

DDTA (R2-ONLY SERIES) KA

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

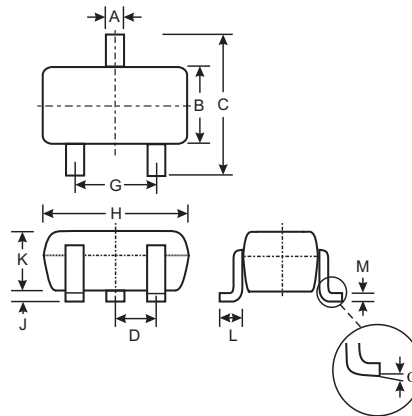
Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistor, R2 only
- **Lead Free/RoHS Compliant (Note 2)**
- "Green" Device Note 3 & 4

Mechanical Data

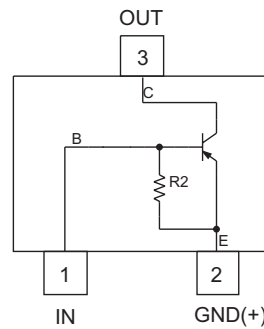
- Case: SC-59
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Terminal 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	R2 (NOM)	Type Code
DDTA114KA	10K Ω	P26
DDTA124KA	22K Ω	P27
DDTA144KA	47K Ω	P28
DDTA115KA	100K Ω	P29



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	$^\circ\text{C}/\text{W}$
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°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV _{CBO}	-50	—	—	V	I _C = -50μA
Collector-Emitter Breakdown Voltage		BV _{CEO}	-50	—	—	V	I _C = -1mA
Emitter-Base Breakdown Voltage		BV _{EBO}	5	—	—	V	I _E = -720μA, DDTA114GKA I _E = -330μA, DDTA124GKA I _E = -160μA, DDTA144GKA I _E = -72μA, DDTA115GKA
Collector Cutoff Current		I _{CBO}	—	—	-0.5	μA	V _{CB} = -50V
Emitter Cutoff Current	DDTA114KA	I _{EBO}	-300	—	-580	μA	V _{EB} = -4V
	DDTA124KA		-140		-260		
	DDTA144KA		-65		-130		
	DDTA115KA		-30		-58		
Collector-Emitter Saturation Voltage		V _{CE(sat)}	—	—	-0.3	V	I _C = -10mA, I _B = -0.5mA
DC Current Transfer Ratio	DDTA114GKA	h _{FE}	30	—	—	—	I _C = -5mA, V _{CE} = -5V
	DDTA124GKA		56				
	DDTA144GKA		68				
	DDTA115GKA		82				
Bleeder Resistor (R ₂) Tolerance		ΔR ₂	-30	—	+30	%	—
Gain-Bandwidth Product*		f _T	—	250	—	MHz	V _{CE} = -10V, I _E = 5mA, f = 100MHz

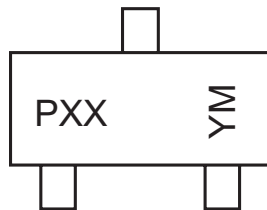
* Transistor - For Reference Only

Ordering Information (Note 4 & 5)

Device	Packaging	Shipping
DDTA114GKA-7-F	SC-59	3000/Tape & Reel
DDTA124GKA-7-F	SC-59	3000/Tape & Reel
DDTA144GKA-7-F	SC-59	3000/Tape & Reel
DDTA115GKA-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 to 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



