

NPN PRE-BIASED SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- **Epitaxial Planar Die Construction**
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R1 only
- Lead Free/RoHS Compliant (Note 2)
- "Green" Device (Note 3 and 4)

Mechanical Data

- Case: SOT-323 •
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. 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 Information: See Diagrams & Page 3
- Type Code: See Table Below
- Ordering Information: See Page 3
- abt: 0.006 grams (approximate) ۱۸/

Weight: 0.006 grams (approximate)									
P/N	R1 (NOM)	Type Code							
DDTC113TUA	1KΩ	N01							
DDTC123TUA	2.2KΩ	N03							
DDTC143TUA	4.7KΩ	N07							
DDTC114TUA	10KΩ	N12							
DDTC124TUA	22K Ω	N16							
DDTC144TUA	47ΚΩ	N19							
DDTC115TUA	100KΩ	N23							
DDTC125TUA	200KΩ	N25							

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SOT-323								
Dim	Dim Min Max							
Α	0.25	0.40						
В	1.15	1.35						
С	2.00	2.20						
D	0.65 N	lominal						
Е	0.30	0.40						
G	1.20	1.40						
Н	1.80 2.20							
J	0.0 0.10							
К	0.90	1.00						
L	0.25	0.40						
М	0.10 0.18							
α	0°	8°						
All Dim	All Dimensions in mm							

SCHEMATIC DIAGRAM

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	Pd	200	mW	
Thermal Resistance, Junction to Ambient Air (Note 1)	R _{0JA}	833	°C/W	
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C	

Notes: 1. Mounted on FR4 PC Board with recommended pad layout as shown on Diodes Inc., suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf

2 No purposefully added lead.

Diodes Inc.'s "Green" Policy can be found on our website at http://www.diodes.com/products/lead_free/index.php. 3.

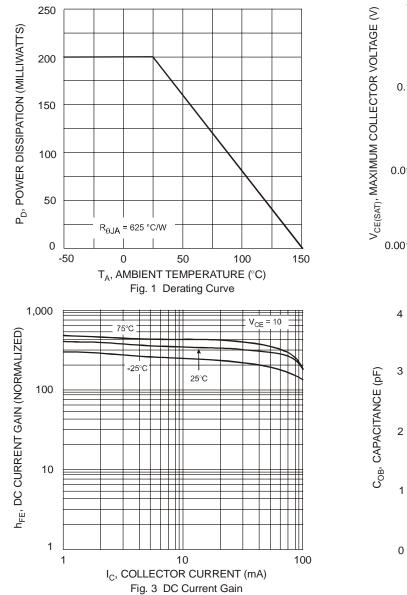
Product manufactured with date code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to date 4 code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants

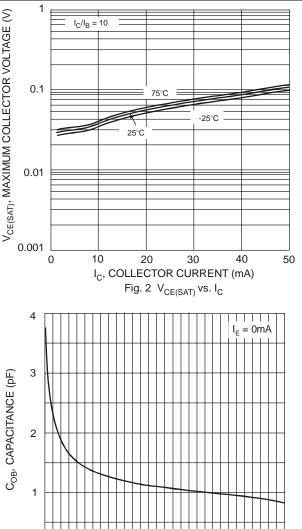


Electrical Characteristics @T_A = 25°C unless otherwise specified

Symbol	Min	Тур	Max	Unit	Test Condition		
BV _{CBO}	50	_	_	V	$I_{\rm C} = 50 \mu A$		
BV _{CEO}	50	_	_	V	$I_{C} = 1 m A$		
BV _{EBO}	5	_	_	V	I _E = 50μA		
I _{CBO}	_	_	0.5	μΑ	$V_{CB} = 50V$		
I _{EBO}	_	_	0.5	μΑ	$V_{EB} = 4V$		
V _{CE(sat)}	_		0.3	v	$ \begin{array}{ll} I_{C/IB} = 10 \text{mA}/1\text{mA} & \text{DDTC113TUA} \\ I_{C/IB} = 5 \text{mA}/0.5 \text{mA} & \text{DDTC123TUA} \\ I_{C/IB} = 2.5 \text{mA}/2.5 \text{mA} & \text{DDTC143TUA} \\ I_{C/IB} = 1 \text{mA}/.1 \text{mA} & \text{DDTC114TUA} \\ I_{C/IB} = 5 \text{mA}/0.5 \text{mA} & \text{DDTC124TUA} \\ I_{C/IB} = 2.5 \text{mA}/2.5 \text{mA} & \text{DDTC144TUA} \\ I_{C/IB} = 1 \text{mA}/0.1 \text{mA} & \text{DDTC115TUA} \\ I_{C/IB} = .5 \text{mA}/.05 \text{mA} & \text{DDTC125TUA} \\ \end{array} $		
h _{FE}	100	250	600		$I_C = 1mA$, $V_{CE} = 5V$		
ΔR_1	-30	_	+30	%			
f _T		250		MHz	$V_{CE} = 10V, I_E = -5mA,$ f = 100MHz		
	BV _{CBO} BV _{CEO} BV _{EBO} I _{CBO} I _{EBO} V _{CE(sat)}	BV _{CBO} 50 BV _{CEO} 50 BV _{EBO} 5 I _{CBO} I _{EBO} V _{CE(sat)} h _{FE} 100 ΔR ₁ -30	BV _{CBO} 50 BV _{CEO} 50 BV _{EBO} 5 I _{CBO} I _{CBO} I _{CBO} V _{CE} (sat) h _{FE} 100 250 ΔR ₁ -30	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $		

Typical Curves – DDTC114TUA





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V_R, REVERSE BIAS VOLTAGE (V)

Fig. 4 Output Capacitance

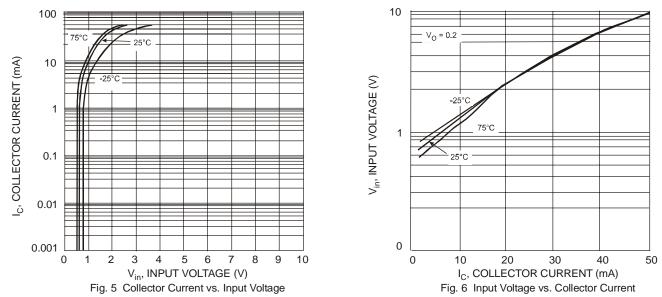
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DDTC (R1-ONLY SERIES) UA © Diodes Incorporated

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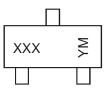


Ordering Information (Note 4 & 5)

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Device	Packaging	Shipping
DDTC1xxTUA-7-F	SOT-323	3000/Tape & Reel
DDTC1xxTUA-13-F	SOT-323	10,000/Tape & Reel

Notes: 5. 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: T = 2006 M = Month ex: 9 = September

Date Code Key																	
Year	200	6	2007		2008		2009			2011	2012						
Code	Т		U		V	V	W		W		W X			Y		Z	
Month	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
Code	1	2	3	4	5	6	7	8	9	0	Ν	D					

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