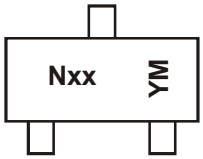
Marking Information



Nxx = Product Type Marking Code (See Table Above)
YM = Date Code Marking
Y = Year (ex: T = 2006)
M = Month (ex: 9 = September)

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	N	P	R	S	T	U	V	W	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°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Supply Voltage, <Pin: (3) to (2)>		V_{CC}	50	V
Input Voltage, <Pin: (1) to (2)>	DDTC113ZCA	V_{IN}	-5 to +10	V
	DDTC123YCA		-5 to +12	
	DDTC123JCA		-5 to +12	
	DDTC143XCA		-7 to +20	
	DDTC143FCA		-6 to +30	
	DDTC143ZCA		-5 to +30	
	DDTC114YCA		-6 to +40	
	DDTC114WCA		-10 to +30	
	DDTC124XCA		-10 to +40	
	DDTC144VCA		-15 to +40	
	DDTC144WCA		-10 to +40	
Output Current	DDTC113ZCA	I_O	100	mA
	DDTC123YCA		100	
	DDTC123JCA		100	
	DDTC143XCA		100	
	DDTC143FCA		100	
	DDTC143ZCA		100	
	DDTC114YCA		70	
	DDTC114WCA		100	
	DDTC124XCA		50	
	DDTC144VCA		30	
	DDTC144WCA		30	
Output Current	All	$I_{C(MAX)}$	100	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 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_J, T_{STG}	-55 to +150	°C

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

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

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
	DDTC113ZCA	$V_{I(OFF)}$	0.3	—	—		V_{CC} = 5V, I_O = 100μA
	DDTC123YCA		0.3				
	DDTC123JCA		0.5				
	DDTC143XCA		0.3				
	DDTC143FCA		0.3				
	DDTC143ZCA		0.5				
	DDTC114YCA		0.3				
	DDTC114WCA		0.8				
	DDTC124XCA		0.4				
	DDTC144VCA		1.0				
	DDTC144WCA		0.8				
Input Voltage	DDTC113ZCA	$V_{I(ON)}$	—	—	3.0	V	V_O = 0.3V, I_O = 20mA
	DDTC123YCA				3.0		V_O = 0.3V, I_O = 20mA
	DDTC123JCA				1.1		V_O = 0.3V, I_O = 5mA
	DDTC143XCA				2.5		V_O = 0.3V, I_O = 20mA
	DDTC143FCA				1.3		V_O = 0.3V, I_O = 3mA
	DDTC143ZCA				1.3		V_O = 0.3V, I_O = 5mA
	DDTC114YCA				1.4		V_O = 0.3V, I_O = 1mA
	DDTC114WCA				3.0		V_O = 0.3V, I_O = 2mA
	DDTC124XCA				2.5		V_O = 0.3V, I_O = 2mA
	DDTC144VCA				5.0		V_O = 0.3V, I_O = 2mA
	DDTC144WCA				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 DDTC123JCA I_O/I_I = 5mA/0.25mA DDTC143ZCA I_O/I_I = 5mA/0.25mA DDTC114YCA I_O/I_I = 10mA/0.5mA All Others
Input Current	DDTC113ZCA	I_I	—	—	7.2	mA	V_I = 5V
	DDTC123YCA				3.8		
	DDTC123JCA				3.6		
	DDTC143XCA				1.8		
	DDTC143FCA				1.8		
	DDTC143ZCA				1.8		
	DDTC114YCA				0.88		
	DDTC114WCA				0.88		
	DDTC124XCA				0.36		
	DDTC144VCA				0.16		
	DDTC144WCA				0.16		
Output Current		$I_{O(OFF)}$	—	—	0.5	μA	V_{CC} = 50V, V_I = 0V
DC Current Gain	DDTC113ZCA	G_I	33	—	—	—	V_O = 5V, I_O = 5mA
	DDTC123YCA		33				V_O = 5V, I_O = 10mA
	DDTC123JCA		80				V_O = 5V, I_O = 10mA
	DDTC143XCA		30				V_O = 5V, I_O = 10mA
	DDTC143FCA		68				V_O = 5V, I_O = 10mA
	DDTC143ZCA		80				V_O = 5V, I_O = 10mA
	DDTC114YCA		68				V_O = 5V, I_O = 5mA
	DDTC114YCAQ		80				V_O = 5V, I_O = 5mA
	DDTC114WCA		24				V_O = 5V, I_O = 10mA
	DDTC124XCA		68				V_O = 5V, I_O = 5mA
	DDTC144VCA		33				V_O = 5V, I_O = 5mA
	DDTC144WCA		56				V_O = 5V, I_O = 5mA
Input Resistor Tolerance		ΔR_1	-30	—	+30	%	—
Resistance Ratio Tolerance		$\Delta R_2/R_1$	-20	—	+20	%	—
Gain-Bandwidth Produc (Note 7)		f_T	—	250	—	MHz	V_{CE} = 10V, I_E = 5mA, f = 100MHz

