DDTA (R1 = R2 SERIES) KA

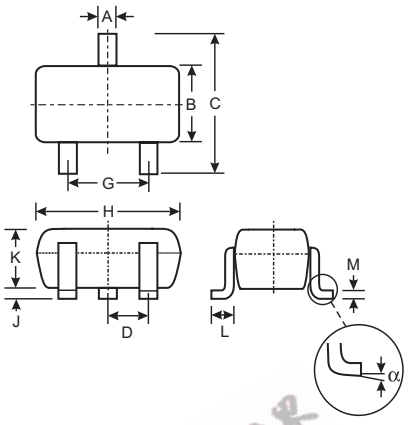
PNP PRE-BIASED SMALL SIGNAL SC-59 SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistors, R1 = R2
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device, Note 3 and 4**

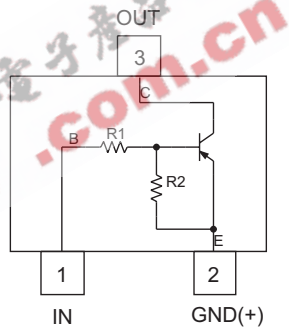
Mechanical Data

- 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)

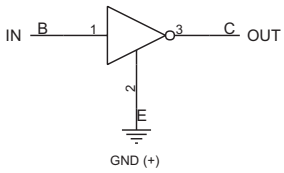


SC-59		
Dim	**Min**	**Max**
A	0.35	0.50
B	1.50	1.70
C	2.70	3.00
D	0.95	
G	1.90	
H	2.90	3.10
J	0.013	0.10
K	1.00	1.30
L	0.35	0.55
M	0.10	0.20
α	0°	8°
All Dimensions in mm		

P/N	R1, R2 (NOM)	Type Code
DDTA123EKA	2.2KΩ	P04
DDTA143EKA	4.7KΩ	P08
DDTA114EKA	10KΩ	P13
DDTA124EKA	22KΩ	P17
DDTA144EKA	47KΩ	P20
DDTA115EKA	100KΩ	P24



Schematic and Pin Configuration



Equivalent Inverter Circuit

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (2)		V_{CC}	-50	V
Input Voltage, (1) to (2)	DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA	V_{IN}	+10 to -12 +10 to -30 +10 to -40 +10 to -40 +10 to -40 +10 to -40	V
Output Current	DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA	I_O	-100 -100 -50 -30 -100 -20	mA
Output Current	All	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 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.
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
Input Voltage		$V_{I(off)}$	-0.5	-1.1	—	V	V_{CC} = -5V, I_O = -100μA
		$V_{I(on)}$	—	-1.9	-3		V_O = -0.3V, I_O = -20mA, DDTA123EKA V_O = -0.3V, I_O = -20mA, DDTA143EKA V_O = -0.3V, I_O = -10mA, DDTA114EKA V_O = -0.3V, I_O = -5mA, DDTA124EKA V_O = -0.3V, I_O = -2mA, DDTA144EKA V_O = -0.3V, I_O = -1mA, DDTA115EKA
Output Voltage		$V_{O(on)}$	—	-0.1	-0.3	V	I_O/I_I = -10mA/-0.5mA, DDTA123EKA I_O/I_I = -10mA/-0.5mA, DDTA143EKA I_O/I_I = -10mA/-0.5mA, DDTA114EKA I_O/I_I = -10mA/-0.5mA, DDTA124EKA I_O/I_I = -10mA/-0.5mA, DDTA144EKA I_O/I_I = -5mA/-0.25mA, DDTA115EKA
Input Current	DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA	I_I	—	—	-3.8 -1.8 -0.88 -0.36 -0.18 -0.15	mA	V_I = -5V
Output Current		$I_{O(off)}$	—	—	-0.5	μA	V_{CC} = -50V, V_I = 0V
DC Current Gain	DDTA123EKA DDTA143EKA DDTA114EKA DDTA124EKA DDTA144EKA DDTA115EKA	G_I	20 20 30 56 68 82	—	—	—	V_O = -5V, I_O = -20mA V_O = -5V, I_O = -10mA V_O = -5V, I_O = -5mA V_O = -5V, I_O = -5mA V_O = -5V, I_O = -5mA V_O = -5V, I_O = -5mA
Input Resistor (R_1) Tolerance		ΔR_1	-30	—	+30	%	—
Resistance Ratio		R_2/R_1	0.8	1	1.2	—	—
Gain-Bandwidth Product*		f_T	—	250	—	MHz	V_{CE} = -10V, I_E = 5mA, f = 100MHz

