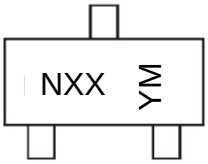
Marking Information

SOT323



NXX = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: D = 2016)
M = Month (ex: 9 = September)

Date Code Key

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Code	D	E	F	G	H	I	J	K	L	M	N

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 NPN Section (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>		V_{CC}	50	V
Input Voltage <Pin: (1) to (2)>	DDTC113ZUA	V_{IN}	-5 to +10	V
	DDTC123YUA		-5 to +12	
	DDTC123JUA		-5 to +12	
	DDTC143XUA		-7 to +20	
	DDTC143FUA		-6 to +30	
	DDTC143ZUA		-5 to +30	
	DDTC114YUA		-6 to +40	
	DDTC114WUA		-10 to +30	
	DDTC124XUA		-10 to +40	
	DDTC144VUA		-15 to +40	
	DDTC144WUA		-10 to +40	
Output Current	DDTC113ZUA	I_O	100	mA
	DDTC123YUA		100	
	DDTC123JUA		100	
	DDTC143XUA		100	
	DDTC143FUA		100	
	DDTC143ZUA		100	
	DDTC114YUA		70	
	DDTC114WUA		100	
	DDTC124XUA		50	
	DDTC144VUA		30	
	DDTC144WUA		30	
Output Current		I_C (Max)	100	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

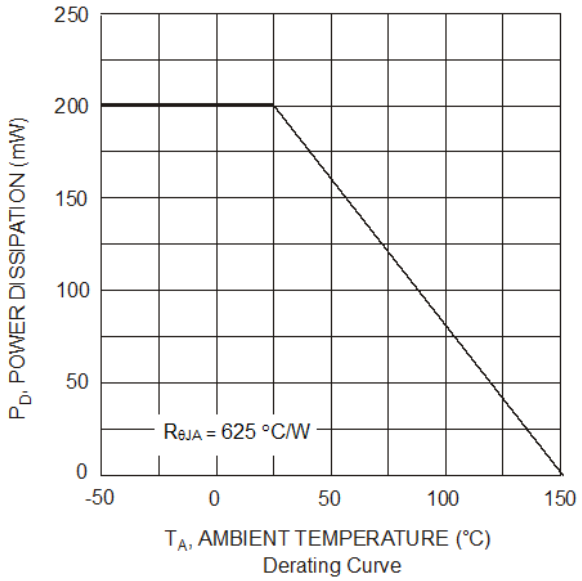
Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 5 & 6)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 5. Mounted on FR4 PC Board with minimum recommended pad layout.
6. 150mW per element must not be exceeded.

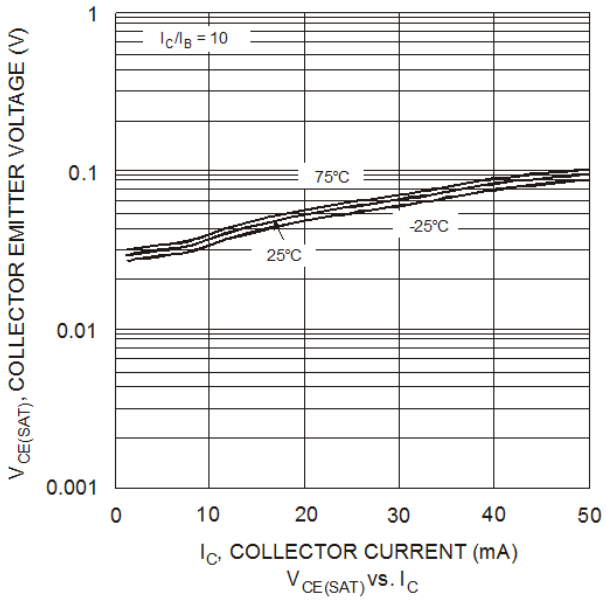
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

