

Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistors, R1 = R2
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

Part Number	R1, R2 (NOM)
DDTC123EUA	2.2KΩ
DDTC143EUA	4.7KΩ
DDTC114EUA	10KΩ
DDTC124EUA	22KΩ
DDTC144EUA	47KΩ
DDTC115EUA	100KΩ

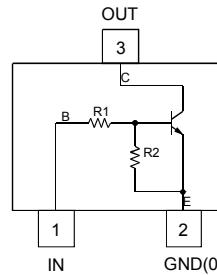
Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (Note 3)
- Weight: 0.008 grams (approximate)

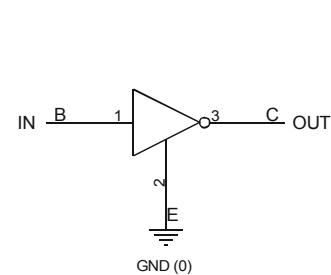
SOT323



Top View



Device Schematic



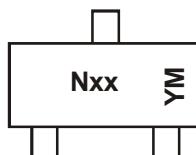
Equivalent Inverter Circuit

Ordering Information (Notes 4 & 5)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DDTC123EUA-7-F	AEC-Q101	N04	7	8	3,000
DDTC143EUA-7-F	AEC-Q101	N08	7	8	3,000
DDTC114EUA-7-F	AEC-Q101	N13	7	8	3,000
DDTC114EUHQ-7-F	Automotive	N13	7	8	3,000
DDTC124EUA-7-F	AEC-Q101	N17	7	8	3,000
DDTC124EUHQ-7-F	Automotive	N17	7	8	3,000
DDTC124EUHQ-13-F	Automotive	N17	13	8	10,000
DDTC144EUA-7-F	AEC-Q101	N20	7	8	3,000
DDTC144EUHQ-7-F	Automotive	N20	7	8	3,000
DDTC144EUHQ-13-F	Automotive	N20	13	8	10,000
DDTC115EUA-7-F	AEC-Q101	N24	7	8	3,000
DDTC115EUHQ-7-F	Automotive	N24	7	8	3,000

Notes:

- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
- For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information


Nxx = Product Type Marking Code (See Table Above)

YM = Date Code Marking

Y = Year (ex: X = 2010)

M = Month (ex: 9 = September)

Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016	2017				
Code	X	Y	Z	A	B	C	D	E				
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Absolute Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>	V _{CC}	50	V
Input Voltage <Pin: (1) to (2)>	V _{IN}	-10 to +12	
		-10 to +30	
		-10 to +40	
Output Current	I _O	100	
		100	
		50	
		30	
		100	
		20	
Output Current	I _{O(MAX)}	100	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 6)	P _D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	625	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