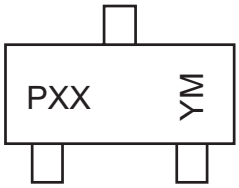
* Transistor - For Reference Only

Ordering Information (Note 4 & 5)

Device	Packaging	Shipping
DDTA123EKA-7-F	SC-59	3000/Tape & Reel
DDTA143EKA-7-F	SC-59	3000/Tape & Reel
DDTA114EKA-7-F	SC-59	3000/Tape & Reel
DDTA124EKA-7-F	SC-59	3000/Tape & Reel
DDTA144EKA-7-F	SC-59	3000/Tape & Reel
DDTA115EKA-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 - DDTA143EKA

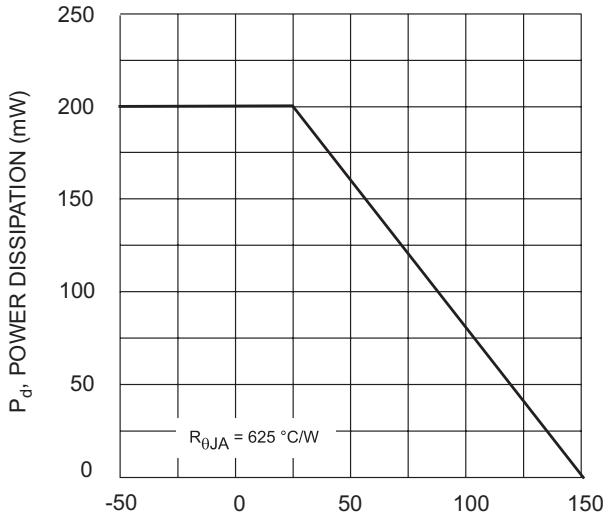


