

DDTC (R2-ONLY SERIES) KA

**NPN PRE-BIASED SMALL SIGNAL SC-59
SURFACE MOUNT TRANSISTOR**

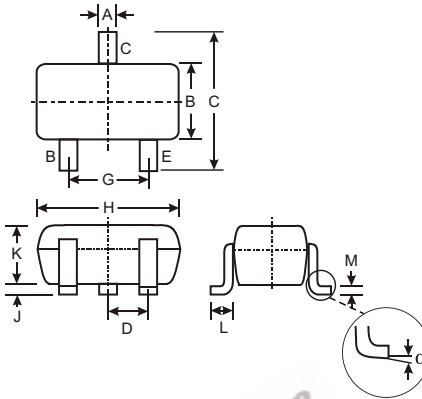
NEW PRODUCT

Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R2 only

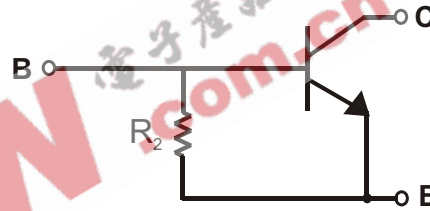
Mechanical Data

- Case: SC-59, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: Date Code and Marking Code (See Diagrams & Page 2)
- Weight: 0.006 grams (approx.)
- Ordering Information (See Page 2)



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	R2 (NOM)	MARKING
DDTC114GKA	10K Ω	N26
DDTC124GKA	22K Ω	N27
DDTC144GKA	47K Ω	N28
DDTC115GKA	100K Ω	N29



SCHEMATIC DIAGRAM

Maximum Ratings @ T_A = 25°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 _{θJA}	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>.

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, DDTC114GKA I _E = 330μA, DDTC124GKA I _E = 160μA, DDTC144GKA I _E = 72μA, DDTC115GKA
Collector Cutoff Current		I _{CBO}	—	—	0.5	μA	V _{CB} = 50V
Emitter Cutoff Current	DDTC114GKA	I _{EBO}	300	—	580	μA	V _{EB} = 4V
	DDTC124GKA		140		260		
	DDTC144GKA		65		130		
	DDTC115GKA		30		58		
Collector-Emitter Saturation Voltage		V _{CE(sat)}	—	—	0.3	V	I _C = 10mA, I _B = 0.5mA
DC Current Transfer Ratio	DDTC114GKA	h _{FE}	30	—	—	—	I _C = 5mA, V _{CE} = 5V
	DDTC124GKA		56				
	DDTC144GKA		68				
	DDTC115GKA		82				
Bleeder Resistor (R ₂) Tolerance		DR ₂	-30	—	+30	%	—
Gain-Bandwidth Product*		f _T	—	250	—	MHz	V _{CE} = 10V, I _E = -5mA, f = 100MHz

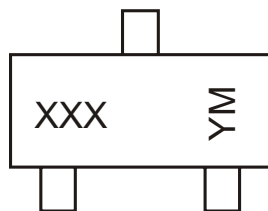
* Transistor - For Reference Only

Ordering Information (Note 2)

Device	Packaging	Shipping
DDTC114GKA-7	SC-59	3000/Tape & Reel
DDTC124GKA-7	SC-59	3000/Tape & Reel
DDTC144GKA-7	SC-59	3000/Tape & Reel
DDTC115GKA-7	SC-59	3000/Tape & Reel

Notes: 2. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



XXX = Product Type Marking Code
See Sheet 1 Diagrams
YM = Date Code Marking
Y = Year ex: N = 2002
M = Month ex: 9 = September