Note: 7. Transistor - For Reference Only

Typical Curves – DDTC123JCA (@T_A = +25°C, unless otherwise specified.)

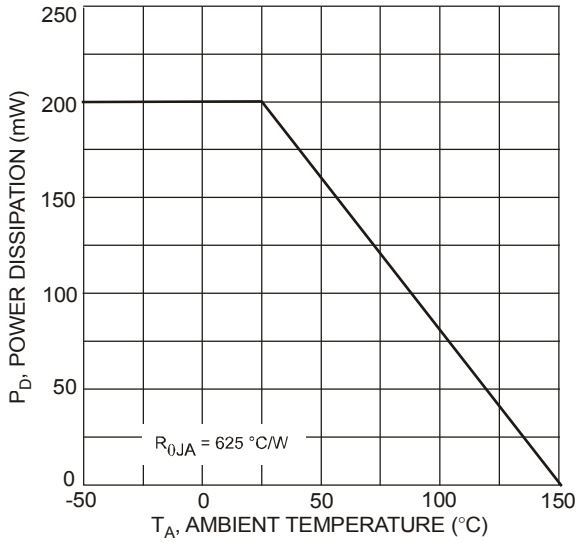


Fig. 1 Power Dissipation vs. Ambient Temperature

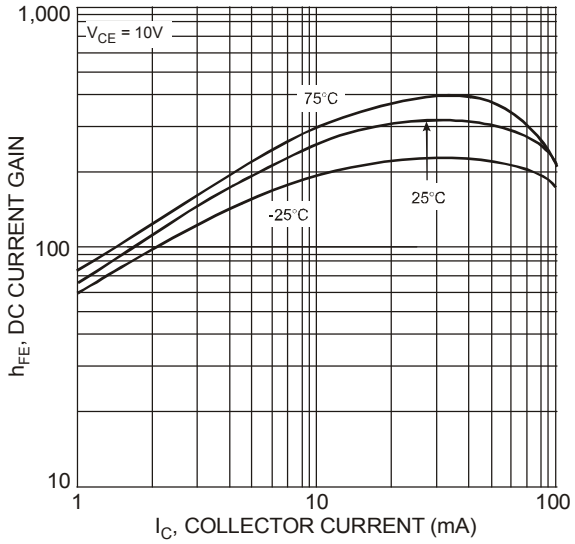


Fig. 2 Typical DC Current Gain vs. Collector Current

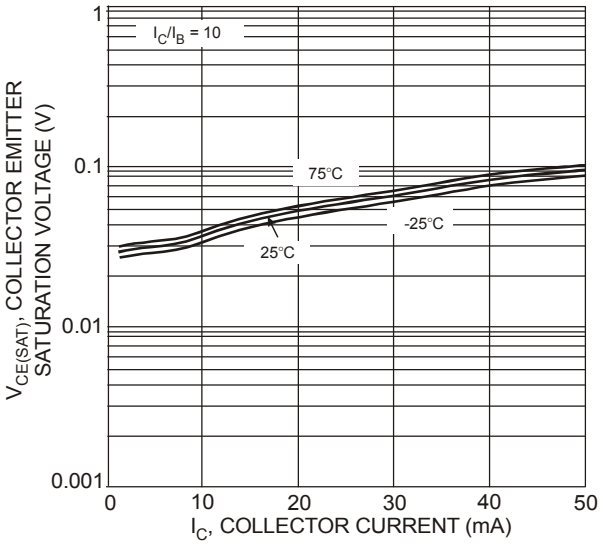


Fig. 3 Typical Collector Emitter Saturation Voltage vs. Collector Current

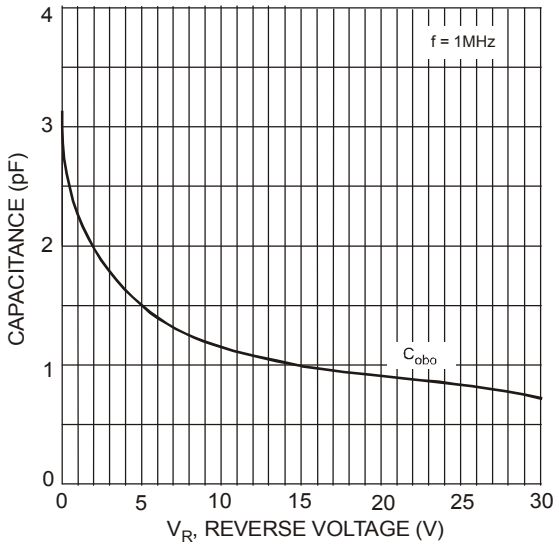


Fig. 4 Typical Capacitance Characteristics

