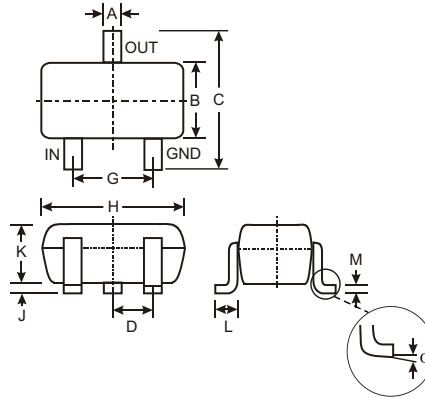


Features

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

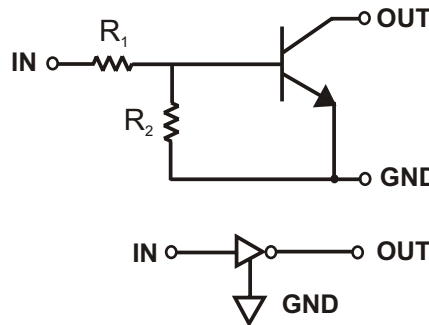
Mechanical Data

- Case: SC-59, 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 3)
- Weight: 0.006 grams (approx.)
- Ordering Information (See Page 2)



SC-59		
Dim	Min	Max
A	0.35	0.50
B	1.50	1.70
C	2.70	3.00
D	0.95	
G	1.90	
H	2.90	3.10
J	0.013	0.10
K	1.00	1.30
L	0.35	0.55
M	0.10	0.20
α	0°	8°
All Dimensions in mm		

P/N	R1 (NOM)	R2 (NOM)	MARKING
DDTC113ZKA	1K Ω	10K Ω	N02
DDTC123YKA	2.2K Ω	10K Ω	N05
DDTC123JKA	2.2K Ω	47K Ω	N06
DDTC143XKA	4.7K Ω	10K Ω	N09
DDTC143FKA	4.7K Ω	22K Ω	N10
DDTC143ZKA	4.7K Ω	47K Ω	N11
DDTC114YKA	10K Ω	47K Ω	N14
DDTC114WKA	10K Ω	4.7K Ω	N15
DDTC124XKA	22K Ω	47K Ω	N18
DDTC144VKA	47K Ω	10K Ω	N21
DDTC144WKA	47K Ω	22K Ω	N22



SCHMATIC 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)	V _{IN}	DDTC113ZKA DDTC123YKA DDTC123JKA DDTC143XKA DDTC143FKA DDTC143ZKA DDTC114YKA DDTC114WKA DDTC124XKA DDTC144VKA DDTC144WKA	-5 to +10 -5 to +12 -5 to +12 -7 to +20 -6 to +30 -5 to +30 -6 to +40 -10 to +30 -10 to +40 -15 to +40 -10 to +40	V		
Output Current		I _O	DDTC113ZKA DDTC123YKA DDTC123JKA DDTC143XKA DDTC143FKA DDTC143ZKA DDTC114YKA DDTC114WKA DDTC124XKA DDTC144VKA DDTC144WKA	100 100 100 100 100 100 70 100 50 30 30	mA	
Output Current			All	I _C (Max)	100	mA
Power Dissipation			P _d	200	mW	
Thermal Resistance, Junction to Ambient Air (Note 1)			R _{θJA}	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>.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition	
Input Voltage	DDTC113ZKA DDTC123YKA DDTC123JKA DDTC143XKA DDTC143FKA DDTC143ZKA DDTC114YKA DDTC114WKA DDTC124XKA DDTC144VKA DDTC144WKA	$V_{I(off)}$	0.3 0.3 0.5 0.3 0.3 0.5 0.3 0.8 0.4 1.0 0.8	—	—	—	V	$V_{CC} = 5V, I_O = 100\mu\text{A}$
	DDTC113ZKA DDTC123YKA DDTC123JKA DDTC143XKA DDTC143FKA DDTC143ZKA DDTC114YKA DDTC114WKA DDTC124XKA DDTC144VKA DDTC144WKA	$V_{I(on)}$	—	—	3.0 3.0 1.1 2.5 1.3 1.3 1.4 3.0 2.5 5.0 4.0	—	V	$V_O = 0.3V, I_O = 20\text{mA}$ $V_O = 0.3V, I_O = 20\text{mA}$ $V_O = 0.3V, I_O = 5\text{mA}$ $V_O = 0.3V, I_O = 20\text{mA}$ $V_O = 0.3V, I_O = 3\text{mA}$ $V_O = 0.3V, I_O = 5\text{mA}$ $V_O = 0.3V, I_O = 1\text{mA}$ $V_O = 0.3V, I_O = 2\text{mA}$ $V_O = 0.3V, I_O = 2\text{mA}$ $V_O = 0.3V, I_O = 2\text{mA}$ $V_O = 0.3V, I_O = 2\text{mA}$
Output Voltage		$V_{O(on)}$	—	0.1	0.3	V	$I_O/I_I = 5\text{mA}/0.25\text{mA}$ DDTC123JKA $I_O/I_I = 5\text{mA}/0.25\text{mA}$ DDTC143ZKA $I_O/I_I = 5\text{mA}/0.25\text{mA}$ DDTC114YKA $I_O/I_I = 10\text{mA}/0.5\text{mA}$ All Others	
Input Current	DDTC113ZKA DDTC123YKA DDTC123JKA DDTC143XKA DDTC143FKA DDTC143ZKA DDTC114YKA DDTC114WKA DDTC124XKA DDTC144VKA DDTC144WKA	I_I	—	—	7.2 3.8 3.6 1.8 1.8 1.8 0.88 0.88 0.36 0.16 0.16	mA	$V_I = 5V$	
Output Current		$I_{O(off)}$	—	—	0.5	μA	$V_{CC} = 50V, V_I = 0V$	
DC Current Gain	DDTC113ZKA DDTC123YKA DDTC123JKA DDTC143XKA DDTC143FKA DDTC143ZKA DDTC114YKA DDTC114WKA DDTC124XKA DDTC144VKA DDTC144WKA	G_I	33 33 80 30 68 80 68 24 68 33 56	—	—	—	$V_O = 5V, I_O = 10\text{mA}$	
Input Resistor Tolerance		DR_1	-30	—	+30	%	—	
Resistance Ratio Tolerance		DR_2/R_1	-20	—	+20	%	—	
Gain-Bandwidth Product*		f_T	—	250	—	MHz	$V_{CE} = 10V, I_E = 5\text{mA}, f = 100\text{MHz}$	

