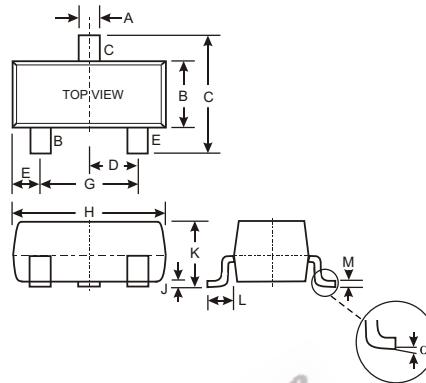


## Features

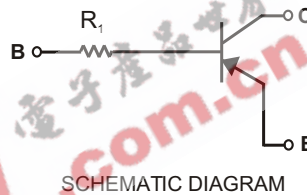
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R1 only
- Lead Free/RoHS Compliant (Note 2)

## Mechanical Data

- Case: SOT-23 Molded Plastic
- 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
	0	8
All Dimensions in mm		



P/N	R1 (NOM)	Type Code
DDTA113TCA	1K	P01
DDTA123TCA	2.2K	P03
DDTA143TCA	4.7K	P07
DDTA114TCA	10K	P12
DDTA124TCA	22K	P16
DDTA144TCA	47K	P19
DDTA115TCA	100K	P23
DDTA125TCA	200K	P25

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-50	V
Collector-Emitter Voltage	V <sub>CE0</sub>	-50	V
Emitter-Base Voltage	V <sub>EB0</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>.  
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> = -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> = -50 A
Collector Cutoff Current	I <sub>CBO</sub>			-0.5	A	V <sub>CB</sub> = -50V
Emitter Cutoff Current	I <sub>EBO</sub>			-0.5	A	V <sub>EB</sub> = -4V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>			-0.3	V	I <sub>C</sub> /I <sub>B</sub> = -10mA/-1mA DDTA113TCA I <sub>C</sub> /I <sub>B</sub> = -5mA/-0.5mA DDTA123TCA I <sub>C</sub> /I <sub>B</sub> = -2.5mA/-0.25mA DDTA143TCA I <sub>C</sub> /I <sub>B</sub> = -1mA/-0.1mA DDTA114TCA I <sub>C</sub> /I <sub>B</sub> = -5mA/-0.5mA DDTA124TCA I <sub>C</sub> /I <sub>B</sub> = -2.5mA/-0.25mA DDTA144TCA I <sub>C</sub> /I <sub>B</sub> = -1mA/-0.1mA DDTA115TCA I <sub>C</sub> /I <sub>B</sub> = -5mA/-0.5mA DDTA125TCA
DC Current Transfer Ratio	h <sub>FE</sub>	100	250	600		I <sub>C</sub> = -1mA, V <sub>CE</sub> = -5V
Input Resistor (R <sub>1</sub> ) Tolerance	R <sub>1</sub>	-30		+30	%	
Gain-Bandwidth Product*	f <sub>T</sub>		250		MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> = 5mA, f = 100MHz

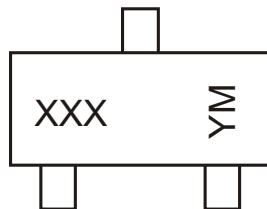
\* Transistor - For Reference Only

**Ordering Information** (Note 3)

Device	Packaging	Shipping
DDTA113TCA-7-F	SOT-23	3000/Tape & Reel
DDTA123TCA-7-F	SOT-23	3000/Tape & Reel
DDTA143TCA-7-F	SOT-23	3000/Tape & Reel
DDTA114TCA-7-F	SOT-23	3000/Tape & Reel
DDTA124TCA-7-F	SOT-23	3000/Tape & Reel
DDTA144TCA-7-F	SOT-23	3000/Tape & Reel
DDTA115TCA-7-F	SOT-23	3000/Tape & Reel
DDTA125TCA-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 - DDTA114TCA**

