

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) DDTC123EKA DDTC143EKA DDTC114EKA DDTC124EKA DDTC144EKA DDTC115EKA	V _{IN}	-10 to +12 -10 to +30 -10 to +40 -10 to +40 -10 to +40 -10 to +40	V
Output Current DDTC123EKA DDTC143EKA DDTC114EKA DDTC124EKA DDTC144EKA DDTC115EKA	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 _{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	DDTC123EKA DDTC143EKA DDTC114EKA DDTC124EKA DDTC144EKA DDTC115EKA	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	DDTC123EKA DDTC143EKA DDTC114EKA DDTC124EKA DDTC144EKA DDTC115EKA	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

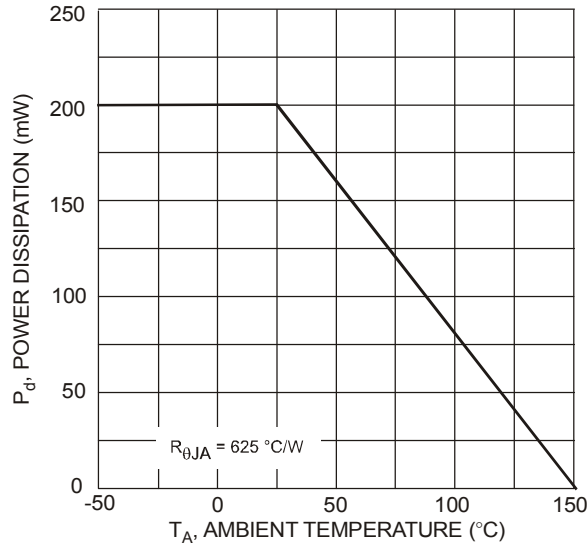


Fig. 1 Derating Curve

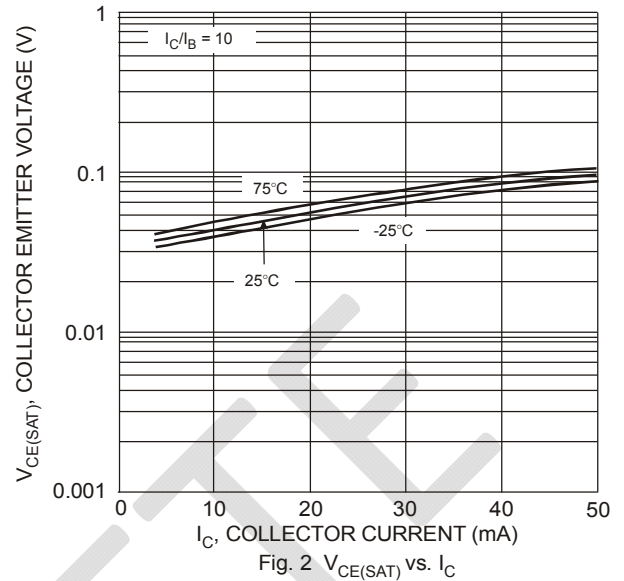


Fig. 2 $V_{CE(SAT)}$ vs. I_C

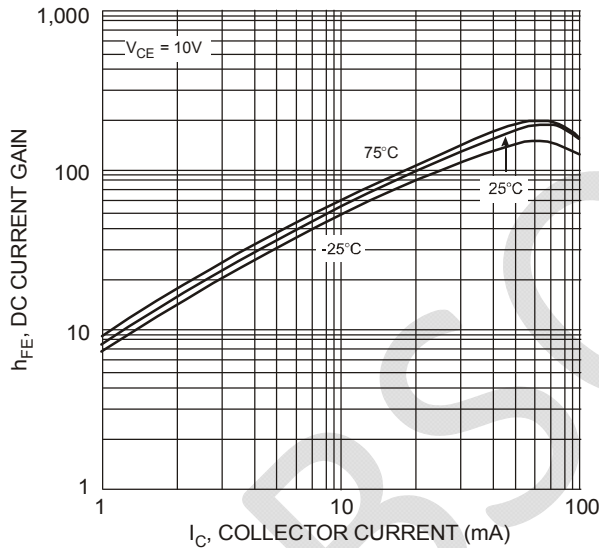


Fig. 3 DC Current Gain

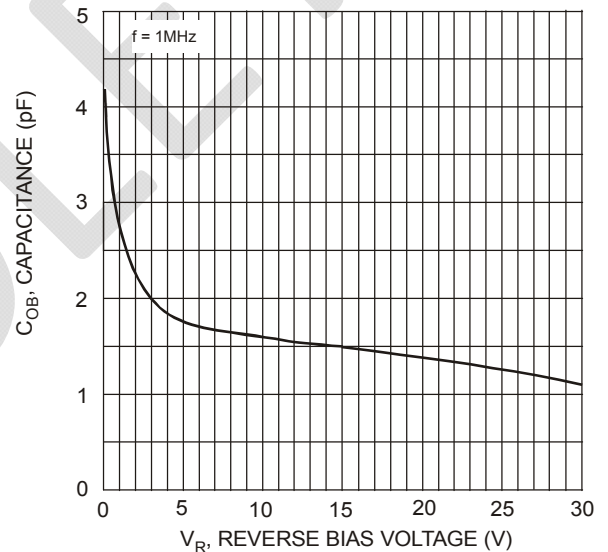


Fig. 4 Output Capacitance

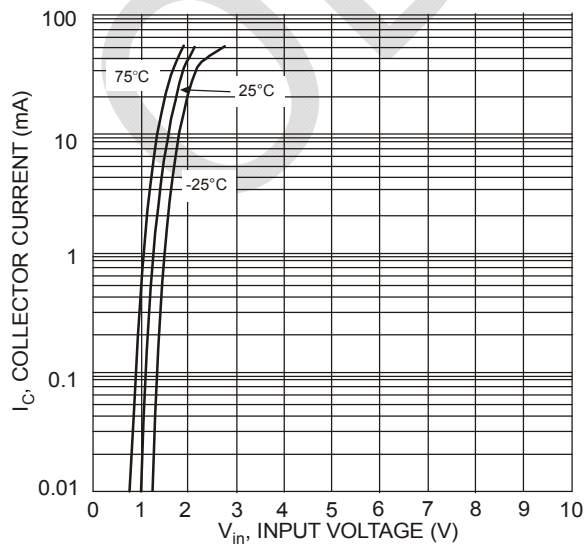


Fig. 5 Collector Current vs. Input Voltage

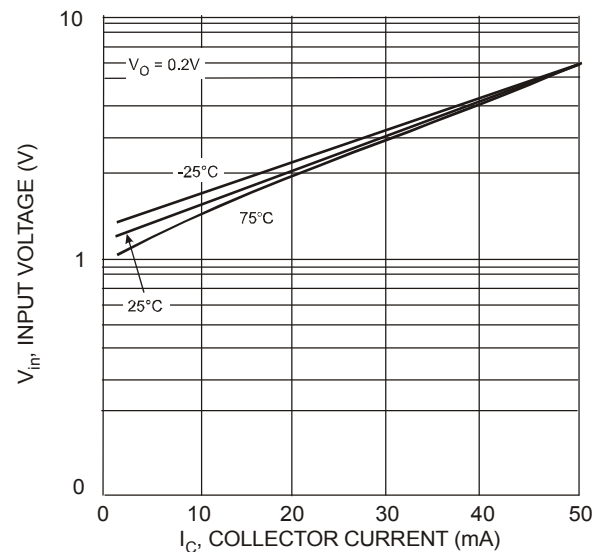
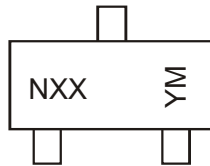


Fig. 6 Input Voltage vs. Collector Current

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

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

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