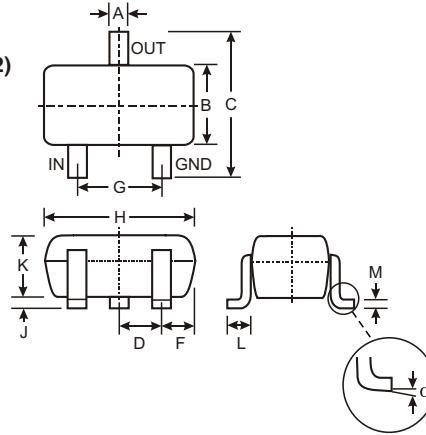


Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistors, R1≠R2
- Available in Lead Free/RoHS Compliant Version (Note 2)

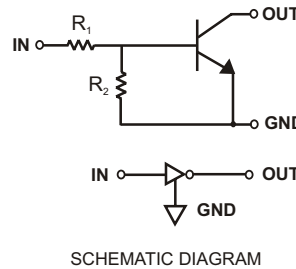
Mechanical Data

- Case: SOT-323
- 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
- Also Available in Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe). Please see Ordering Information, Note 4, on Page 2
- 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
α	0°	8°
All Dimensions in mm		

P/N	R1 (NOM)	R2 (NOM)	Type Code
DDTC113ZUA	1K Ω	10K Ω	N02
DDTC123YUA	2.2K Ω	10K Ω	N05
DDTC123JUA	2.2K Ω	47K Ω	N06
DDTC143XUA	4.7K Ω	10K Ω	N09
DDTC143FUA	4.7K Ω	22K Ω	N10
DDTC143ZUA	4.7K Ω	47K Ω	N11
DDTC114YUA	10K Ω	47K Ω	N14
DDTC114WUA	10K Ω	4.7K Ω	N15
DDTC124XUA	22K Ω	47K Ω	N18
DDTC144VUA	47K Ω	10K Ω	N21
DDTC144WUA	47K Ω	22K Ω	N22



Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage, (3) to (1)	V _{CC}	50	V
Input Voltage, (2) to (1)	V _{IN}	-5 to +10 -5 to +12 -5 to +12 -7 to +20 -6 to +30 -5 to +30 -6 to +40 -10 to +30 -10 to +40 -15 to +40 -10 to +40	V
Output Current	I _O	100 100 100 100 100 100 70 100 50 30 30	mA
Output Current	I _C (Max)	100	mA
Power Dissipation	P _d	200	mW
Thermal Resistance, Junction to Ambient Air (Note 1)	R _{θJA}	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°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDTC113ZUA DDTC123YUA DDTC123JUA DDTC143XUA DDTC143FUA DDTC143ZUA DDTC114YUA DDTC114WUA DDTC124XUA DDTC144VUA DDTC144WUA	V _{I(off)}	0.3 0.3 0.5 0.3 0.3 0.5 0.3 0.8 0.4 1.0 0.8	—	—	V	V _{CC} = 5V, I _O = 100μA
	DDTC113ZUA DDTC123YUA DDTC123JUA DDTC143XUA DDTC143FUA DDTC143ZUA DDTC114YUA DDTC114WUA DDTC124XUA DDTC144VUA DDTC144WUA		V _{I(on)}	—	—		
Output Voltage		V _{O(on)}	—	0.1	0.3	V	I _O /I _I = 5mA/0.25mA DDCT123JUA I _O /I _I = 5mA/0.25mA DDCT143ZUA I _O /I _I = 5mA/0.25mA DDCT114YUA I _O /I _I = 10mA/0.5mA All Others
Input Current	DDTC113ZUA DDTC123YUA DDTC123JUA DDTC143XUA DDTC143FUA DDTC143ZUA DDTC114YUA DDTC114WUA DDTC124XUA DDTC144VUA DDTC144WUA	I _I	—	—	7.2 3.8 3.6 1.8 1.8 1.8 0.88 0.88 0.36 0.16 0.16	mA	V _I = 5V
Output Current		I _{O(off)}	—	—	0.5	μA	V _{CC} = 50V, V _I = 0V
DC Current Gain	DDTC113ZUA DDTC123YUA DDTC123JUA DDTC143XUA DDTC143FUA DDTC143ZUA DDTC114YUA DDTC114WUA DDTC124XUA DDTC144VUA DDTC144WUA	G _I	33 33 80 30 68 80 68 24 68 33 56	—	—	—	V _O = 5V, I _O = 5mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 5mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 5mA V _O = 5V, I _O = 5mA V _O = 5V, I _O = 5mA
Input Resistor Tolerance		ΔR ₁	-30	—	+30	%	—
Resistance Ratio Tolerance		ΔR ₂ /R ₁	-20	—	+20	%	—
Gain-Bandwidth Product*		f _T	—	250	—	MHz	V _{CE} = 10V, I _E = 5mA, f = 100MHz