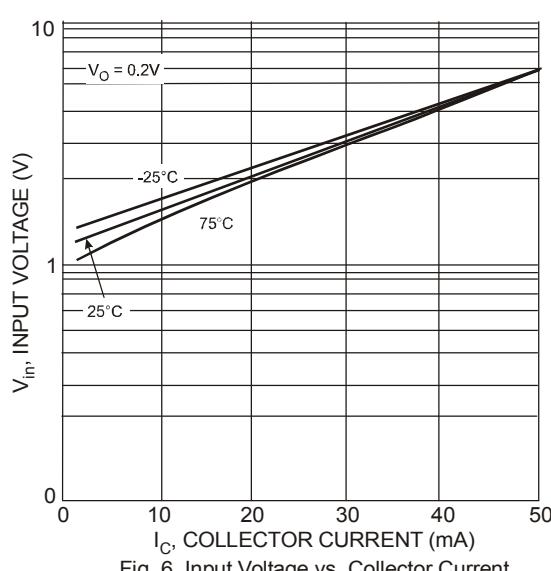
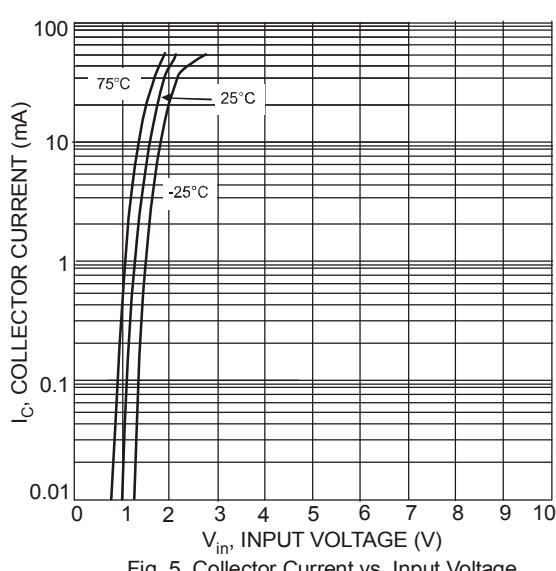
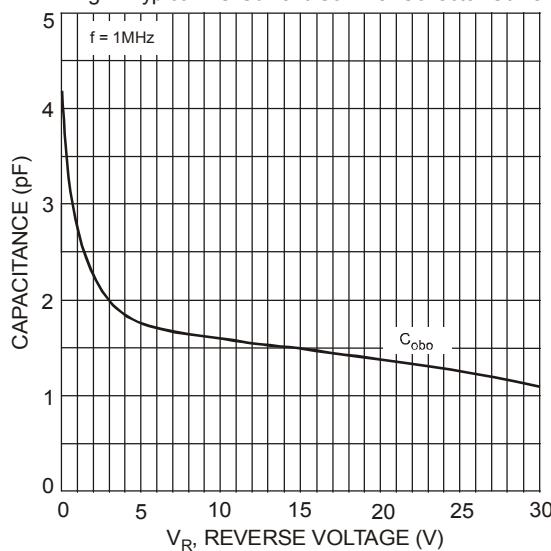
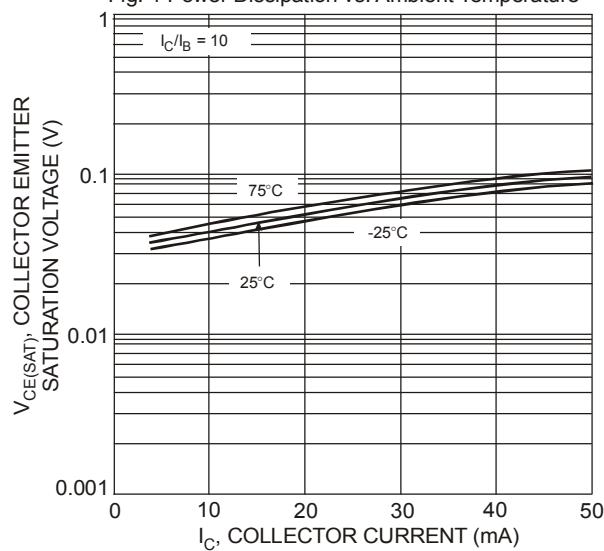
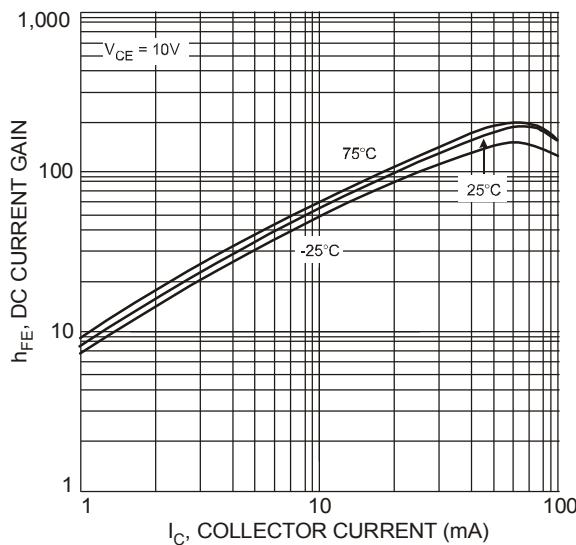
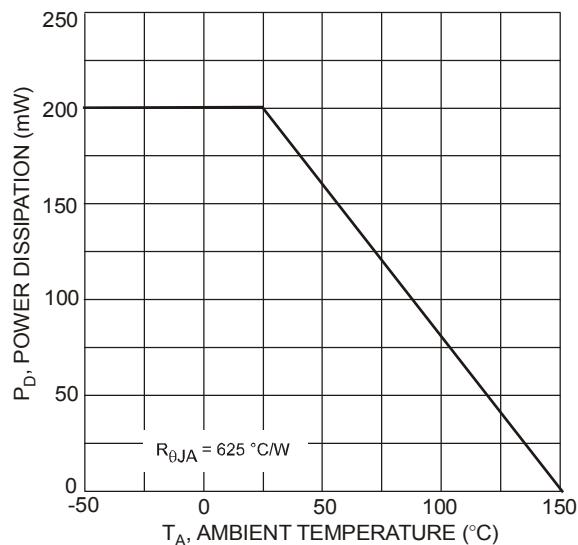
Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	V _{I(OFF)}	0.5	1.1	—	V	V _{CC} = 5V, I _O = 100 μA
	V _{I(ON)}	—	1.9	3	V	V _O = 0.3V, I _O = 20mA, DDTC123EUA
			1.4	2		V _O = 0.3V, I _O = 20mA, DDTC143EUA
						V _O = 0.3V, I _O = 10mA, DDTC114EUA
Output Voltage	V _{O(ON)}	—	0.1	0.3	V	I _O /I _I = 10mA/0.5mA, DDTC123EUA
						I _O /I _I = 10mA/0.5mA, DDTC143EUA
Input Current	I _I	—	—	3.8 1.8 0.88 0.36 0.18 0.15	mA	I _O /I _I = 10mA/0.5mA, DDTC114EUA
						I _O /I _I = 10mA/0.5mA, DDTC124EUA
						I _O /I _I = 10mA/0.5mA, DDTC144EUA
						I _O /I _I = 5mA/0.25mA, DDTC115EUA
Output Current	I _{O(OFF)}	—	—	0.5	μA	V _{CC} = 50V, V _I = 0V
DC Current Gain	G _I	20	—	—	—	V _O = 5V, I _O = 20mA
		20	—	—	—	V _O = 5V, I _O = 10mA
		30	—	—	—	V _O = 5V, I _O = 5mA
		56	—	—	—	V _O = 5V, I _O = 5mA
		68	—	—	—	V _O = 5V, I _O = 5mA
		80	—	—	—	V _O = 5V, I _O = 5mA
		82	—	—	—	V _O = 5V, I _O = 5mA
Input Resistor (R ₁) Tolerance	ΔR ₁	-30	—	+30	%	—
Resistance Ratio	R ₂ /R ₁	0.8	1	1.2	—	—
Gain-Bandwidth Product (Note 7)	f _T	—	250	—	MHz	V _{CE} = 10V, I _E = 5mA, f = 100MHz

