



**THE DATASHEET OF
DDTC123EKA-7**



DDTC (R1 = R2 SERIES) KA

NPN PRE-BIASED SMALL SIGNAL SURFACE MOUNT TRANSISTOR

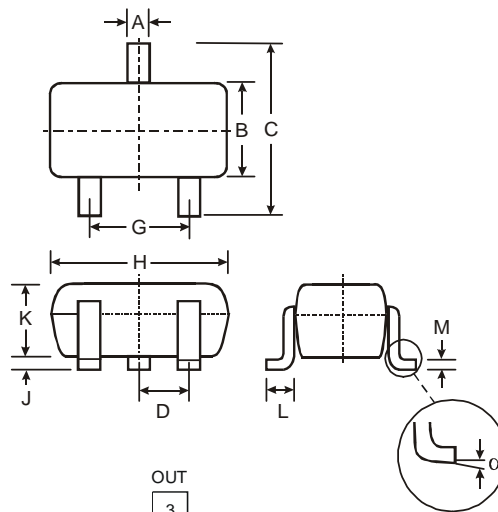
Features

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

Mechanical Data

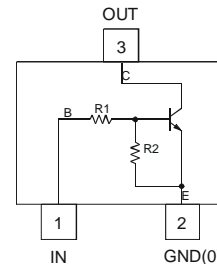
- Case: SC-59
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Terminal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

P/N	R1, R2 (NOM)	Type Code
DDTC123EKA	2.2K Ω	N04
DDTC143EKA	4.7K Ω	N08
DDTC114EKA	10K Ω	N13
DDTC124EKA	22K Ω	N17
DDTC144EKA	47K Ω	N20
DDTC115EKA	100K Ω	N24

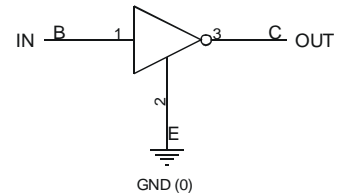


SC-59		
Dim	Min	Max
A	0.35	0.50
B	1.50	1.70
C	2.70	3.00
D	0.95	
G	1.90	
H	2.90	3.10
J	0.013	0.10
K	1.00	1.30
L	0.35	0.55
M	0.10	0.20
α	0°	8°

All Dimensions in mm



Schematic and Pin Configuration



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)	V _{IN}	-10 to +12 -10 to +30 -10 to +40 -10 to +40 -10 to +40 -10 to +40	V
Output Current	I _O	100 100 50 30 100 20	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 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.
 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°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, DDTC123EKA V _O = 0.3V, I _O = 20mA, DDTC143EKA V _O = 0.3V, I _O = 10mA, DDTC114EKA V _O = 0.3V, I _O = 5mA, DDTC124EKA V _O = 0.3V, I _O = 2mA, DDTC144EKA V _O = 0.3V, I _O = 1mA, DDTC115EKA
Output Voltage	V _{O(on)}	—	0.1	0.3	V	I _O /I _I = 10mA/0.5mA, DDTC123EKA I _O /I _I = 10mA/0.5mA, DDTC143EKA I _O /I _I = 10mA/0.5mA, DDTC114EKA I _O /I _I = 10mA/0.5mA, DDTC124EKA I _O /I _I = 10mA/0.5mA, DDTC144EKA I _O /I _I = 5mA/0.25mA, DDTC115EKA
Input Current	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	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