**NEW PRODUCT**

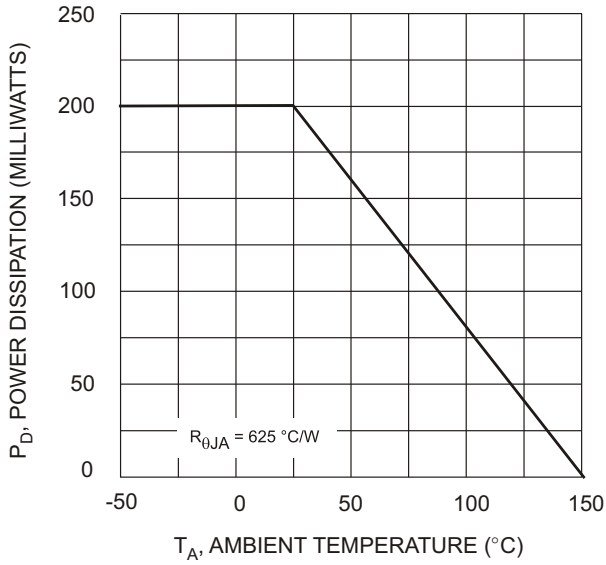


Fig. 1 Derating Curve

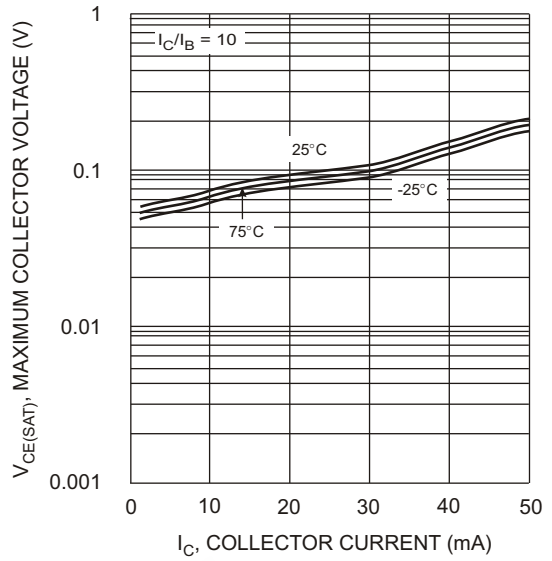


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

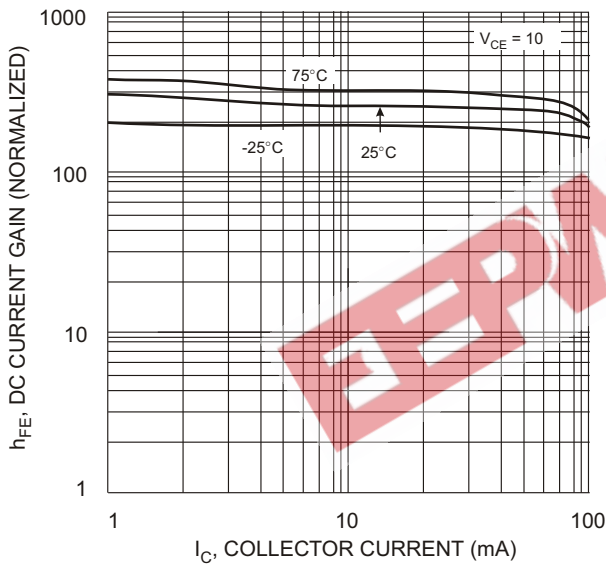


Fig. 3 DC Current Gain

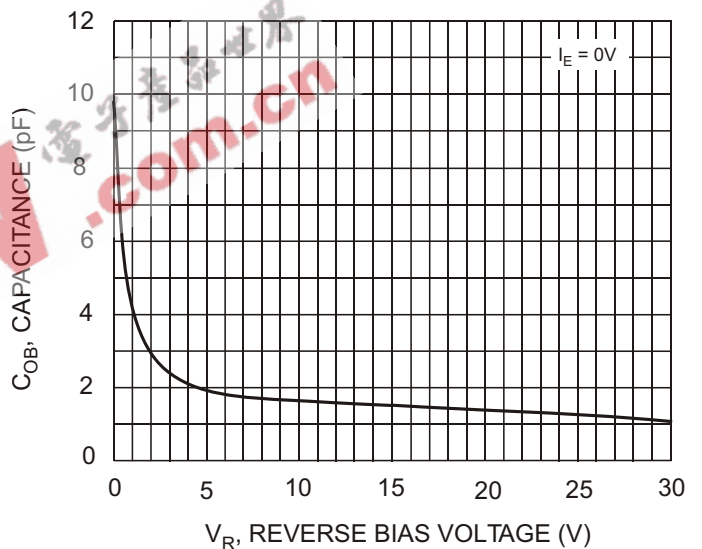


Fig. 4 Output Capacitance

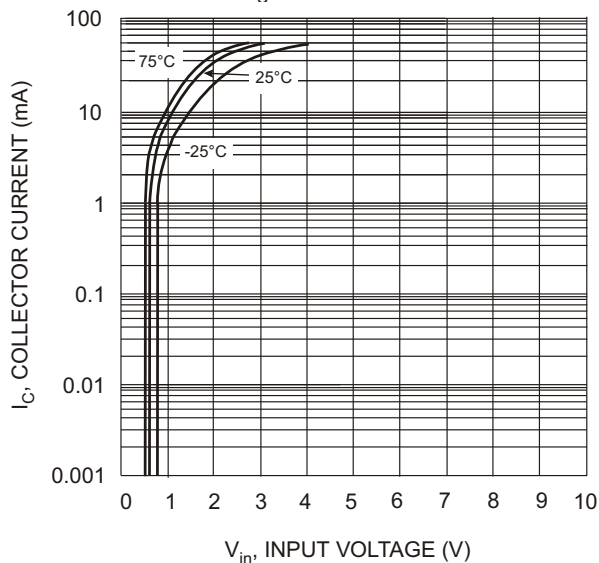


Fig. 5 Collector Current Vs. Input Voltage

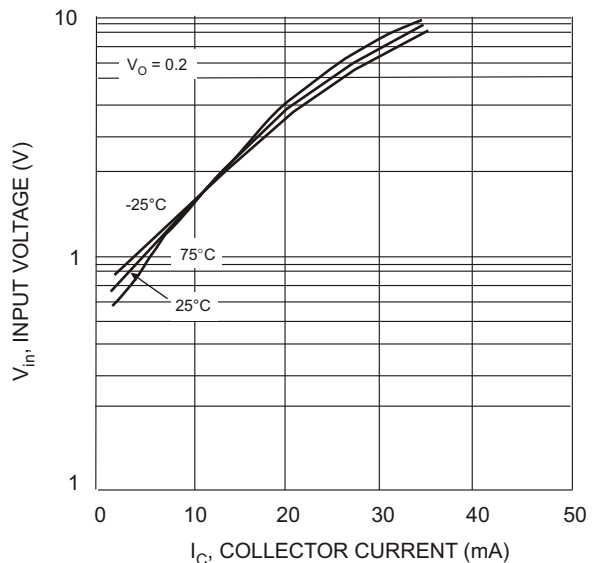


Fig. 6 Input Voltage vs. Collector Current

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