



# **DDTC** (R2-ONLY SERIES)

### NPN PRE-BIASED SMALL SIGNAL SURFACE MOUNT TRANSIS

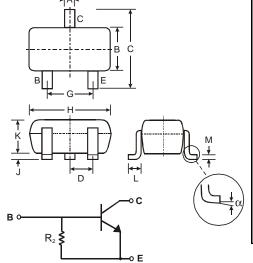
#### **Features**

- **Epitaxial Planar Die Construction**
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R2 only
- 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 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)

P/N	R2 (NOM)	Type Code
DDTC114GKA	10ΚΩ	N26
DDTC124GKA	22ΚΩ	N27
DDTC144GKA	47ΚΩ	N28
DDTC115GKA	100ΚΩ	N29



SC-59								
Dim	Min	Max						
Α	0.35	0.50						
В	1.50	1.70						
С	2.70 3.00							
D	0.95							
G	1.90							
Н	2.90	3.10						
J	0.013	0.10						
K	1.00	1.30						
L	0.35	0.55						
М	0.10	0.20						
α	0° 8°							
All Dimensions in mm								

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SCHEMATIC DIAGRAM

# **Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit	
Collector-Base Voltage	V <sub>CBO</sub>	50	V	
Collector-Emitter Voltage	V <sub>CEO</sub>	50	V	
Emitter-Base Voltage	V <sub>EBO</sub>	5	V	
Collector Current	I <sub>C</sub> (Max)	100	mA	
Power Dissipation	P <sub>d</sub>	200	mW	
Thermal Resistance, Junction to Ambient Air (Note 1)	$R_{ hetaJA}$	625	°C/W	
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-55 to +150	°C	

Notes:

- Mounted on FR4 PC Board with recommended pad layout at http://www.diodes.com/datasheets/ap02001.pdf.
- No purposefully added lead.
- Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead\_free/index.php.
- 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.

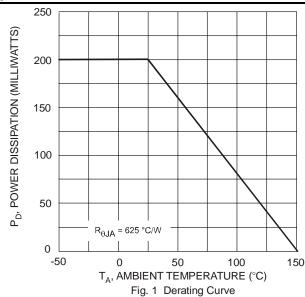


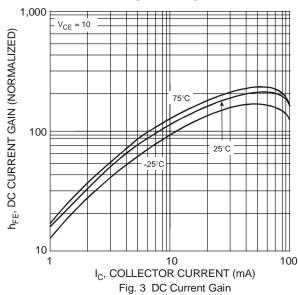
# **Electrical Characteristics** @TA = 25°C unless otherwise specified

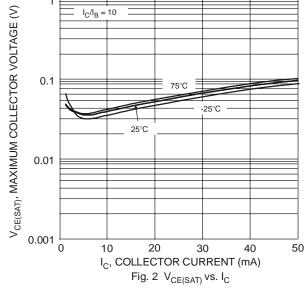
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
Collector-Base Breakdown Voltage		BV <sub>CBO</sub>	50	_	_	V	$I_C = 50\mu A$
Collector-Emitter Breakdown Voltag	je	BV <sub>CEO</sub>	50	_		V	I <sub>C</sub> = 1mA
Emitter-Base Breakdown Voltage		BV <sub>EBO</sub>	5			>	$I_E$ = 720μA, DDTC114GKA $I_E$ = 330μA, DDTC124GKA $I_E$ = 160μA, DDTC144GKA $I_E$ = 72μA, DDTC115GKA
Collector Cutoff Current		I <sub>CBO</sub>			0.5	μΑ	$V_{CB} = 50V$
Emitter Cutoff Current	DDTC114GKA DDTC124GKA DDTC144GKA DDTC115GKA	I <sub>EBO</sub>	300 140 65 30	_	580 260 130 58	μА	V <sub>EB</sub> = 4V
Collector-Emitter Saturation Voltage	Collector-Emitter Saturation Voltage				0.3	V	$I_C = 10mA$ , $I_B = 0.5mA$
DDTC114GKA DDTC124GKA DDTC124GKA DDTC144GKA DDTC115GKA		V <sub>CE(sat)</sub>	30 56 68 82	_	_		I <sub>C</sub> = 5mA, V <sub>CE</sub> = 5V
Bleeder Resistor (R <sub>2</sub> ) Tolerance		$\Delta R_2$	-30	_	+30	%	_
Gain-Bandwidth Product*		f <sub>T</sub>	_	250	_	MHz	$V_{CE} = 10V, I_{E} = -5mA,$ f = 100MHz

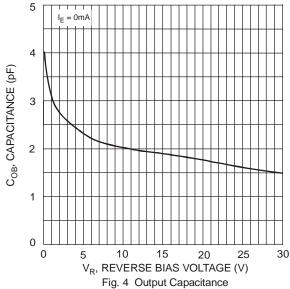
<sup>\*</sup> Transistor - For Reference Only

# Typical Curves – DDTC114GKA







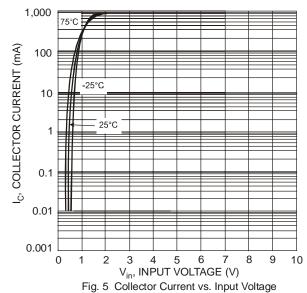


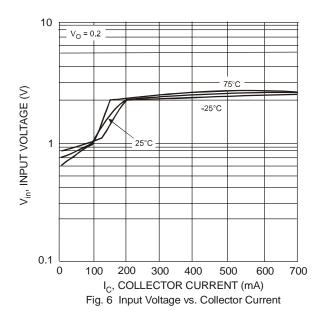
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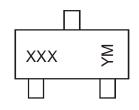


# Ordering Information (Note 4 & 5)

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



XXX = 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	20	06	2007		2008	20	2009			2011		2012	
Code	٦	Γ	U		V	,	W			Υ		Z	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Code	1	2	3	4	5	6	7	8	9	0	N	D	

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