



DDTA (R1-ONLY SERIES) KA

PNP PRE-BIASED SMALL SIGNAL SC-59 SURFACE MOUNT TRANSISTOR

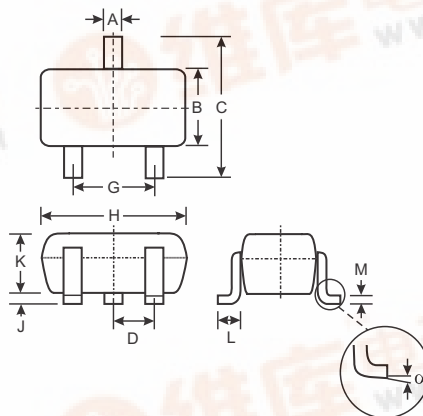
Features

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

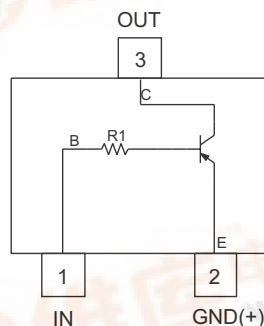
Mechanical Data

- 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: Date Code and Type Code (See Table Below & Page 2)
- Ordering Information (See Page 2)
- Weight: 0.008 grams (approximate)

P/N	R1 (NOM)	Type Code
DDTA113TKA	1K Ω	P01
DDTA123TKA	2.2K Ω	P03
DDTA143TKA	4.7K Ω	P07
DDTA114TKA	10K Ω	P12
DDTA124TKA	22K Ω	P16
DDTA144TKA	47K Ω	P19
DDTA115TKA	100K Ω	P23
DDTA125TKA	200K Ω	P25



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		



Schematic and Pin Configuration

Maximum Ratings @ $T_A = 25^\circ\text{C}$ 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	$^\circ\text{C/W}$
Operating and Storage and Temperature Range	T_j, T_{STG}	-55 to +150	$^\circ\text{C}$

- Note:
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.
 4. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 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

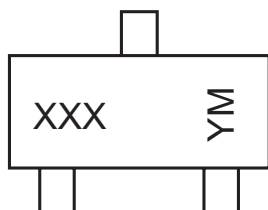
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-50	—	—	V	$I_C = -50\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	-50	—	—	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	$I_E = -50\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	—	-0.5	μA	$V_{CB} = -50\text{V}$
Emitter Cutoff Current	I_{EBO}	—	—	-0.5	μA	$V_{EB} = -4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	-0.3	V	$I_C/I_B = -10\text{mA}/-1\text{mA}$ DDTA113TKA $I_C/I_B = -5\text{mA}/-0.5\text{mA}$ DDTA123TKA $I_C/I_B = -2.5\text{mA}/-.25\text{mA}$ DDTA143TKA $I_C/I_B = -1\text{mA}/-.1\text{mA}$ DDTA114TKA $I_C/I_B = -5\text{mA}/-0.5\text{mA}$ DDTA124TKA $I_C/I_B = -2.5\text{mA}/-.25\text{mA}$ DDTA144TKA $I_C/I_B = -1\text{mA}/-0.1\text{mA}$ DDTA115TKA $I_C/I_B = -.5\text{mA}/-.05\text{mA}$ DDTA125TKA
DC Current Transfer Ratio	h_{FE}	100	250	600	—	$I_C = -1\text{mA}$, $V_{CE} = -5\text{V}$
Input Resistor (R_1) Tolerance	ΔR_1	-30	—	+30	%	—
Gain-Bandwidth Product*	f_T	—	250	—	MHz	$V_{CE} = -10\text{V}$, $I_E = 5\text{mA}$, $f = 100\text{MHz}$

* Transistor - For Reference Only

Ordering Information (Note 4 and 5)

