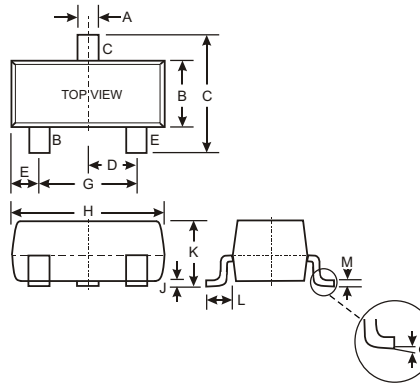


Features

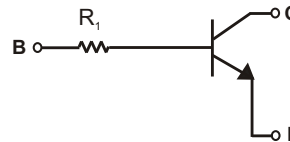
- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R1 only
- Lead Free/RoHS Compliant (Note 2)

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 Marking 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		



SCHMATIC DIAGRAM

P/N	R1 (NOM)	MARKING
DDTC113TCA	1K	N01
DDTC123TCA	2.2K	N03
DDTC143TCA	4.7K	N07
DDTC114TCA	10K	N12
DDTC124TCA	22K	N16
DDTC144TCA	47K	N19
DDTC115TCA	100K	N23
DDTC125TCA	200K	N25

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.

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

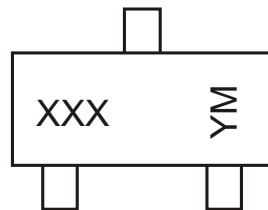
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	50			V	$I_C = 50\text{ A}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	50			V	$I_C = 1\text{ mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	5			V	$I_E = 50\text{ A}$
Collector Cutoff Current	I_{CBO}			0.5	A	$V_{CB} = 50\text{ V}$
Emitter Cutoff Current	I_{EBO}			0.5	A	$V_{EB} = 4\text{ V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.3	V	$I_C/I_B = 10\text{ mA}/1\text{ mA}$ DDTC113TCA $I_C/I_B = 5\text{ mA}/0.5\text{ mA}$ DDTC123TCA $I_C/I_B = 2.5\text{ mA}/.25\text{ mA}$ DDTC143TCA $I_C/I_B = 1\text{ mA}/.1\text{ mA}$ DDTC114TCA $I_C/I_B = 5\text{ mA}/0.5\text{ mA}$ DDTC124TCA $I_C/I_B = 2.5\text{ mA}/.25\text{ mA}$ DDTC144TCA $I_C/I_B = 1\text{ mA}/0.1\text{ mA}$ DDTC115TCA $I_C/I_B = .5\text{ mA}/.05\text{ mA}$ DDTC125TCA
DC Current Transfer Ratio	h_{FE}	100	250	600		$I_C = 1\text{ mA}, V_{CE} = 5\text{ V}$
Input Resistor (R_1) Tolerance	R_1	-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 3)

Device	Packaging	Shipping
DDTC113TCA-7-F	SOT-23	3000/Tape & Reel
DDTC123TCA-7-F	SOT-23	3000/Tape & Reel
DDTC143TCA-7-F	SOT-23	3000/Tape & Reel
DDTC114TCA-7-F	SOT-23	3000/Tape & Reel
DDTC124TCA-7-F	SOT-23	3000/Tape & Reel
DDTC144TCA-7-F	SOT-23	3000/Tape & Reel
DDTC115TCA-7-F	SOT-23	3000/Tape & Reel
DDTC125TCA-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 - DDTC114TCA

