

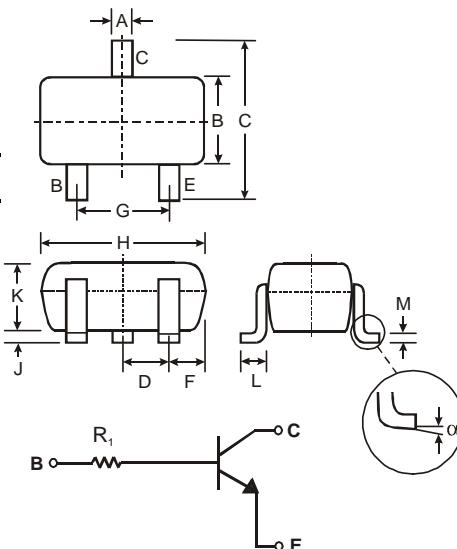
## Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R1 only
- Lead Free/RoHS Compliant (Note 2)**
- "Green" Device, Note 3 and 4

## Mechanical Data

- Case: SC-59
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Diagrams & Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

P/N	R1 (NOM)	Type Code
DDTC113TKA	1KΩ	N01
DDTC123TKA	2.2KΩ	N03
DDTC143TKA	4.7KΩ	N07
DDTC114TKA	10KΩ	N12
DDTC124TKA	22KΩ	N16
DDTC144TKA	47KΩ	N19
DDTC115TKA	100KΩ	N23
DDTC125TKA	200KΩ	N25



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

## Maximum Ratings

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$ (Max)	100	mA
Power Dissipation	$P_d$	200	mW
Thermal Resistance, Junction to Ambient Air (Note 1)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	°C

Notes:

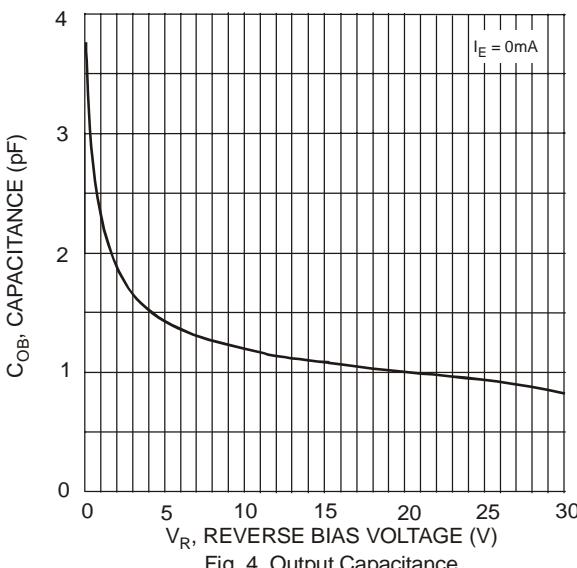
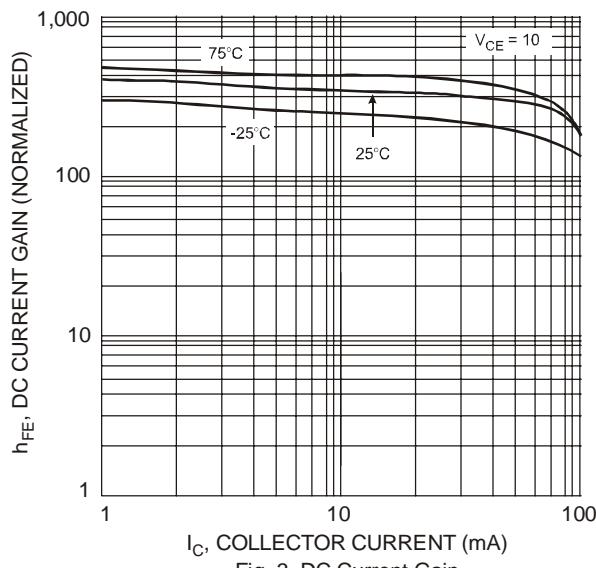
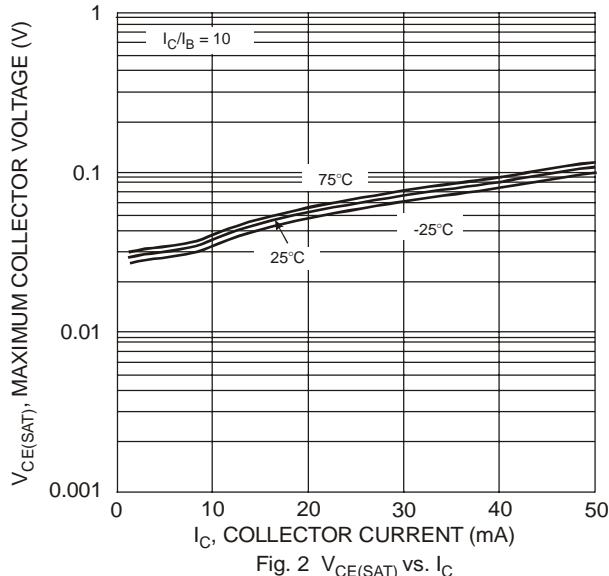
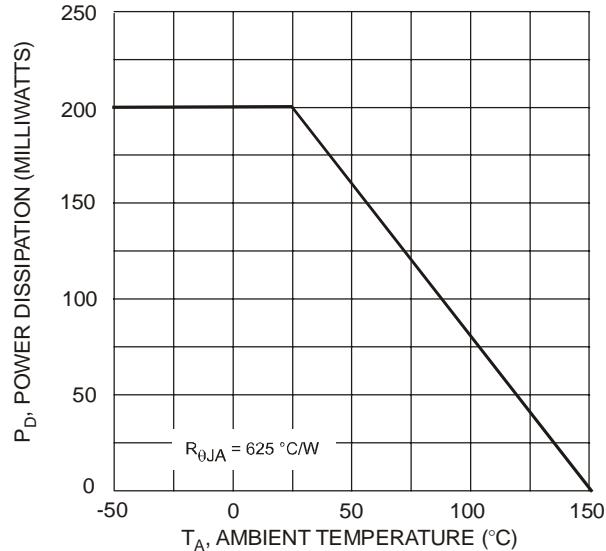
1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>
2. No purposefully added lead.
3. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
4. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$\text{BV}_{\text{CBO}}$	50	—	—	V	$I_C = 50\mu\text{A}$
Collector-Emitter Breakdown Voltage	$\text{BV}_{\text{CEO}}$	50	—	—	V	$I_C = 1\text{mA}$
Emitter-Base Breakdown Voltage	$\text{BV}_{\text{EBO}}$	5	—	—	V	$I_E = 50\mu\text{A}$
Collector Cutoff Current	$I_{\text{CBO}}$	—	—	0.5	$\mu\text{A}$	$V_{\text{CB}} = 50\text{V}$
Emitter Cutoff Current	$I_{\text{EBO}}$	—	—	0.5	$\mu\text{A}$	$V_{\text{EB}} = 4\text{V}$
Collector-Emitter Saturation Voltage	$V_{\text{CE}(\text{sat})}$	—	—	0.3	V	$I_C/I_B = 10\text{mA}/1\text{mA}$ $I_C/I_B = 5\text{mA}/0.5\text{mA}$ $I_C/I_B = 2.5\text{mA}/.25\text{mA}$ $I_C/I_B = 1\text{mA}/.1\text{mA}$ $I_C/I_B = 5\text{mA}/0.5\text{mA}$ $I_C/I_B = 2.5\text{mA}/.25\text{mA}$ $I_C/I_B = 1\text{mA}/0.1\text{mA}$ $I_C/I_B = .5\text{mA}/.05\text{mA}$
DC Current Transfer Ratio	$h_{\text{FE}}$	100	250	600	—	$I_C = 1\text{mA}, V_{\text{CE}} = 5\text{V}$
Input Resistor ( $R_1$ ) Tolerance	$\Delta R_1$	-30	—	+30	%	—
Gain-Bandwidth Product*	$f_T$	—	250	—	MHz	$V_{\text{CE}} = 10\text{V}, I_E = -5\text{mA},$ $f = 100\text{MHz}$

