DDTC (R1-ONLY SERIES) KA

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

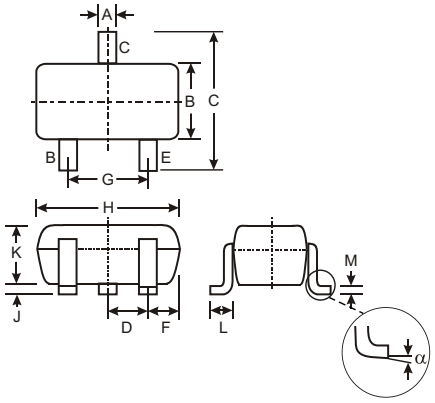
NEW PRODUCT

Features

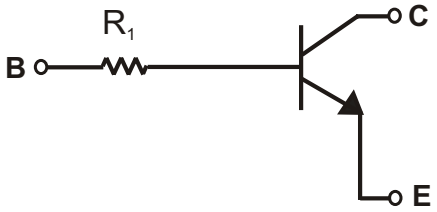
- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R1 only

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: 0.008 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		



SCHEMATIC DIAGRAM

P/N	R1 (NOM)	MARKING
DDTC113TKA	1KΩ	N01
DDTC123TKA	2.2KΩ	N03
DDTC143TKA	4.7KΩ	N07
DDTC114TKA	10KΩ	N12
DDTC124TKA	22KΩ	N16
DDTC144TKA	47KΩ	N19
DDTC115TKA	100KΩ	N23
DDTC125TKA	200KΩ	N25

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)	$R_{\theta JA}$	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.

NEW PRODUCT

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	$I_C = 50\mu A$
Collector-Emitter Breakdown Voltage	BV_{CEO}	50	—	—	V	$I_C = 1mA$
Emitter-Base Breakdown Voltage	BV_{EBO}	5	—	—	V	$I_E = 50\mu A$
Collector Cutoff Current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 50V$
Emitter Cutoff Current	I_{EBO}	—	—	0.5	μA	$V_{EB} = 4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	0.3	V	I_C/I_B = 10mA/1mA DDTC113TKA I_C/I_B = 5mA/0.5mA DDTC123TKA I_C/I_B = 2.5mA/.25mA DDTC143TKA I_C/I_B = 1mA/.1mA DDTC114TKA I_C/I_B = 5mA/0.5mA DDTC124TKA I_C/I_B = 2.5mA/.25mA DDTC144TKA I_C/I_B = 1mA/0.1mA DDTC115TKA I_C/I_B = .5mA/.05mA DDTC125TKA
DC Current Transfer Ratio	h_{FE}	100	250	600	—	$I_C = 1mA$, $V_{CE} = 5V$
Input Resistor (R_1) Tolerance	DR_1	-30	—	+30	%	—
Gain-Bandwidth Product*	f_T	—	250	—	MHz	$V_{CE} = 10V$, $I_E = -5mA$, f = 100MHz

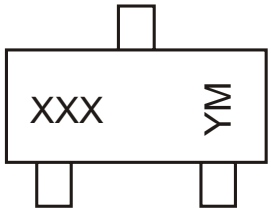
* Transistor - For Reference Only

Ordering Information

Device	Packaging	Shipping
DDTC113TKA-7	SC-59	3000/Tape & Reel
DDTC123TKA-7	SC-59	3000/Tape & Reel
DDTC143TKA-7	SC-59	3000/Tape & Reel
DDTC114TKA-7	SC-59	3000/Tape & Reel
DDTC124TKA-7	SC-59	3000/Tape & Reel
DDTC144TKA-7	SC-59	3000/Tape & Reel
DDTC115TKA-7	SC-59	3000/Tape & Reel
DDTC125TKA-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

