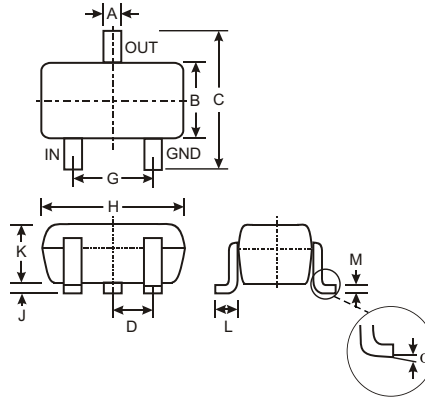


Features

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

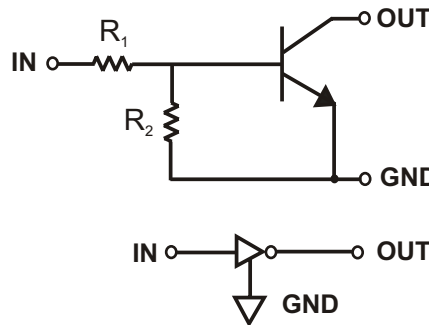
Mechanical Data

- 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: -5 to +10 DDTC123YKA: -5 to +12 DDTC123JKA: -5 to +12 DDTC143XKA: -7 to +20 DDTC143FKA: -6 to +30 DDTC143ZKA: -5 to +30 DDTC114YKA: -6 to +40 DDTC114WKA: -10 to +30 DDTC124XKA: -10 to +40 DDTC144VKA: -15 to +40 DDTC144WKA: -10 to +40	V
Output Current	I _O	DDTC113ZKA: 100 DDTC123YKA: 100 DDTC123JKA: 100 DDTC143XKA: 100 DDTC143FKA: 100 DDTC143ZKA: 100 DDTC114YKA: 70 DDTC114WKA: 100 DDTC124XKA: 50 DDTC144VKA: 30 DDTC144WKA: 30	mA
Output Current	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°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 = 100μA
	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 = 20mA V _O = 0.3V, I _O = 20mA V _O = 0.3V, I _O = 5mA V _O = 0.3V, I _O = 20mA V _O = 0.3V, I _O = 3mA V _O = 0.3V, I _O = 5mA V _O = 0.3V, I _O = 1mA V _O = 0.3V, I _O = 2mA V _O = 0.3V, I _O = 2mA V _O = 0.3V, I _O = 2mA V _O = 0.3V, I _O = 2mA
Output Voltage		V _{O(on)}	—	0.1	0.3	V	I _O /I _I = 5mA/0.25mA DDTC123JKA I _O /I _I = 5mA/0.25mA DDTC143ZKA I _O /I _I = 5mA/0.25mA DDTC114YKA I _O /I _I = 10mA/0.5mA 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 = 10mA	
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 = 5mA, f = 100MHz	