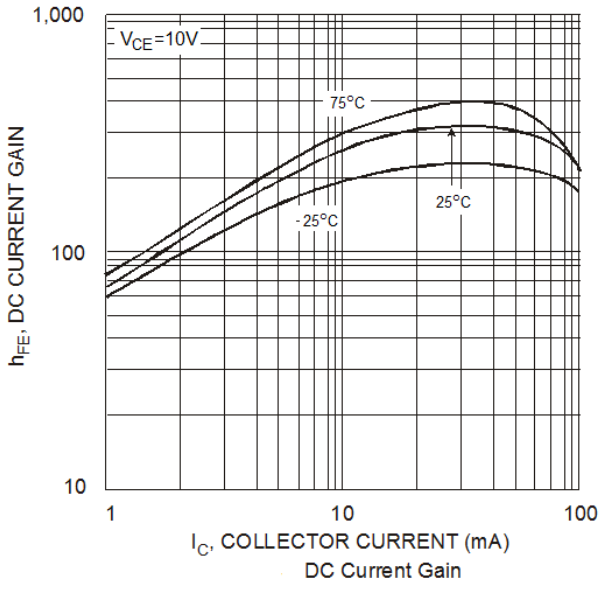
Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
	DDTC113ZUA	$V_{I(oFF)}$	0.3	—	—		V_{CC} = 5V, I_O = 100µA
	DDTC123YUA		0.3				
	DDTC123JUA		0.5				
	DDTC143XUA		0.3				
	DDTC143FUA		0.3				
	DDTC143ZUA		0.5				
	DDTC114YUA		0.3				
	DDTC114WUA		0.8				
	DDTC124XUA		0.4				
	DDTC144VUA		1.0				
	DDTC144WUA		0.8				
Input Voltage	DDTC113ZUA	$V_{I(ON)}$	—	—	3.0	V	V_O = 0.3V, I_O = 20mA
	DDTC123YUA				3.0		V_O = 0.3V, I_O = 20mA
	DDTC123JUA				1.1		V_O = 0.3V, I_O = 5mA
	DDTC143XUA				2.5		V_O = 0.3V, I_O = 20mA
	DDTC143FUA				1.3		V_O = 0.3V, I_O = 3mA
	DDTC143ZUA				1.3		V_O = 0.3V, I_O = 5mA
	DDTC114YUA				1.4		V_O = 0.3V, I_O = 1mA
	DDTC114WUA				3.0		V_O = 0.3V, I_O = 2mA
	DDTC124XUA				2.5		V_O = 0.3V, I_O = 2mA
	DDTC144VUA				5.0		V_O = 0.3V, I_O = 2mA
	DDTC144WUA				4.0		V_O = 0.3V, I_O = 2mA
Output Voltage		$V_{O(ON)}$	—	0.1	0.3	V	I_O/I_I = 5mA / 0.25mA DDTC123JUA
							I_O/I_I = 5mA / 0.25mA DDTC143ZUA
							I_O/I_I = 5mA / 0.25mA DDTC114YUA
							I_O/I_I = 10mA / 0.5mA All Others
Input Current	DDTC113ZUA	I_I	—	—	7.2	mA	V_I = 5V
	DDTC123YUA				3.8		
	DDTC123JUA				3.6		
	DDTC143XUA				1.8		
	DDTC143FUA				1.8		
	DDTC143ZUA				1.8		
	DDTC114YUA				0.88		
	DDTC114WUA				0.88		
	DDTC124XUA				0.36		
	DDTC144VUA				0.16		
	DDTC144WUA				0.16		
Output Current		$I_{O(OFF)}$	—	—	0.5	µA	V_{CC} = 50V, V_I = 0V
DC Current Gain	DDTC113ZUA	G_I	33	—	—	—	V_O = 5V, I_O = 5mA
	DDTC123YUA		33				V_O = 5V, I_O = 10mA
	DDTC123JUA		80				V_O = 5V, I_O = 10mA
	DDTC143XUA		30				V_O = 5V, I_O = 10mA
	DDTC143FUA		68				V_O = 5V, I_O = 10mA
	DDTC143ZUA		80				V_O = 5V, I_O = 10mA
	DDTC114YUA		68				V_O = 5V, I_O = 5mA
	DDTC114WUA		24				V_O = 5V, I_O = 10mA
	DDTC124XUA		68				V_O = 5V, I_O = 5mA
	DDTC144VUA		33				V_O = 5V, I_O = 5mA
	DDTC144WUA		56				V_O = 5V, I_O = 5mA
Input Resistor (R_1) Tolerance		ΔR_1	-30	—	+30	%	—
Resistance Ratio Tolerance		$\Delta R_2/R_1$	-20	—	+20	%	—
Gain-Bandwidth Product		f_T	—	250	—	MHz	V_{CE} = 10V, I_E = 5mA, f = 100MHz

Typical Curves – Total Device

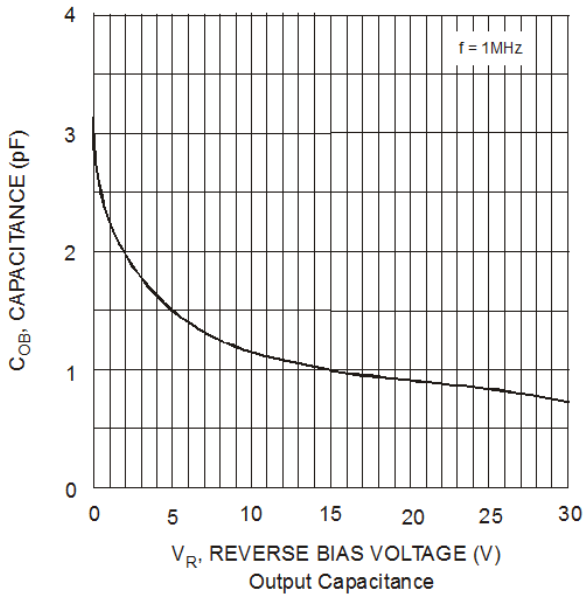


Typical Curves – DDTC123JUA (@T_A = +25°C, unless otherwise specified.)

