DDTC (R1 = R2 SERIES) UA

NPN PRE-BIASED SMALL SIGNAL SOT-323 SURFACE MOUNT TRANSISTOR

NEW PRODUCT

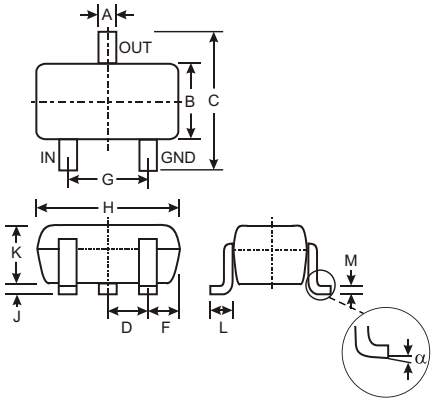
Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistors, R1 = R2

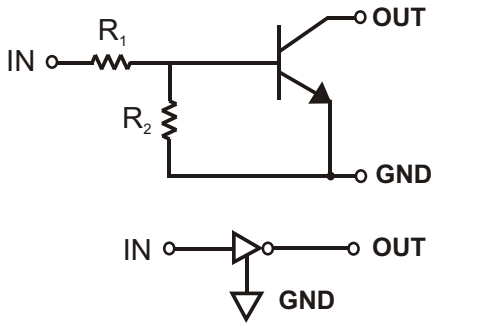
Mechanical Data

- Case: SOT-323, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code (See Diagrams & Page 2)
- Weight: 0.006 grams (approx.)
- Ordering Information (See Page 2)

P/N	R1, R2 (NOM)	MARKING
DDTC123EUA	2.2K	N04
DDTC143EUA	4.7K	N08
DDTC114EUA	10K	N13
DDTC124EUA	22K	N17
DDTC144EUA	47K	N20
DDTC115EUA	100K	N24



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
	0	8
All Dimensions in mm		



SCHEMATIC DIAGRAM

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)	DDTC123EUA DDTC143EUA DDTC114EUA DDTC124EUA DDTC144EUA DDTC115EUA	V_{IN}	-10 to +12 -10 to +30 -10 to +40 -10 to +40 -10 to +40 -10 to +40	V
Output Current	DDTC123EUA DDTC143EUA DDTC114EUA DDTC124EUA DDTC144EUA DDTC115EUA	I_O	100 100 50 30 100 20	mA
Output Current	All	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.

NEW PRODUCT

Electrical Characteristics @ T_A = 25 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 A
		$V_{I(on)}$		1.9	3		V_O = 0.3V, I_O = 20mA, DDTC123EUA V_O = 0.3V, I_O = 20mA, DDTC143EUA V_O = 0.3V, I_O = 10mA, DDTC114EUA V_O = 0.3V, I_O = 5mA, DDTC124EUA V_O = 0.3V, I_O = 2mA, DDTC144EUA V_O = 0.3V, I_O = 1mA, DDTC115EUA
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 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
Input Current	DDTC123EUA DDTC143EUA DDTC114EUA DDTC124EUA DDTC144EUA DDTC115EUA	I_I			3.8 1.8 0.88 0.36 0.18 0.15	mA	V_I = 5V
Output Current		$I_{O(off)}$			0.5	A	V_{CC} = 50V, V_I = 0V
DC Current Gain	DDTC123EUA DDTC143EUA DDTC114EUA DDTC124EUA DDTC144EUA DDTC115EUA	G_I	20 20 30 56 68 82				V_O = 5V, I_O = 20mA V_O = 5V, I_O = 10mA V_O = 5V, I_O = 5mA V_O = 5V, I_O = 5mA V_O = 5V, I_O = 5mA V_O = 5V, I_O = 5mA
Input Resistor (R_1) Tolerance		DR_1	-30		+30	%	
Resistance Ratio		R_2/R_1	0.8	1	1.2		
Gain-Bandwidth Product*		f_T		250		MHz	V_{CE} = 10V, I_E = 5mA, f = 100MHz

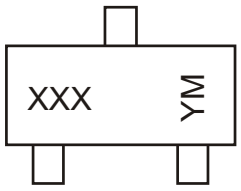
* Transistor - For Reference Only

Ordering Information (Note 2)

Device	Packaging	Shipping
DDTC123EUA-7	SOT-323	3000/Tape & Reel
DDTC143EUA-7	SOT-323	3000/Tape & Reel
DDTC114EUA-7	SOT-323	3000/Tape & Reel
DDTC124EUA-7	SOT-323	3000/Tape & Reel
DDTC144EUA-7	SOT-323	3000/Tape & Reel
DDTC115EUA-7	SOT-323	3000/Tape & Reel