Notes: 6. Mounted on FR4 PC Board with minimum recommended pad layout.

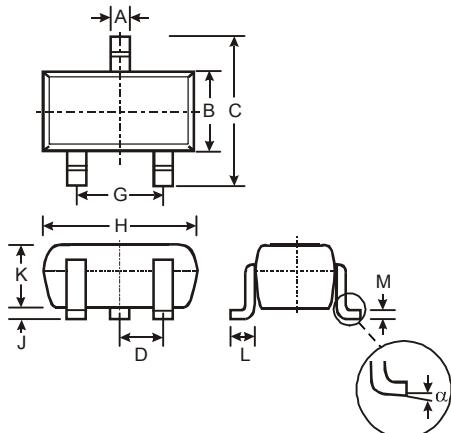
7. Transistor - For Reference Only.

Typical Curves – DDTC143EUA (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.

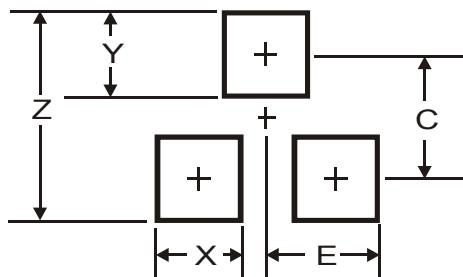


SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-

All Dimensions in mm

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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