\* Transistor - For Reference Only

**Typical Curves – DDTC114TKA**



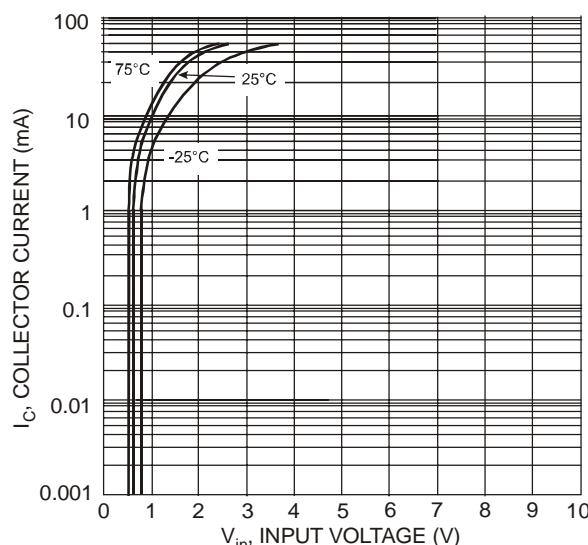


Fig. 5 Collector Current vs. Input Voltage

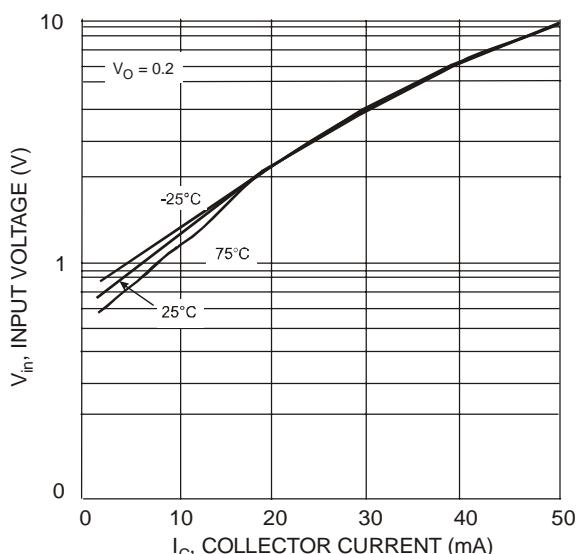


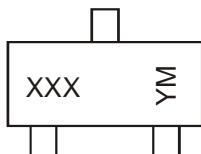
Fig. 6 Input Voltage vs. Collector Current

## Ordering Information (Note 4 & 5)

Device	Packaging	Shipping
DDTC113TKA-7-F	SC-59	3000/Tape & Reel
DDTC123TKA-7-F	SC-59	3000/Tape & Reel
DDTC143TKA-7-F	SC-59	3000/Tape & Reel
DDTC114TKA-7-F	SC-59	3000/Tape & Reel
DDTC124TKA-7-F	SC-59	3000/Tape & Reel
DDTC144TKA-7-F	SC-59	3000/Tape & Reel
DDTC115TKA-7-F	SC-59	3000/Tape & Reel
DDTC125TKA-7-F	SC-59	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



XXX = Product Type Marking Code, See Table on Page 1

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	
Code	N	P	R	S	T	U	V	W	X	Y	Z	
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

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