NEW PRODUCT

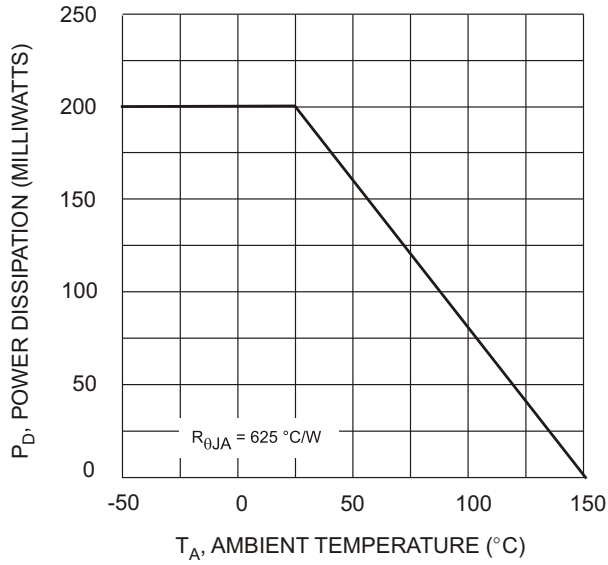


Fig. 1 Derating Curve

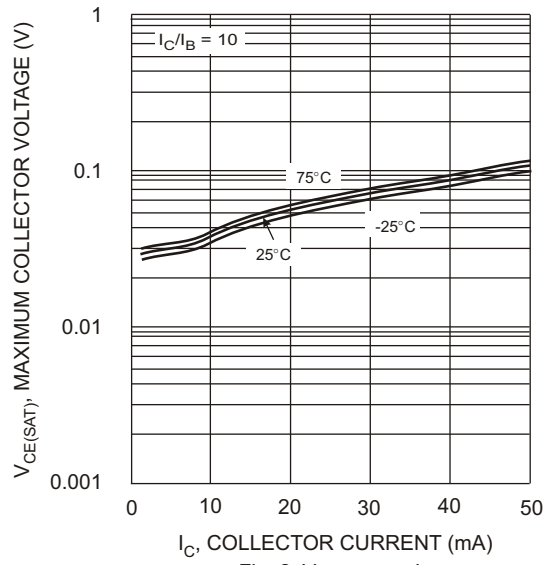


Fig. 2 $V_{CE(SAT)}$ vs. I_C

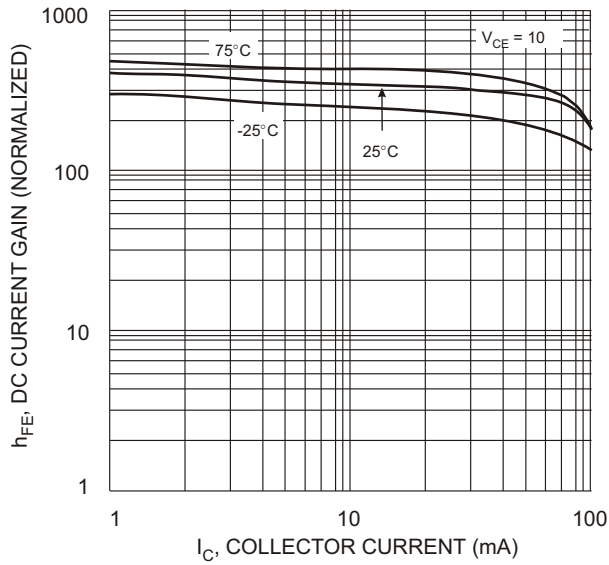


Fig. 3 DC Current Gain

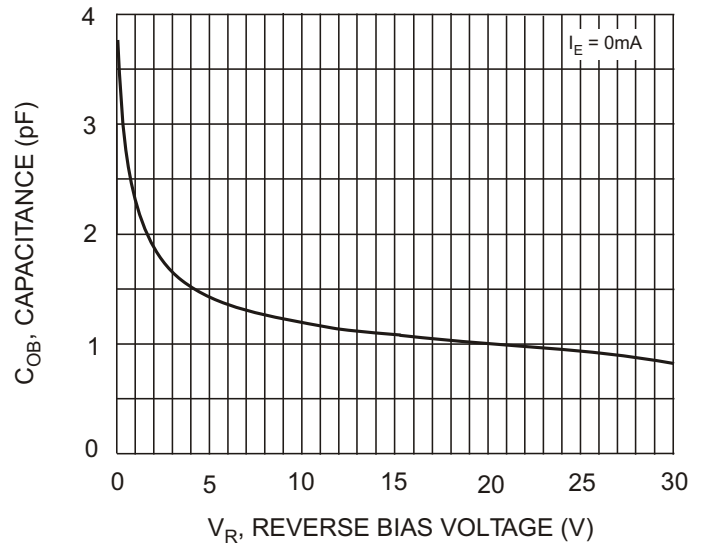


Fig. 4 Output Capacitance

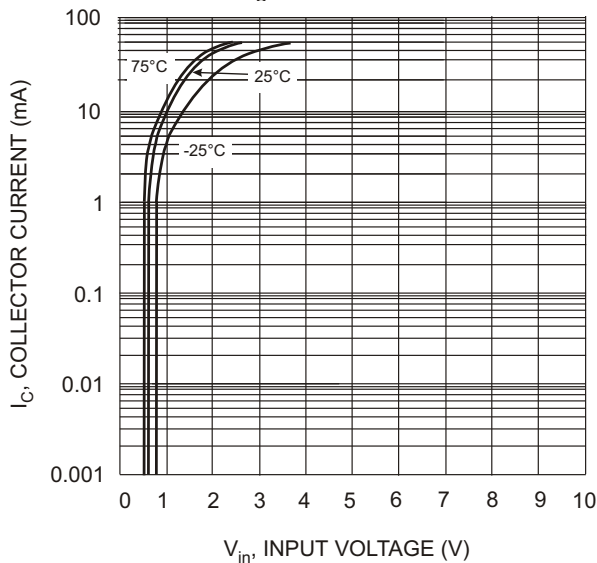


Fig. 5 Collector Current Vs. Input Voltage

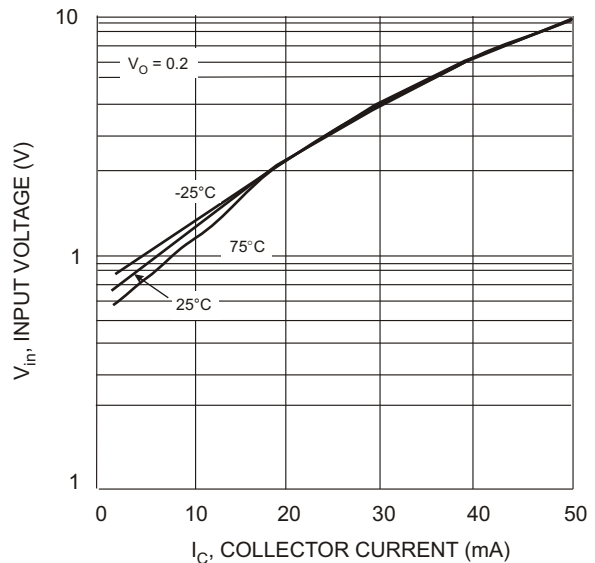


Fig. 6 Input Voltage vs. Collector Current

IMPORTANT NOTICE

Diodes, Inc. and its subsidiaries reserve the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. Diodes, Inc. does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

The products located on our website at www.diodes.com are not recommended for use in life support systems where a failure or malfunction of the component may directly threaten life or cause injury without the expressed written approval of Diodes Incorporated.