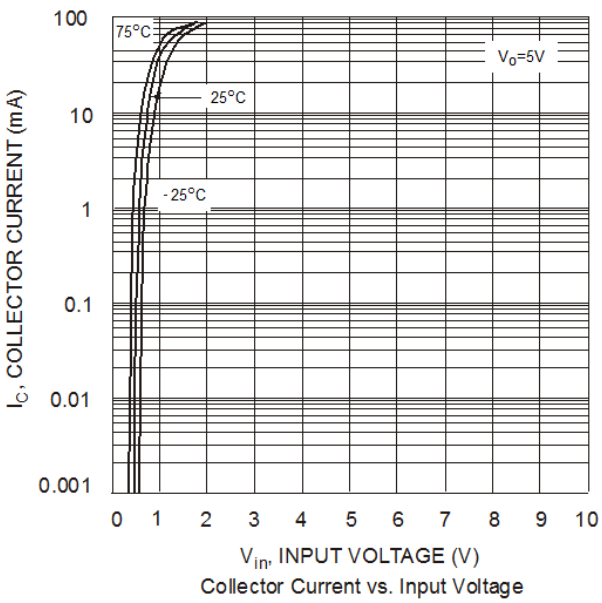




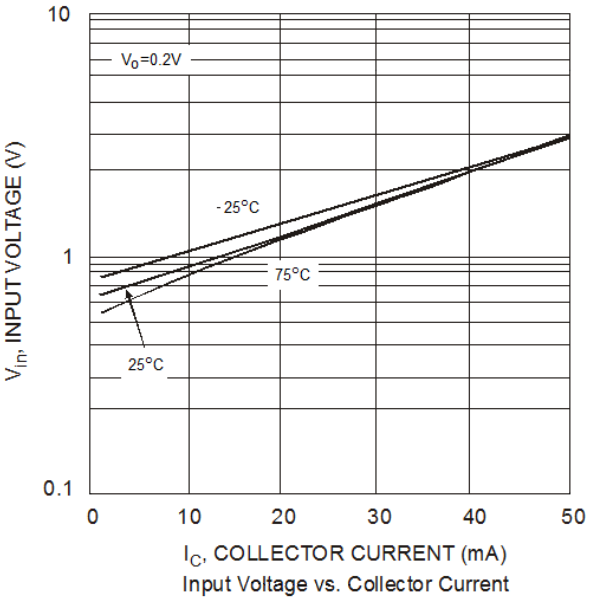
Typical Curves – DDTC123JUA (continued)



Output Capacitance



Collector Current vs. Input Voltage



Input Voltage vs. Collector Current

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

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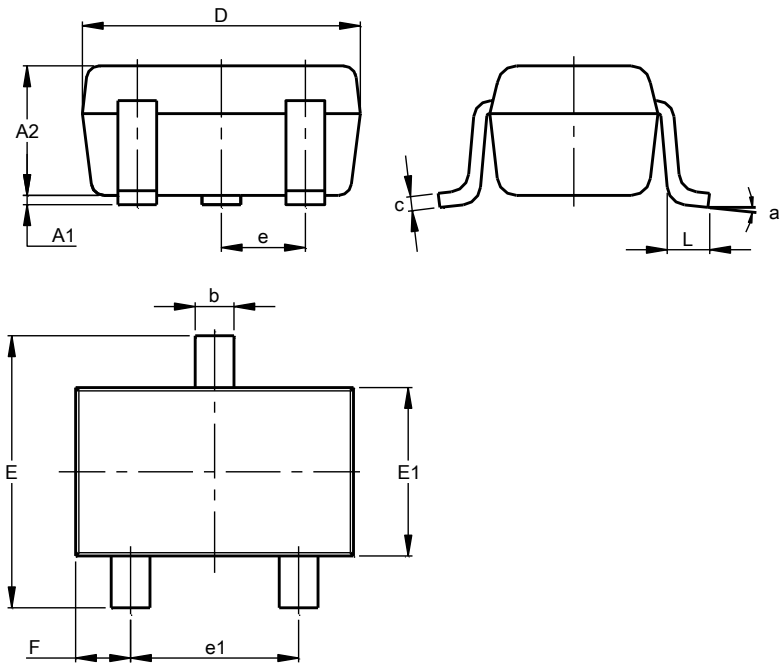

SOT323			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

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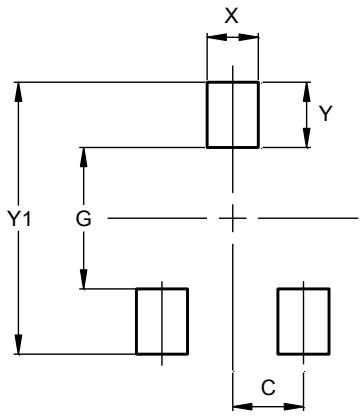

Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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