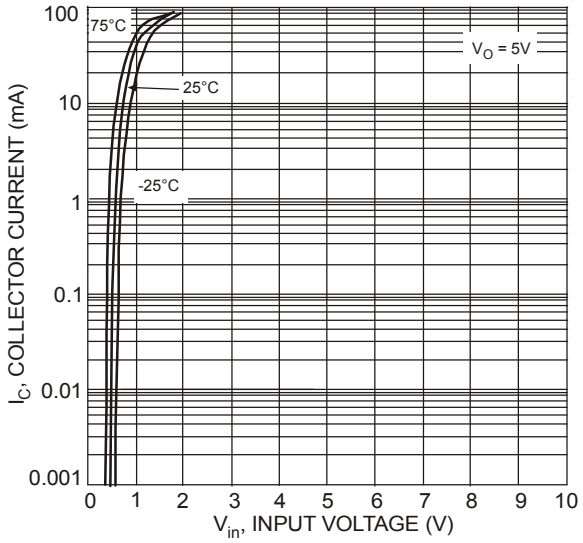


Fig. 5 Collector Current vs. Input Voltage

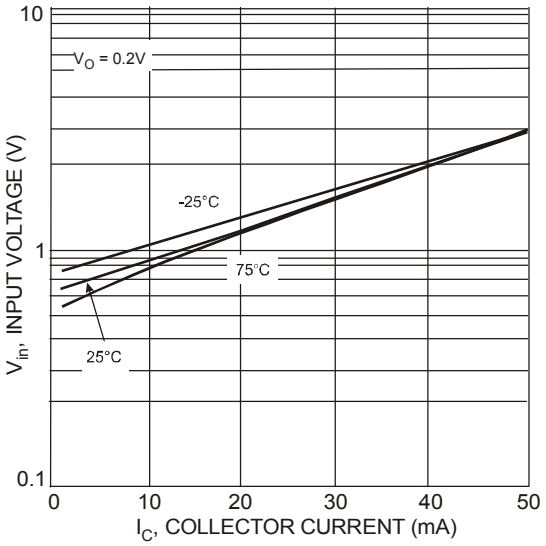
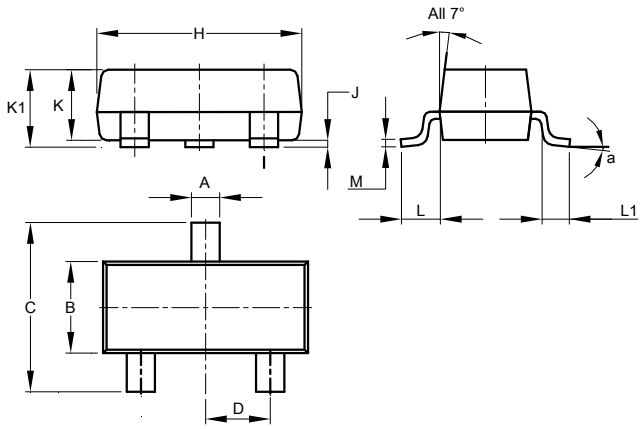


Fig. 6 Input Voltage vs. Collector Current

Package Outline Dimensions

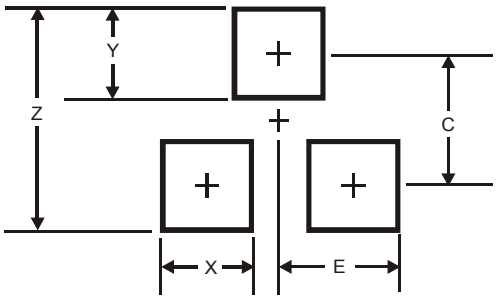
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	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	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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