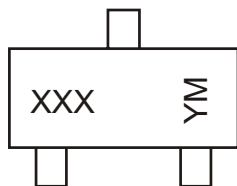
* Transistor - For Reference Only

Ordering Information (Note 2)

Device	Packaging	Shipping
DDTC113ZKA-7	SC-59	3000/Tape & Reel
DDTC123YKA-7	SC-59	3000/Tape & Reel
DDTC123JKA-7	SC-59	3000/Tape & Reel
DDTC143XKA-7	SC-59	3000/Tape & Reel
DDTC143FKA-7	SC-59	3000/Tape & Reel
DDTC143ZKA-7	SC-59	3000/Tape & Reel
DDTC114YKA-7	SC-59	3000/Tape & Reel
DDTC114WKA-7	SC-59	3000/Tape & Reel
DDTC124XKA-7	SC-59	3000/Tape & Reel
DDTC144VKA-7	SC-59	3000/Tape & Reel
DDTC144WKA-7	SC-59	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

TYPICAL CURVES - DDTC123JKA

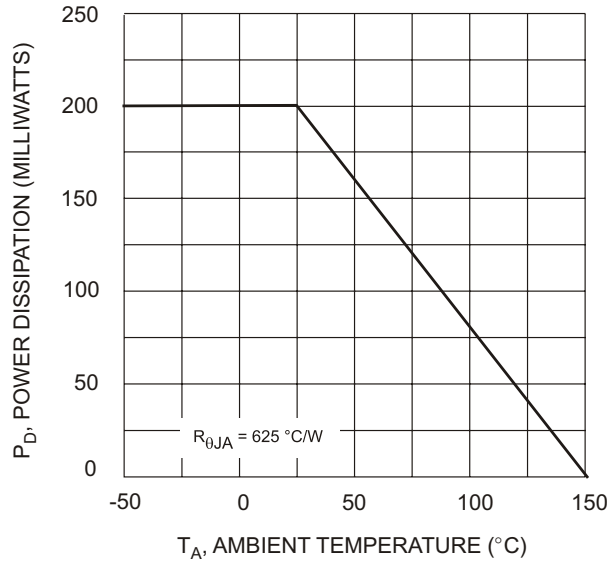


Fig. 1 Derating Curve

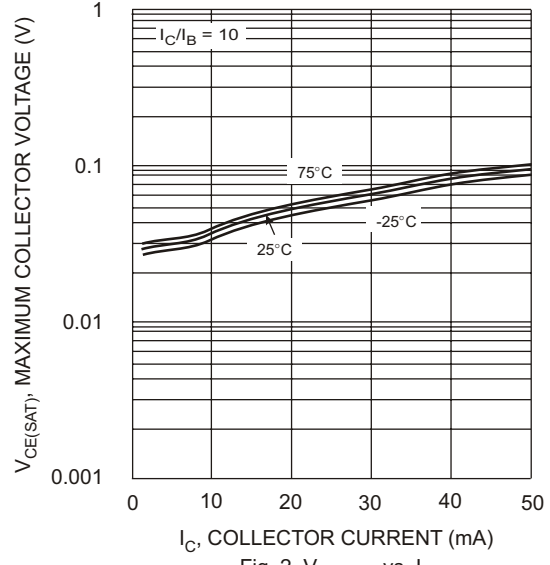


Fig. 2 $V_{CE(SAT)}$ vs. I_C

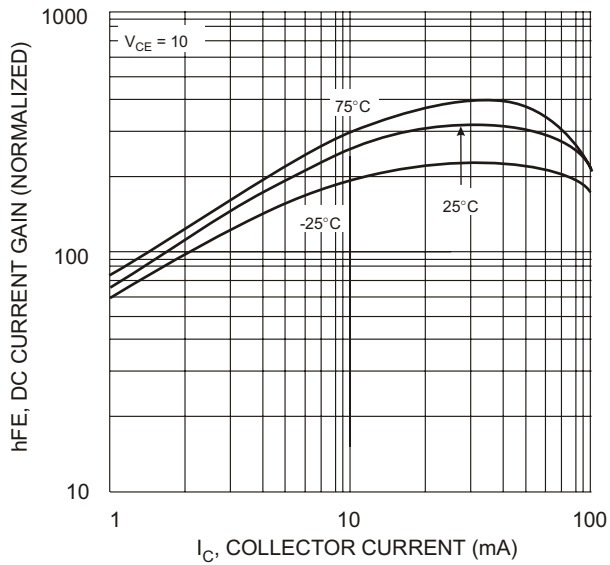


Fig. 3 DC CURRENT GAIN

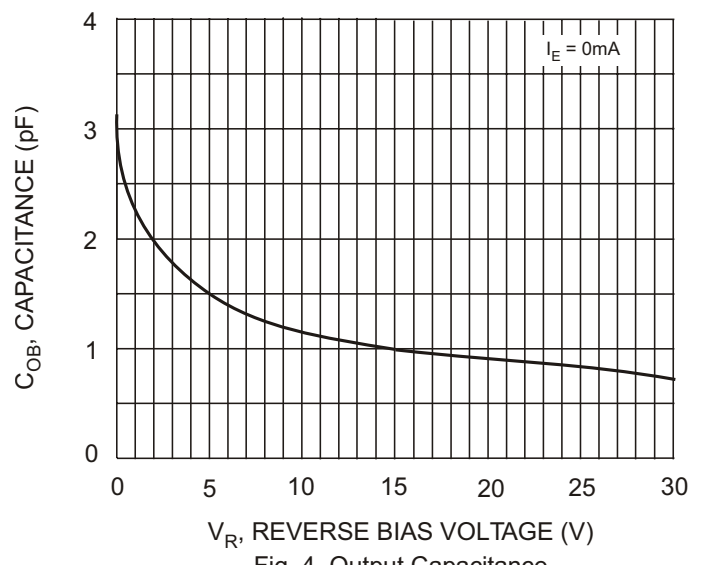


Fig. 4 Output Capacitance

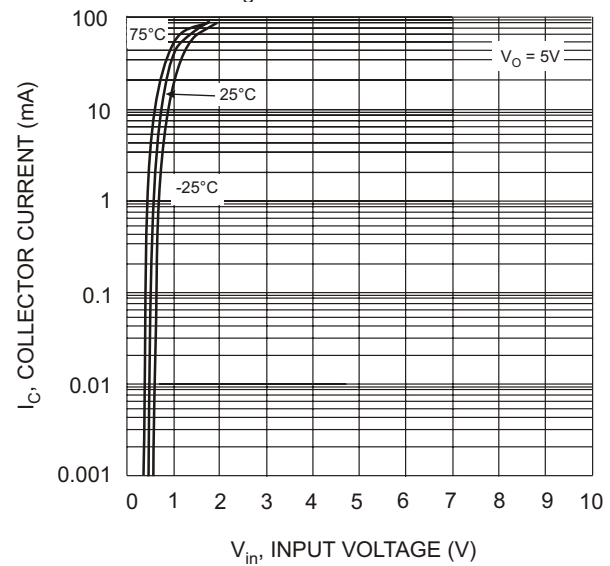


Fig. 5 Collector Current Vs. Input Voltage

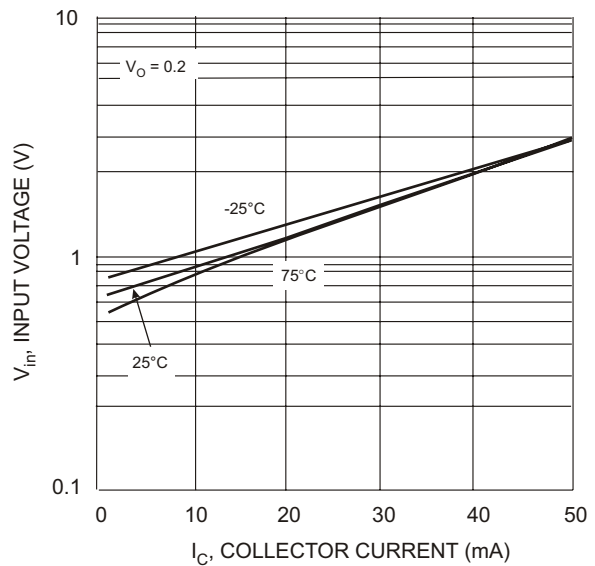


Fig. 6 Input Voltage vs. Collector Current