Notes: 2. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

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

NEW PRODUCT

TYPICAL CURVES - DDTC143EUA

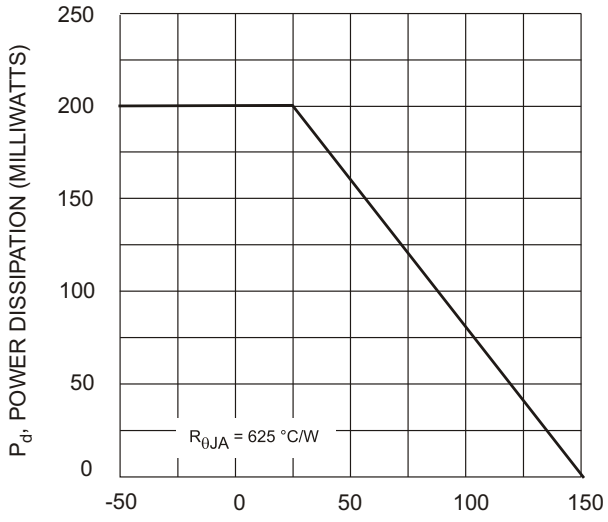


Fig. 1 Derating Curve

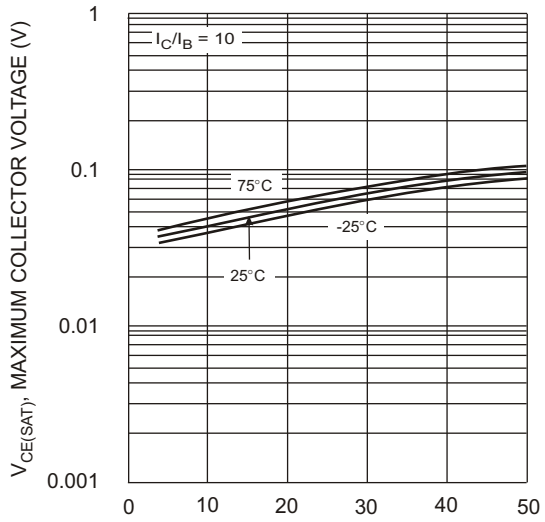


Fig. 2 $V_{CE(SAT)}$ vs. I_C

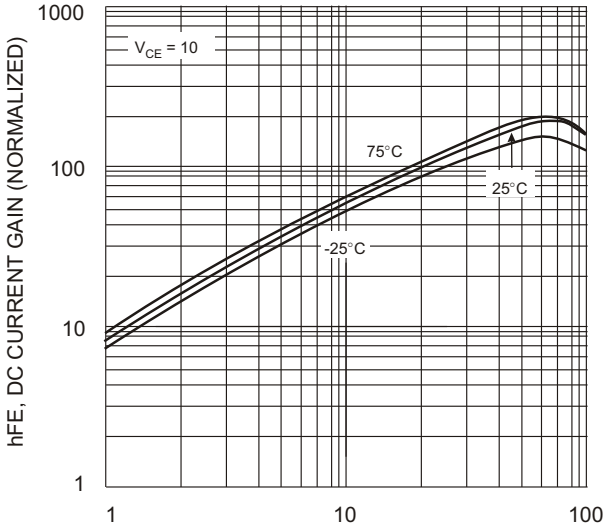


Fig. 3 DC CURRENT GAIN

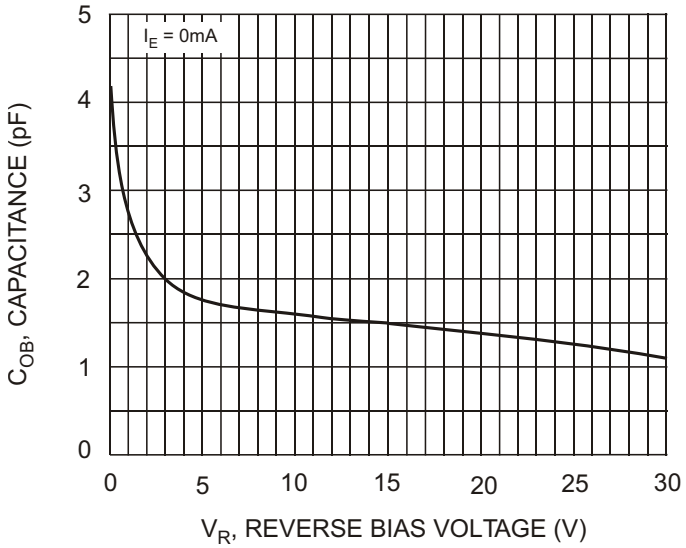


Fig. 4 Output Capacitance

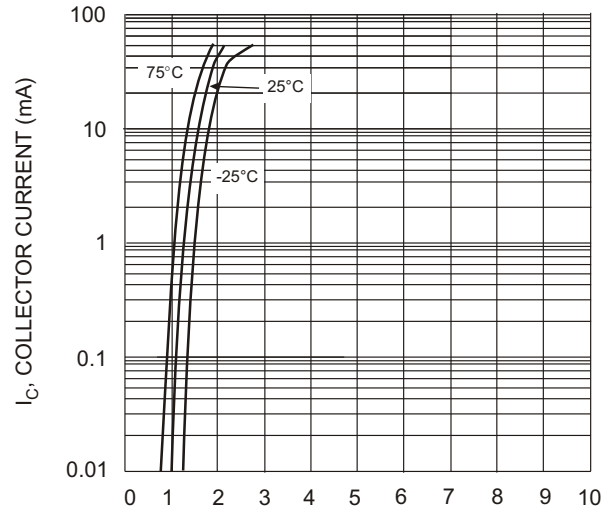


Fig. 5 Collector Current Vs. Input Voltage

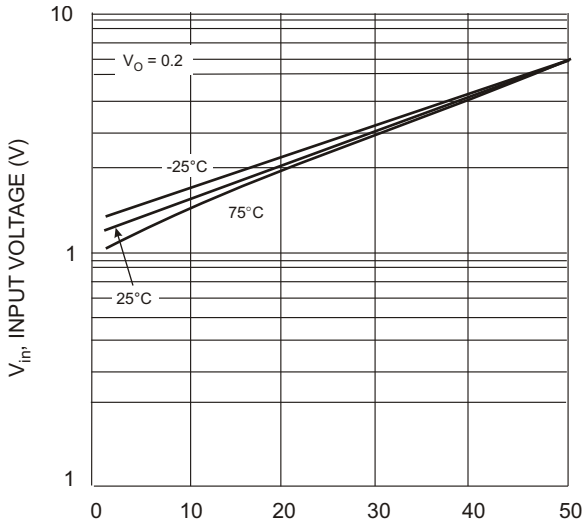


Fig. 6 Input Voltage vs. Collector Current