PXX = 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

TYPICAL CURVES - DDTA114KA

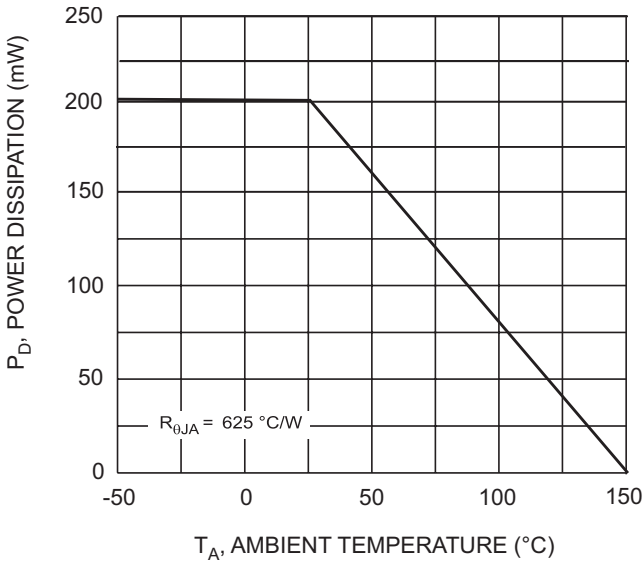


Fig. 1, Derating Curve

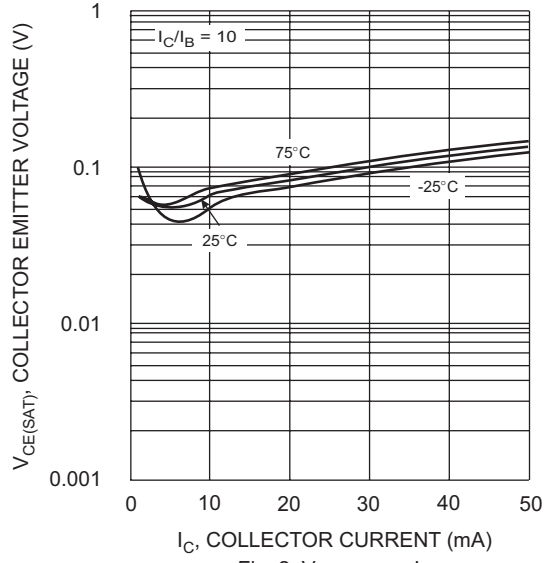


Fig. 2 $V_{CE(SAT)}$ vs. I_C

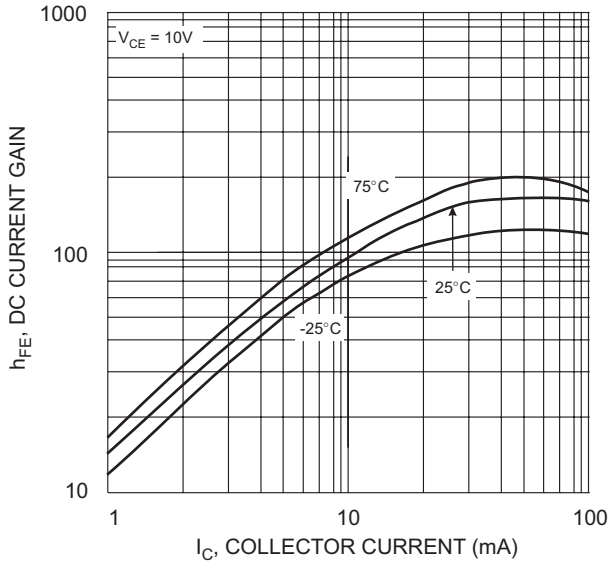


Fig. 3 DC CURRENT GAIN

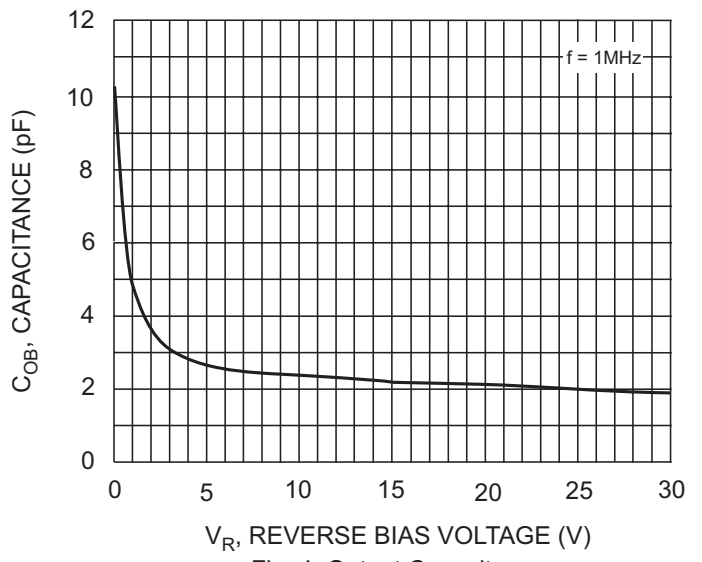


Fig. 4 Output Capacitance

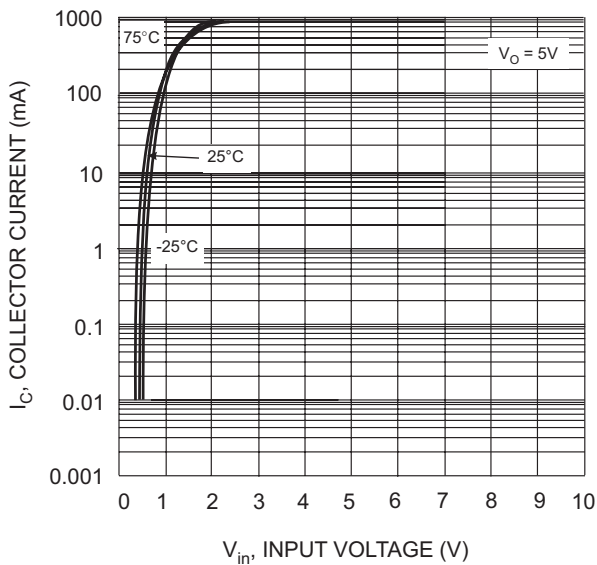


Fig. 5 Collector Current Vs. Input Voltage

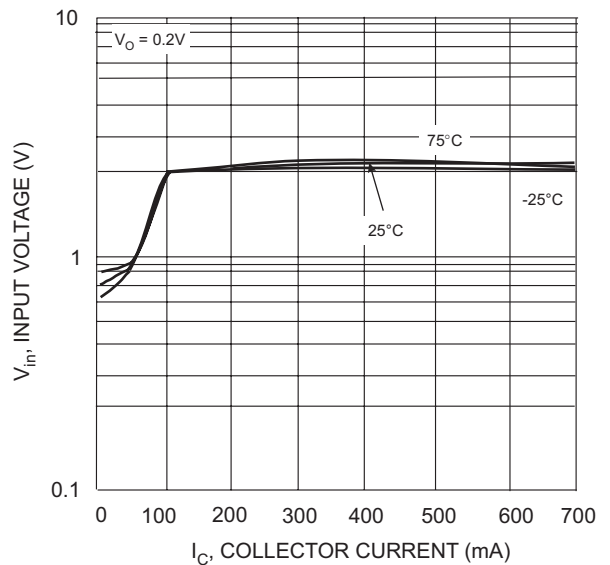


Fig. 6 Input Voltage vs. Collector Current



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