NEW PRODUCT

TYPICAL CURVES - DDTC114TKA

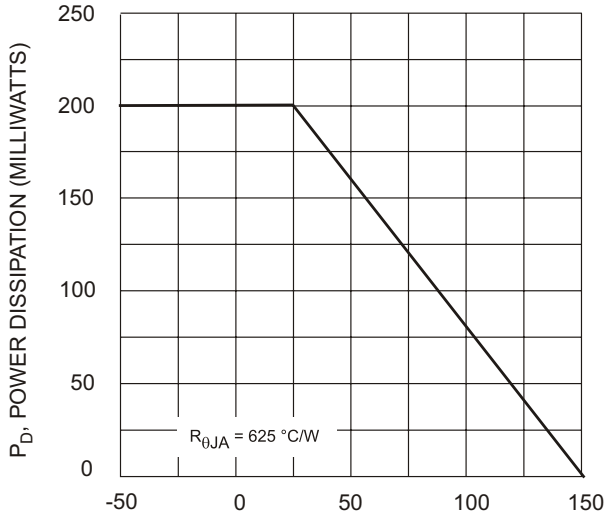


Fig. 1 Derating Curve

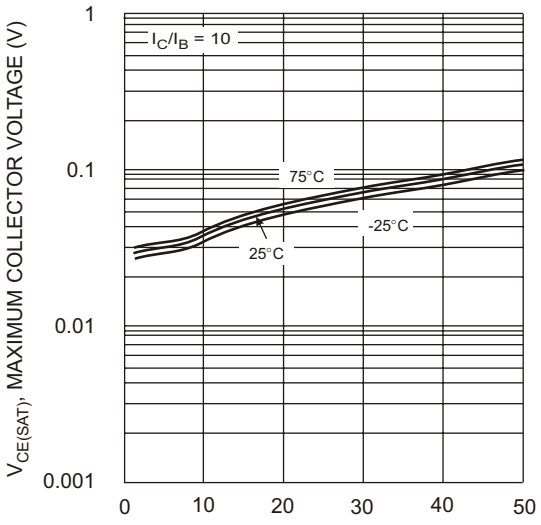


Fig. 2 $V_{CE(SAT)}$ vs. I_C

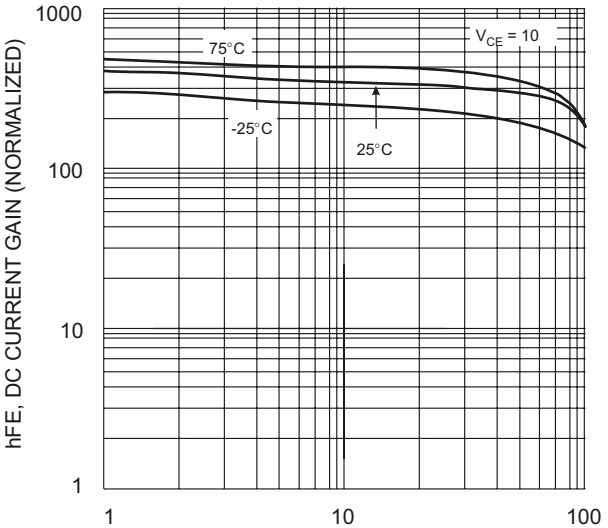


Fig. 3 DC Current Gain

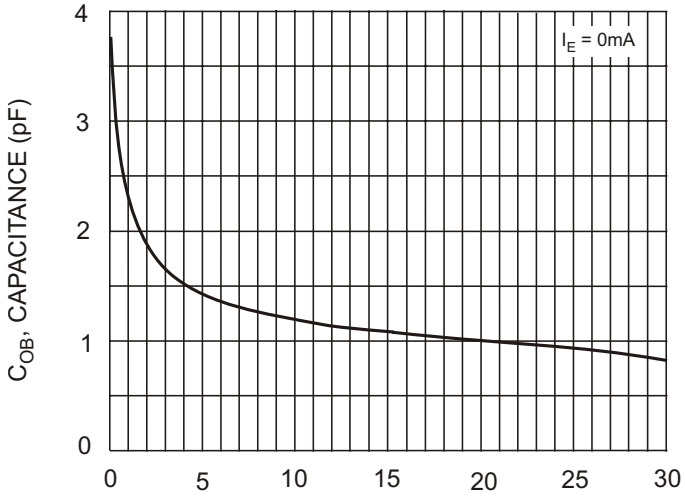


Fig. 4 Output Capacitance

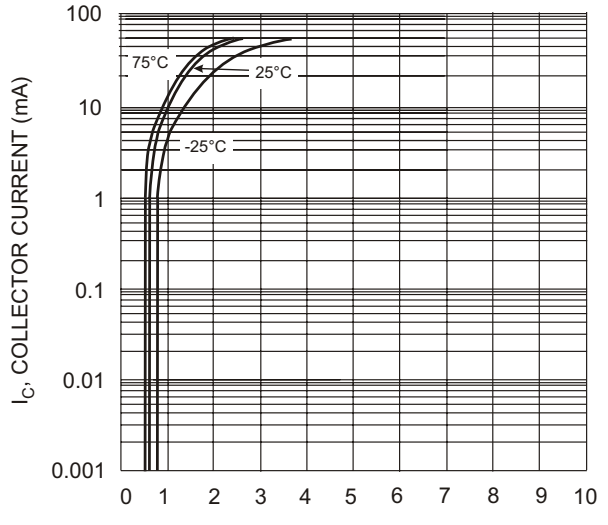


Fig. 5 Collector Current Vs. Input Voltage

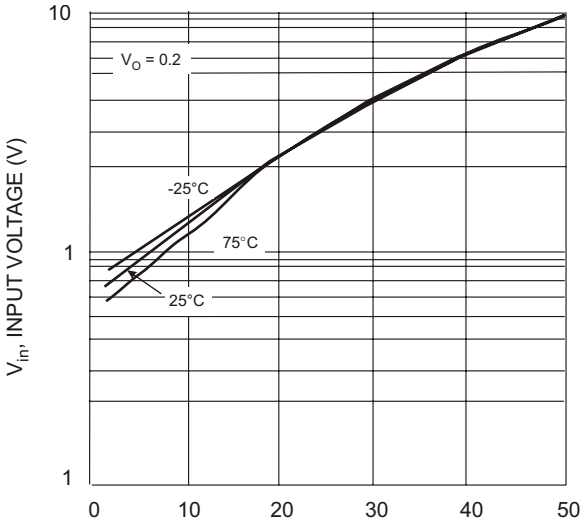


Fig. 6 Input Voltage vs. Collector Current