



DDTC (R2-ONLY SERIES) CA

NPN PRE-BIASED SMALL SIGNAL SOT-23 SURFACE MOUNT TRANSISTOR

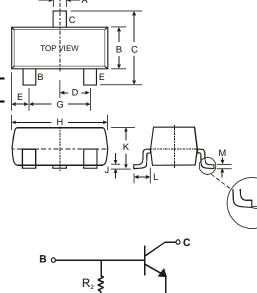
Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistor, R2 only
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2 and 3)

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking: Date Code and Marking Code (See Table Below & Page 4)
- Ordering Information: See Page 4
- Weight: 0.008 grams (approximate)

P/N	R2 (NOM)	MARKING
DDTC114GCA	10KΩ	N26
DDTC124GCA	22K Ω	N27
DDTC144GCA	47KΩ	N28
DDTC115GCA	100KΩ	N29



SOT-23								
Dim	Min	Max						
Α	0.37	0.51						
в	1.20	1.40						
С	2.30	2.50						
D	0.89	1.03						
Е	0.45	0.60						
G	1.78	2.05						
H	2.80	3.00						
J	0.013	0.10						
К	0.903	1.10						
L	0.45	0.61						
М	0.085	0.180						
α	0°	8°						
All Dim	ensions	in mm						

SCHEMATIC DIAGRAM

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Maximum Ratings $@T_A = 25^{\circ}C$ 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	PD	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 as shown on Diodes Inc., suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf

2. No purposefully added lead. Halogen and Antimony Free.

 Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb₂O₃ Fire Retardants.



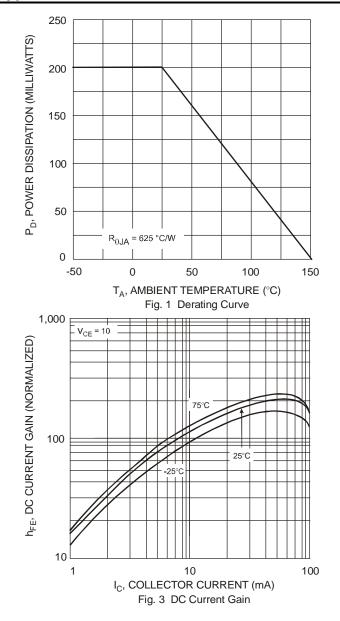
Electrical Characteristics @T_A = 25°C unless otherwise specified

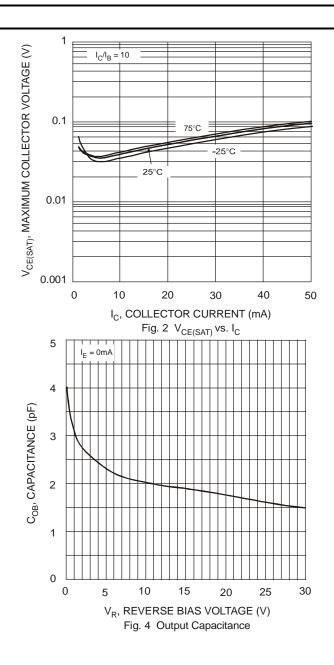
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
Collector-Base Breakdown Voltage	BV _{CBO}	50	_	_	V	I _C = 50μΑ	
Collector-Emitter Breakdown Voltag	e	BV _{CEO}	50			V	I _C = 1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	5		_	V	$\begin{split} I_E &= 720\mu\text{A}, \text{DDTC114GCA}\\ I_E &= 330\mu\text{A}, \text{DDTC124GCA}\\ I_E &= 160\mu\text{A}, \text{DDTC144GCA}\\ I_E &= 72\mu\text{A}, \text{DDTC115GCA} \end{split}$	
Collector Cutoff Current	I _{CBO}	_	_	0.5	μA	$V_{CB} = 50V$	
Emitter Cutoff Current	IEBO	300 140 65 30	_	580 260 130 58	μΑ	V _{EB} = 4V	
Collector-Emitter Saturation Voltage	V _{CE(sat)}	_	_	0.3	V	I _C = 10mA, I _B = 0.5mA	
DC Current Transfer Ratio	h _{FE}	30 56 68 82	_	_	_	I _C = 5mA, V _{CE} = 5V	
Bleeder Resistor (R ₂) Tolerance	ΔR_2	-30	_	+30	%	_	
Gain-Bandwidth Product*	f⊤	_	250	_	MHz	V _{CE} = 10V, I _E = -5mA, f = 100MHz	

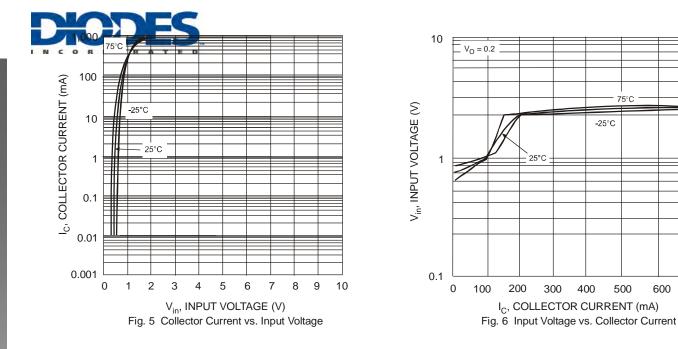
* Transistor - For Reference Only



Typical Curves – DDTC114GCA





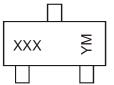


Ordering Information (Note 4)

Device	Packaging	Shipping
DDTC114GCA-7-F	SOT-23	3000/Tape & Reel
DDTC124GCA-7-F	SOT-23	3000/Tape & Reel
DDTC144GCA-7-F	SOT-23	3000/Tape & Reel
DDTC115GCA-7-F	SOT-23	3000/Tape & Reel

Notes: 4. 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	2006	2007	2008	2009	2010	2011	2012
Code	Т	U	V	W	Х	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	0	Ν	D

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