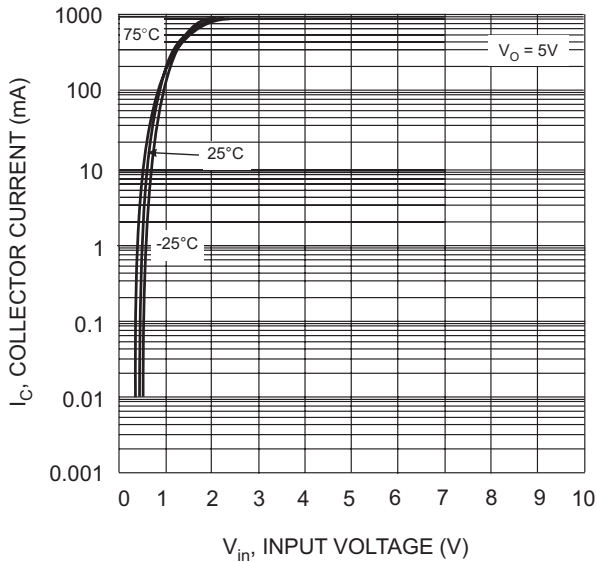


Fig. 5 Collector Current Vs. Input Voltage

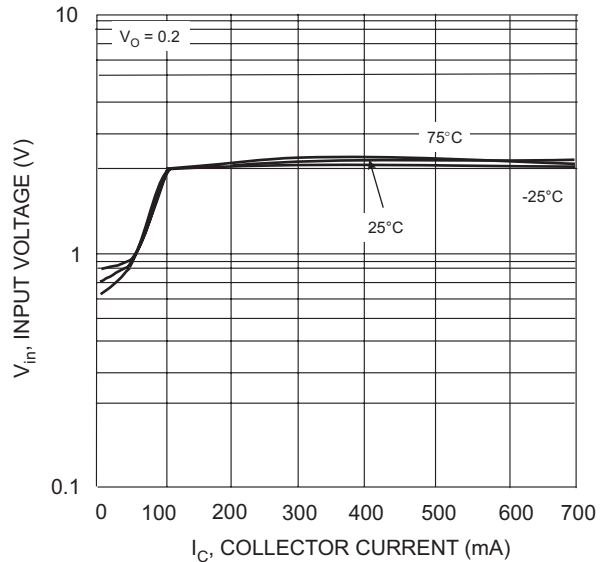


Fig. 6 Input Voltage vs. Collector Current

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