Fig. 1 Derating Curve

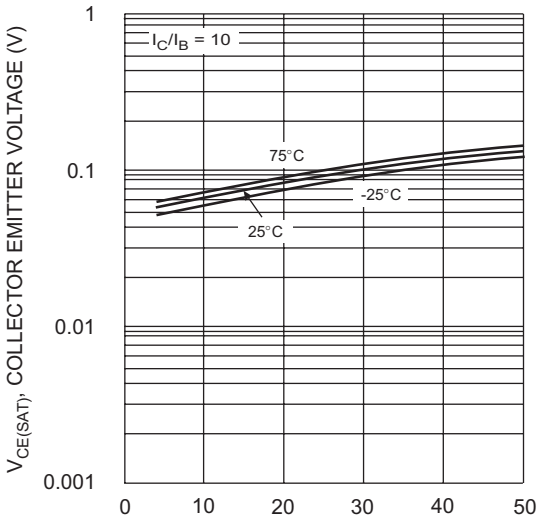


Fig. 2 $V_{CE(SAT)}$ vs. I_C

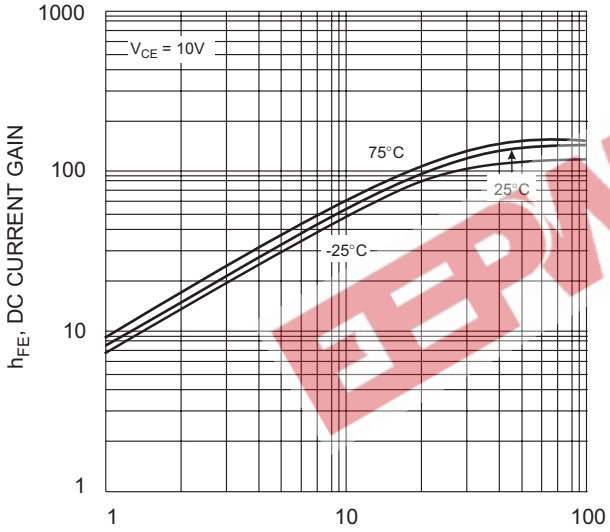


Fig. 3 DC CURRENT GAIN

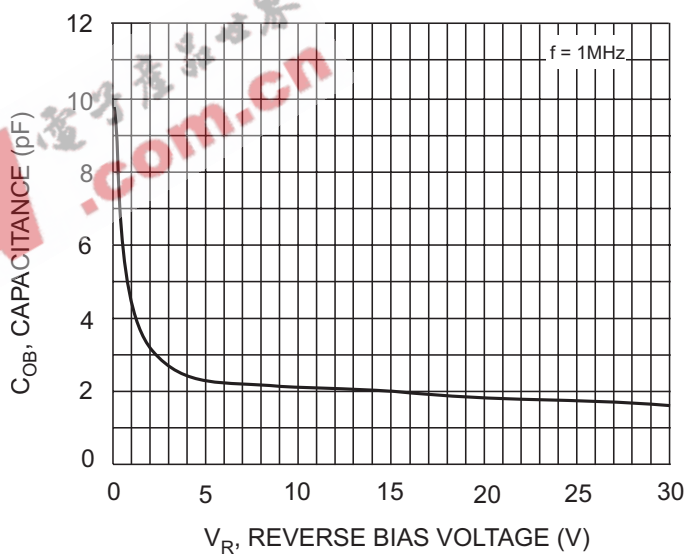


Fig. 4 Output Capacitance

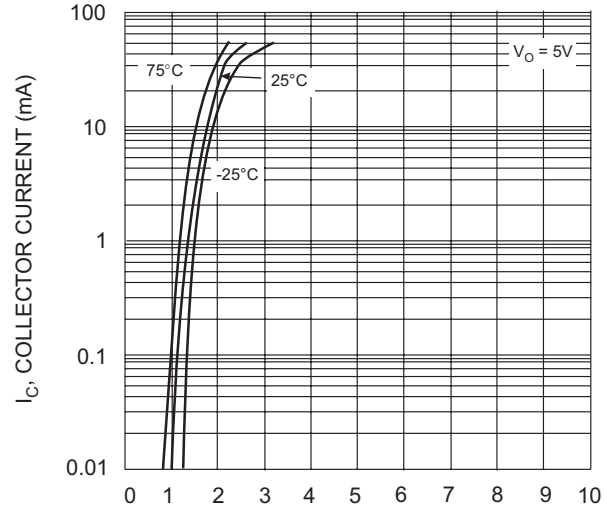


Fig. 5 Collector Current Vs. Input Voltage

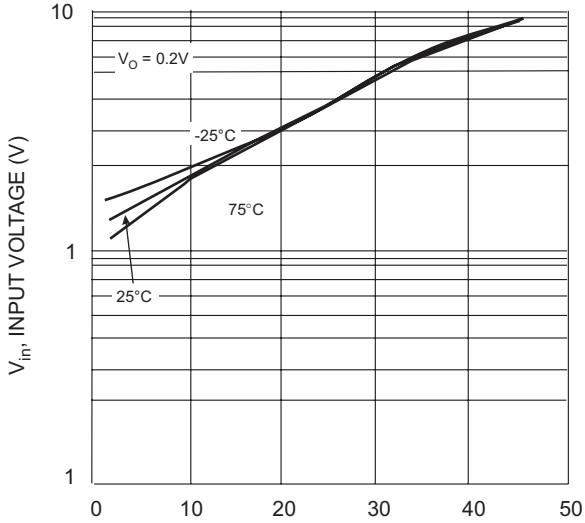


Fig. 6 Input Voltage vs. Collector Current

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