

# Absolute Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Supply Voltage <pine: (2)="" (3)="" to=""></pine:>		Vcc	50	V
Input Voltage <pin: (1)="" (2)="" to=""></pin:>	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	lo	100 100 50 30 100 20	mA
Output Current	All	I <sub>C(MAX)</sub>	100	mA

#### **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 6)	$P_{D}$	200	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

# Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic		Symbol	Min	Тур	Max	Unit	Test Condition
Input Voltage		V <sub>I(OFF)</sub>	0.5	1.1	_	V	$V_{CC} = 5V$ , $I_{O} = 100 \mu A$
		V <sub>I(ON)</sub>	_	1.9	3	V	$V_{\rm O}$ = 0.3V, $I_{\rm O}$ = 20mA, DDTC123EUA $V_{\rm O}$ = 0.3V, $I_{\rm O}$ = 20mA, DDTC143EUA $V_{\rm O}$ = 0.3V, $I_{\rm O}$ = 10mA, DDTC114EUA $V_{\rm O}$ = 0.3V, $I_{\rm O}$ = 5mA, DDTC124EUA $V_{\rm O}$ = 0.3V, $I_{\rm O}$ = 1mA, DDTC115EUA
				1.4	2		$V_O = 0.3V$ , $I_O = 2mA$ , DDTC144EUA
Output Voltage		V <sub>O(ON)</sub>	_	0.1	0.3	V	I <sub>O</sub> /I <sub>I</sub> = 10mA/0.5mA, DDTC123EUA I <sub>O</sub> /I <sub>I</sub> = 10mA/0.5mA, DDTC143EUA I <sub>O</sub> /I <sub>I</sub> = 10mA/0.5mA, DDTC114EUA I <sub>O</sub> /I <sub>I</sub> = 10mA/0.5mA, DDTC124EUA I <sub>O</sub> /I <sub>I</sub> = 10mA/0.5mA, DDTC144EUA I <sub>O</sub> /I <sub>I</sub> = 5mA/0.25mA, DDTC115EUA
Input Current	DDTC123EUA DDTC143EUA DDTC114EUA DDTC124EUA DDTC144EUA DDTC115EUA	II	_		3.8 1.8 0.88 0.36 0.18 0.15	mA	V <sub>I</sub> = 5V
Output Current		I <sub>O(OFF)</sub>	_		0.5	μA	$V_{CC} = 50V, V_{I} = 0V$
DC Current Gain	DDTC123EUA DDTC143EUA DDTC114EUA DDTC124EUA DDTC144EUA DDTC144EUAQ DDTC115EUA	Gı	20 20 30 56 68 80 82	_	_	_	V <sub>O</sub> = 5V, I <sub>O</sub> = 20mA V <sub>O</sub> = 5V, I <sub>O</sub> = 10mA V <sub>O</sub> = 5V, I <sub>O</sub> = 5mA V <sub>O</sub> = 5V, I <sub>O</sub> = 5mA
Input Resistor (R <sub>1</sub> ) Tolerance		$\Delta R_1$	-30	_	+30	%	
Resistance Ratio		R <sub>2</sub> /R <sub>1</sub>	0.8	1	1.2	_	_
Gain-Bandwidth Product (Note 7)		f⊤	_	250	_	MHz	$V_{CE} = 10V, I_{E} = 5mA,$ f = 100MHz

Notes:

<sup>6.</sup> Mounted on FR4 PC Board with minimum recommended pad layout.

<sup>7.</sup> Transistor - For Reference Only.



# **Typical Curves – DDTC143EUA** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

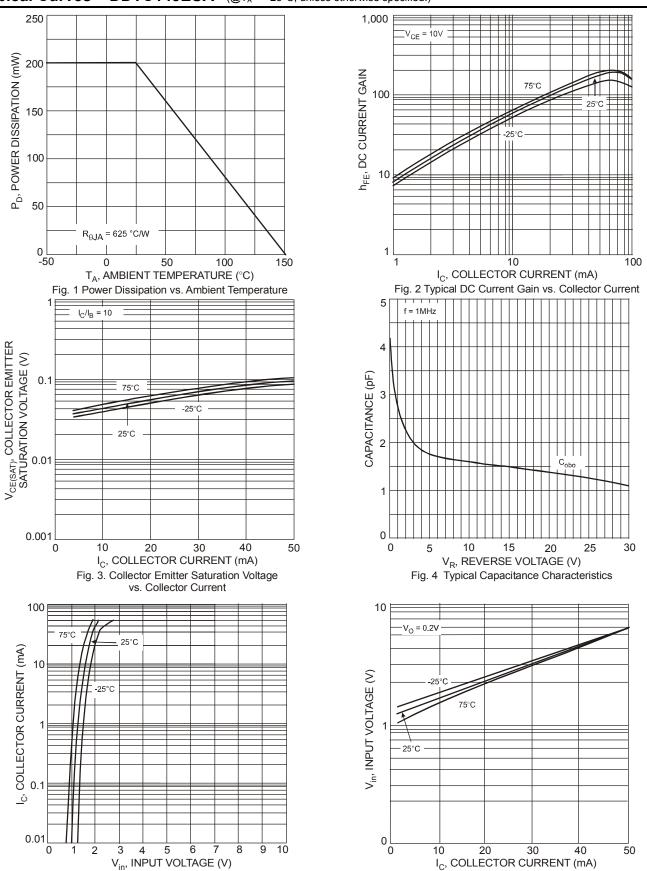


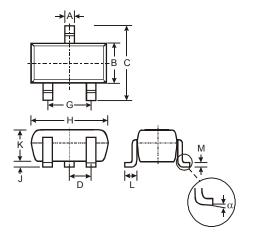
Fig. 5 Collector Current vs. Input Voltage

Fig. 6 Input Voltage vs. Collector Current



# **Package Outline Dimensions**

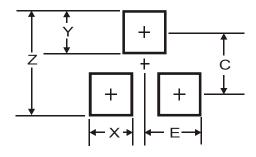
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOT323					
Dim	Min	Max	Тур		
Α	0.25	0.40	0.30		
В	1.15	1.35	1.30		
C	2.00	2.20	2.10		
D	-	-	0.65		
G	1.20	1.40	1.30		
Η	1.80	2.20	2.15		
7	0.0	0.10	0.05		
K	0.90	1.00	1.00		
L	0.25	0.40	0.30		
М	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
Х	0.7
Υ	0.9
С	1.9
F	1.0



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