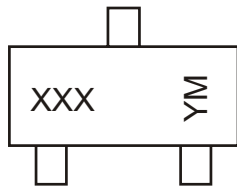
* Transistor - For Reference Only

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

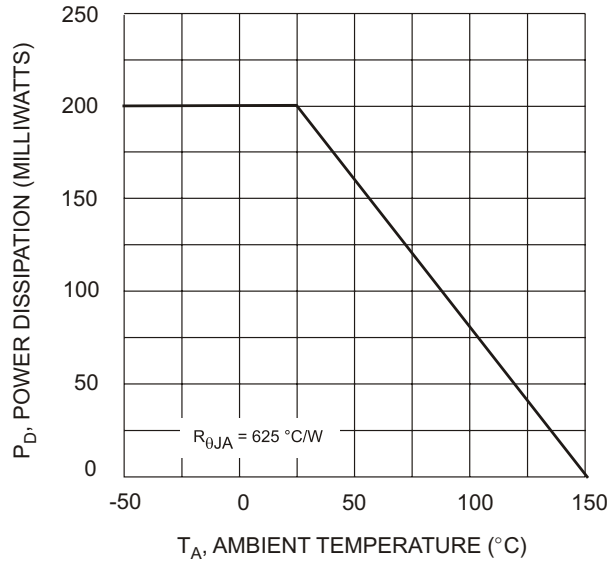


Fig. 1 Derating Curve

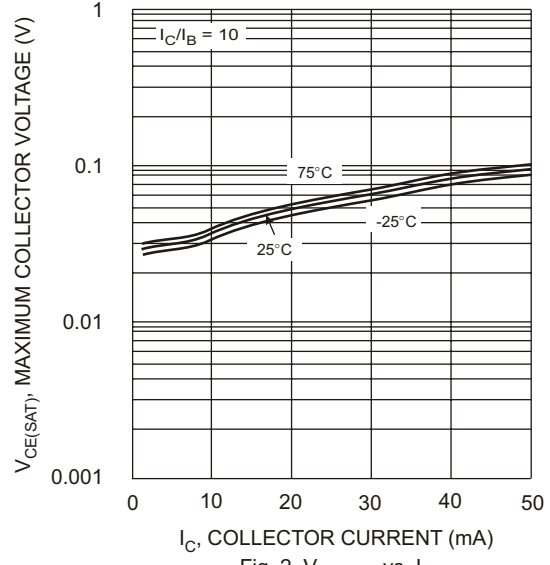


Fig. 2 $V_{CE(SAT)}$ vs. I_C

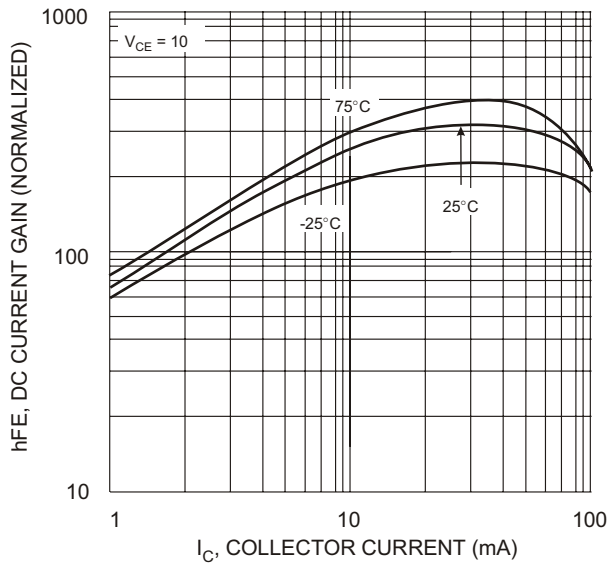


Fig. 3 DC CURRENT GAIN

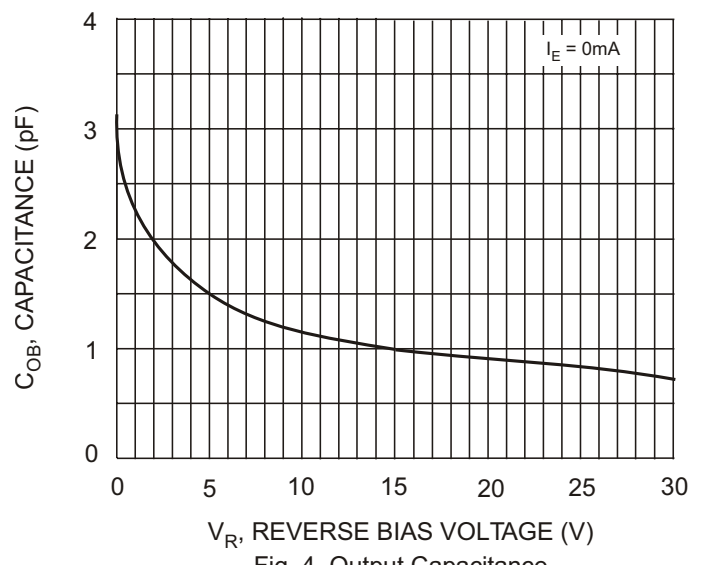


Fig. 4 Output Capacitance

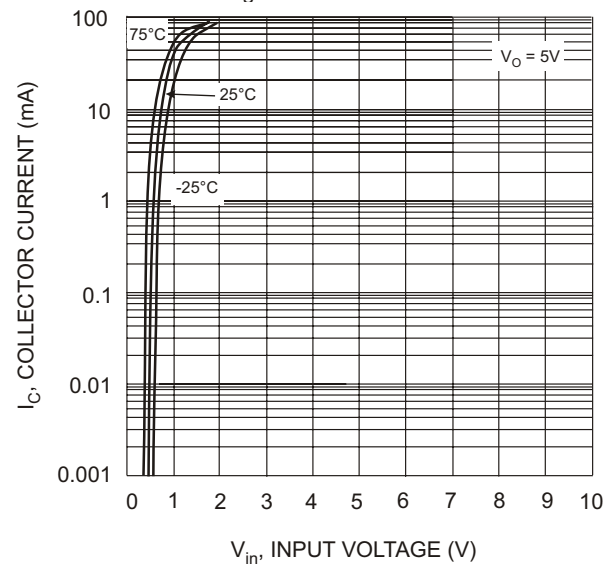


Fig. 5 Collector Current Vs. Input Voltage

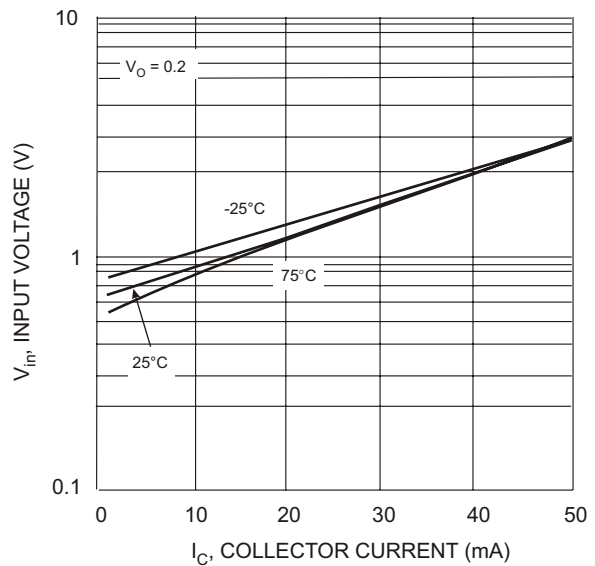


Fig. 6 Input Voltage vs. Collector Current