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009
Code	N	P	R	S	T	U	V	W

Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

TYPICAL CURVES - DDTC114GKA

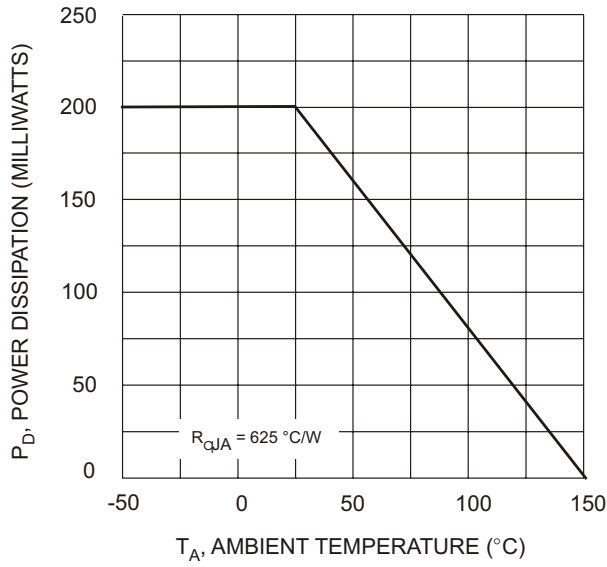


Fig. 1 Derating Curve

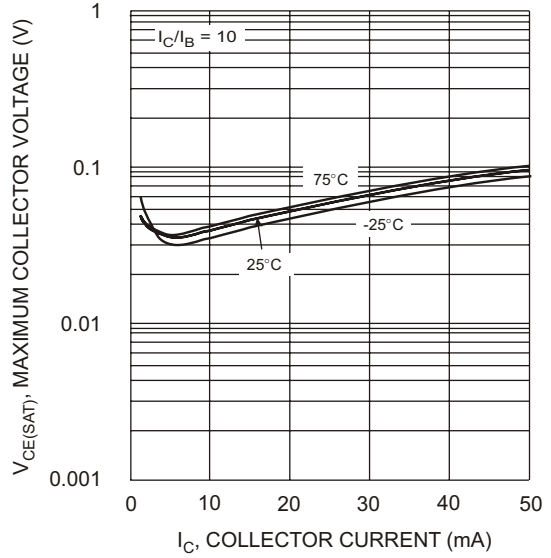


Fig. 2 $V_{CE(SAT)}$ vs. I_C

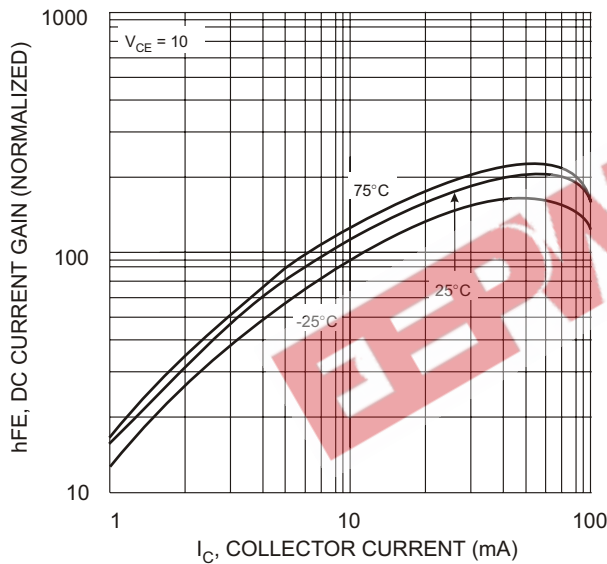


Fig. 3 DC CURRENT GAIN

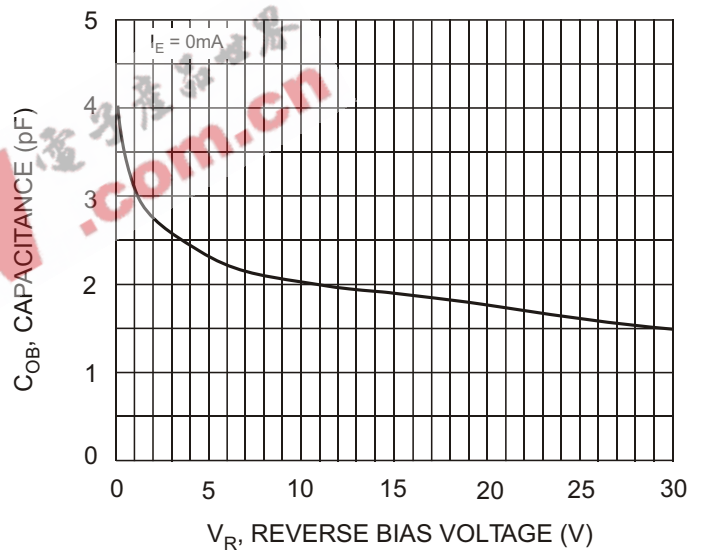


Fig. 4 Output Capacitance

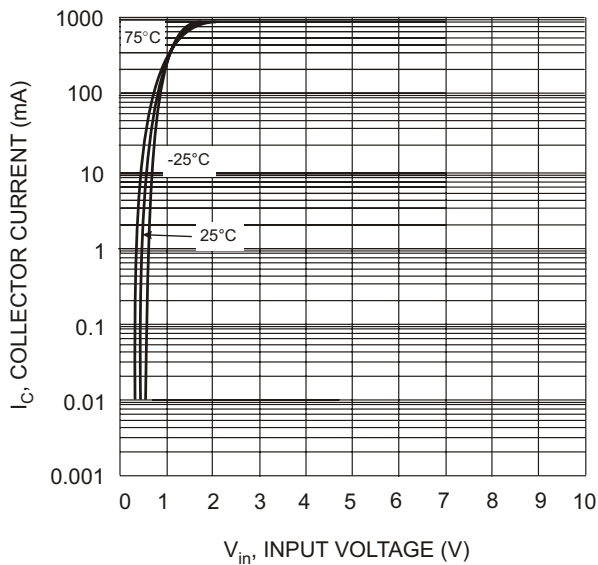


Fig. 5 Collector Current Vs. Input Voltage

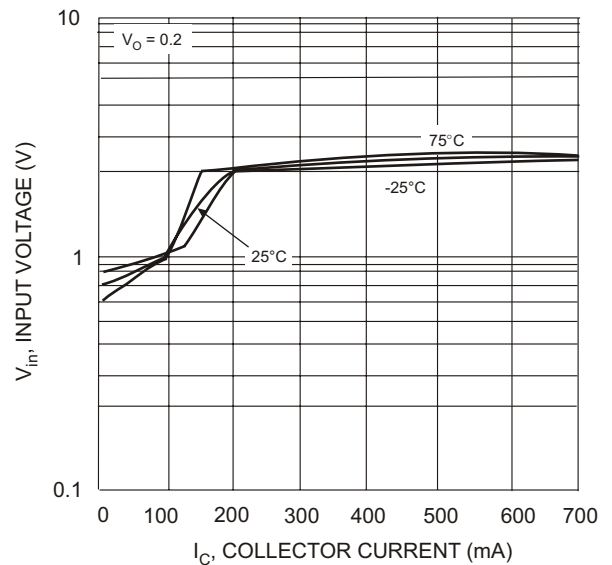


Fig. 6 Input Voltage vs. Collector Current