* Transistor - For Reference Only

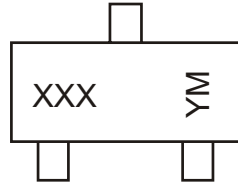
Ordering Information (Note 3)

Device	Packaging	Shipping
DDTC113ZUA-7	SOT-323	3000/Tape & Reel
DDTC123YUA-7	SOT-323	3000/Tape & Reel
DDTC123JUA-7	SOT-323	3000/Tape & Reel
DDTC143XUA-7	SOT-323	3000/Tape & Reel
DDTC143FUA-7	SOT-323	3000/Tape & Reel
DDTC143ZUA-7	SOT-323	3000/Tape & Reel
DDTC114YUA-7	SOT-323	3000/Tape & Reel
DDTC114WUA-7	SOT-323	3000/Tape & Reel
DDTC124XUA-7	SOT-323	3000/Tape & Reel
DDTC144VUA-7	SOT-323	3000/Tape & Reel
DDTC144WUA-7	SOT-323	3000/Tape & Reel

Notes: 3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

4. For Lead Free/RoHS Compliant version part number, please add "-F" suffix to the part number above. Example: DDTC144WUA-7-F.

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

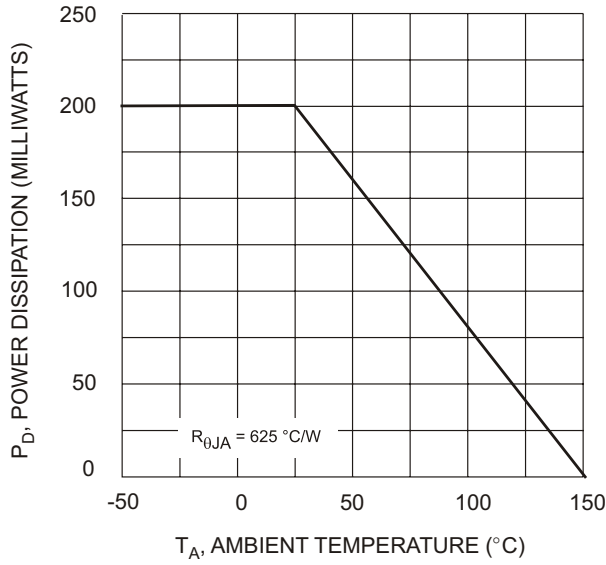


Fig. 1 Derating Curve

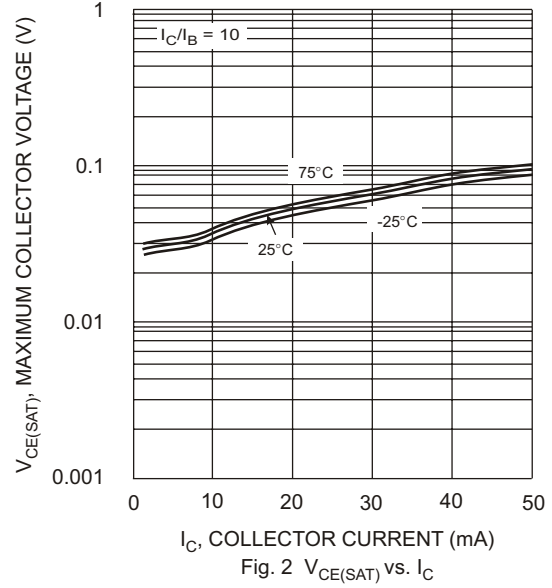


Fig. 2 V_{CE(SAT)} vs. I_C

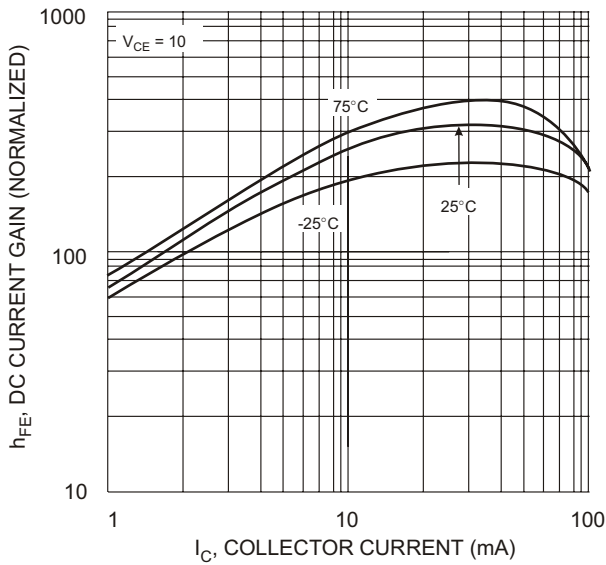


Fig. 3 DC Current Gain

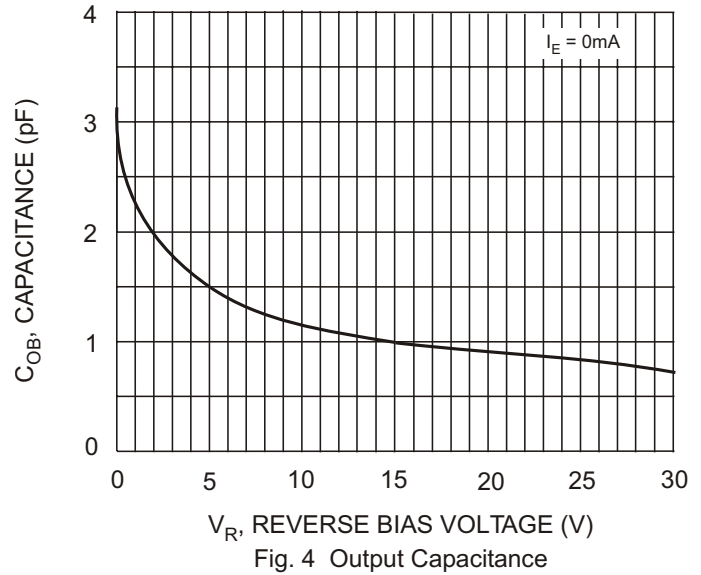


Fig. 4 Output Capacitance

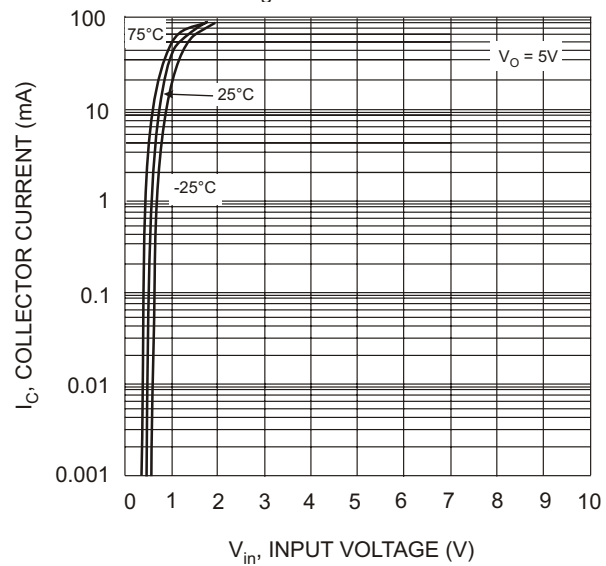


Fig. 5 Collector Current Vs. Input Voltage

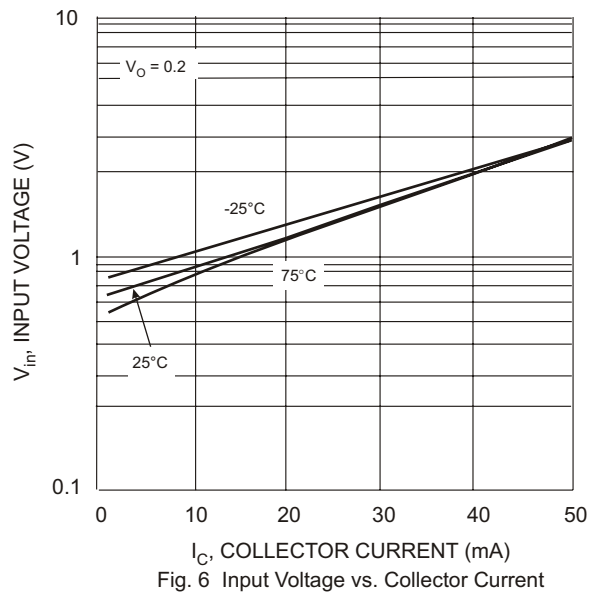


Fig. 6 Input Voltage vs. Collector Current