Device	Packaging	Shipping
DDTA113TKA-7-F	SC-59	3000/Tape & Reel
DDTA123TKA-7-F	SC-59	3000/Tape & Reel
DDTA143TKA-7-F	SC-59	3000/Tape & Reel
DDTA114TKA-7-F	SC-59	3000/Tape & Reel
DDTA124TKA-7-F	SC-59	3000/Tape & Reel
DDTA144TKA-7-F	SC-59	3000/Tape & Reel
DDTA115TKA-7-F	SC-59	3000/Tape & Reel
DDTA125TKA-7-F	SC-59	3000/Tape & Reel

- Notes: 4. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
 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	2006	2007	2008	2009	2010	2011	2012
Code	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

TYPICAL CURVES - DDTA114TKA

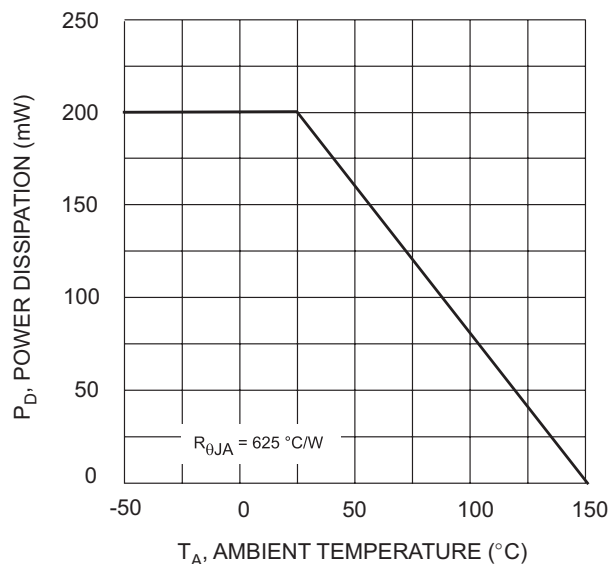


Fig. 1 Derating Curve

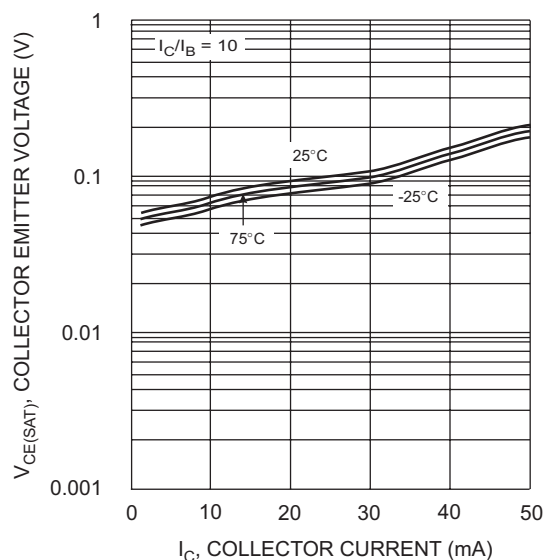


Fig. 2 $V_{CE(SAT)}$ vs. I_C

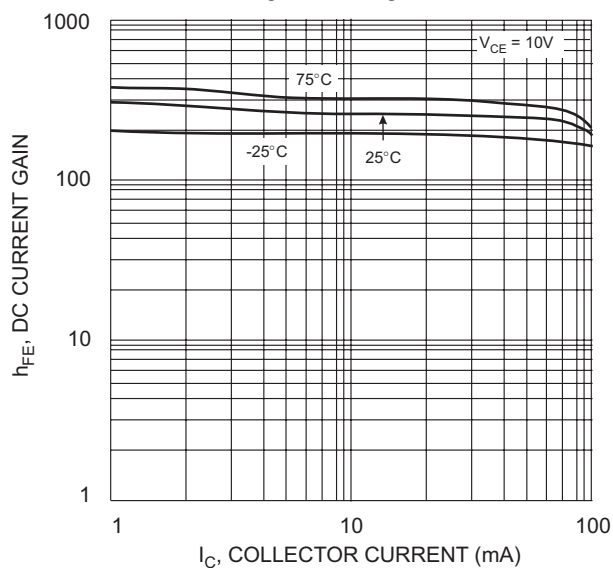


Fig. 3 DC Current Gain

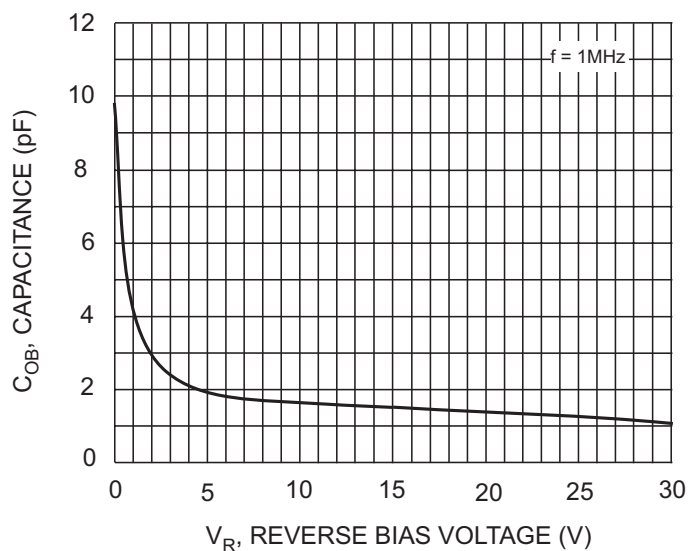


Fig. 4 Output Capacitance

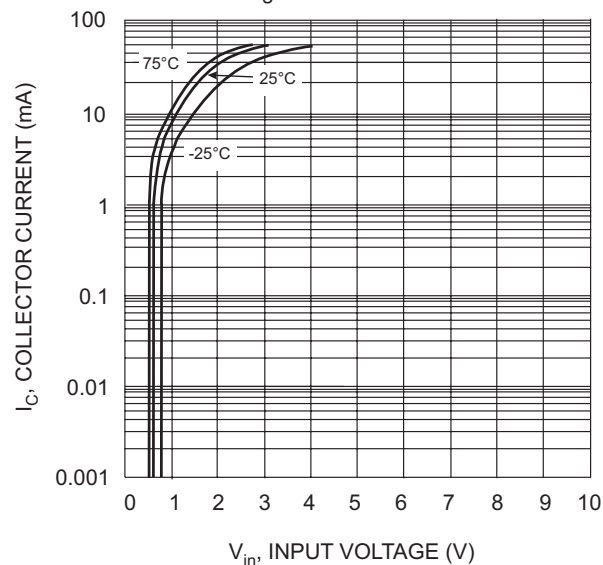


Fig. 5 Collector Current Vs. Input Voltage

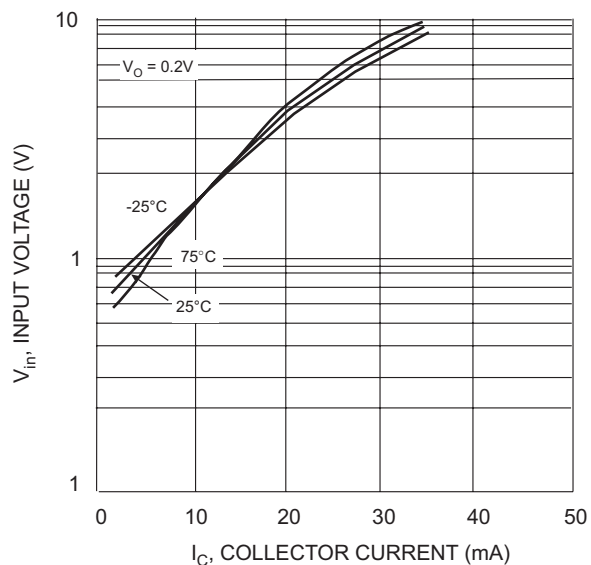


Fig. 6 Input Voltage vs. Collector Current



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