Typical Curves – DDTC143EKA

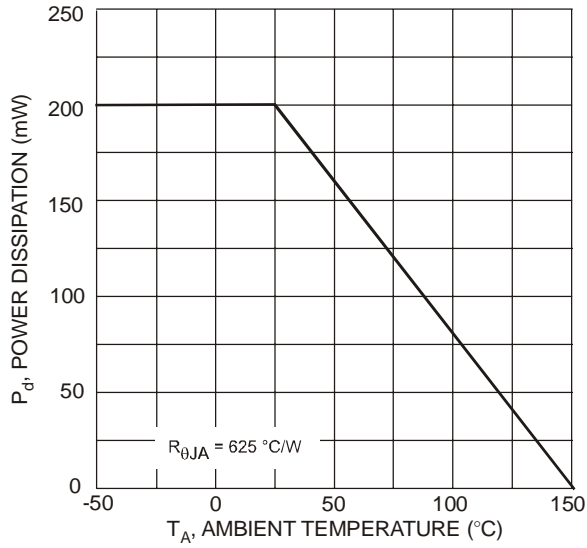


Fig. 1 Derating Curve

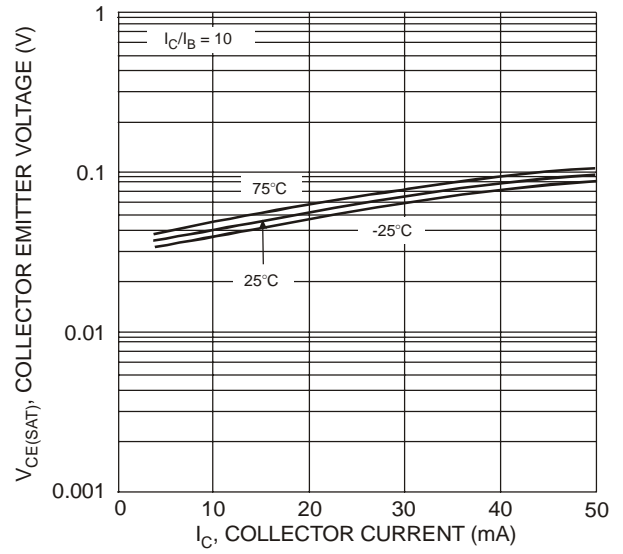


Fig. 2 V_{CE(SAT)} vs. I_C

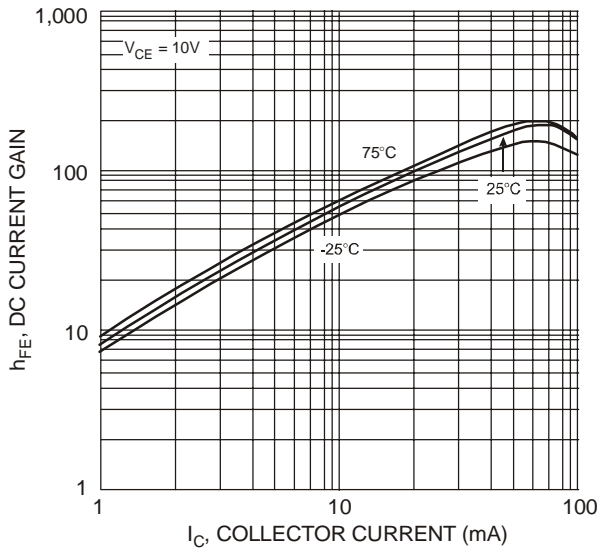


Fig. 3 DC Current Gain

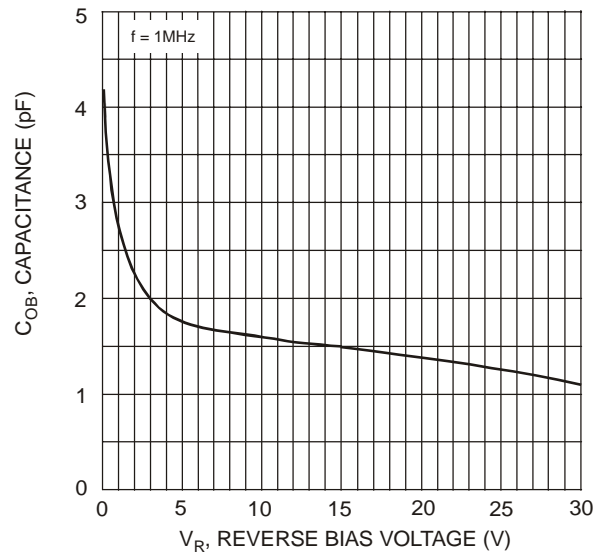


Fig. 4 Output Capacitance

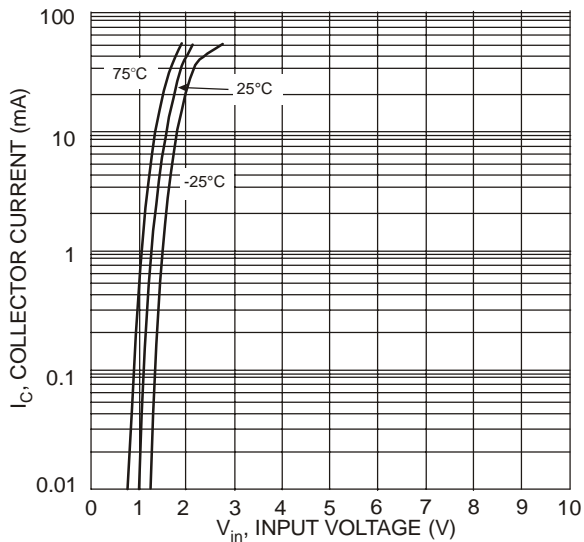


Fig. 5 Collector Current vs. Input Voltage

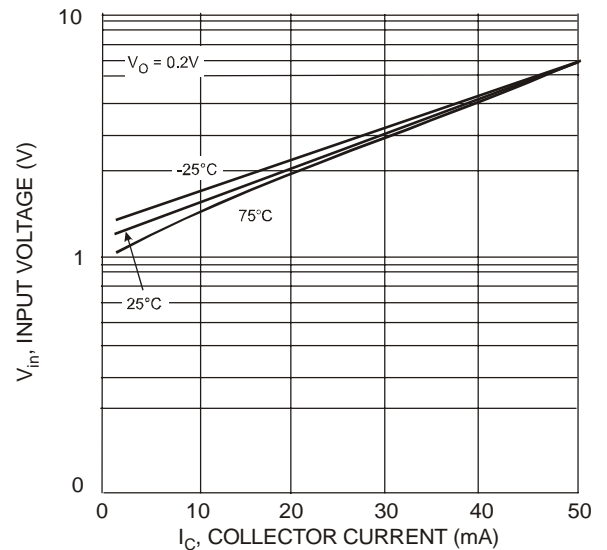


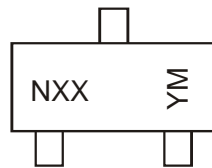
Fig. 6 Input Voltage vs. Collector Current

Ordering Information (Note 4 & 5)

Device	Packaging	Shipping
DDTC123EKA-7-F	SC-59	3000/Tape & Reel
DDTC143EKA-7-F	SC-59	3000/Tape & Reel
DDTC114EKA-7-F	SC-59	3000/Tape & Reel
DDTC124EKA-7-F	SC-59	3000/Tape & Reel
DDTC144EKA-7-F	SC-59	3000/Tape & Reel
DDTC115EKA-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



NXX = 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

IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View DDTTC123EKA-7 on WIN SOURCE](#)

 [Diodes Incorporated](#) Information

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management