



DDTC (R2-ONLY SERIES) CA

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

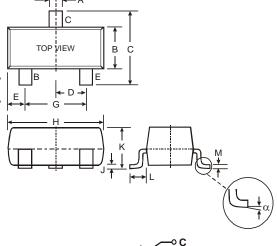
Features

- 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)

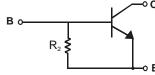
Mechanical Data

- 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	22Κ Ω	N27
DDTC144GCA	47 K Ω	N28
DDTC115GCA	100ΚΩ	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 2.05 3.00							
G	1.78								
Н	2.80								
J	0.013	0.10							
K	0.903	1.10							
L	0.45	0.61							
М	0.085	0.180							
α	α 0° 8°								
All Dimensions in mm									



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)	$R_{\theta JA}$	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.
- 3. 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.



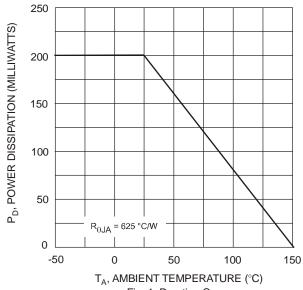
Electrical Characteristics @TA = 25°C unless otherwise specified

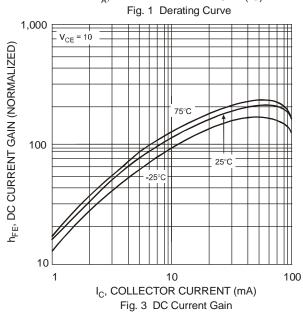
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
Collector-Base Breakdown Voltage	BV _{CBO}	50	_	_	V	$I_C = 50\mu A$	
Collector-Emitter Breakdown Voltage	BV _{CEO}	50	_	_	V	I _C = 1mA	
Emitter-Base Breakdown Voltage	BV_EBO	5		_	V	I_E = 720μA, DDTC114GCA I_E = 330μA, DDTC124GCA I_E = 160μA, DDTC144GCA I_E = 72μA, DDTC115GCA	
Collector Cutoff Current	I _{CBO}	_		0.5	μА	V _{CB} = 50V	
Emitter Cutoff Current	I _{EBO}	300 140 65 30	_	580 260 130 58	μΑ	V _{EB} = 4V	
Collector-Emitter Saturation Voltage		V _{CE(sat)}			0.3	٧	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 _T		250	_	MHz	V _{CE} = 10V, I _E = -5mA, f = 100MHz	

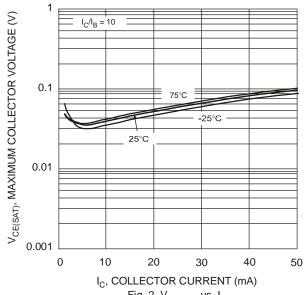
^{*} Transistor - For Reference Only

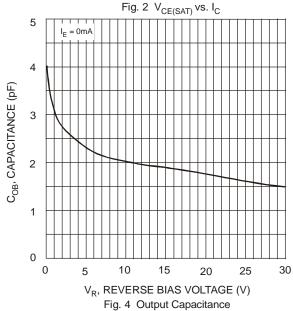


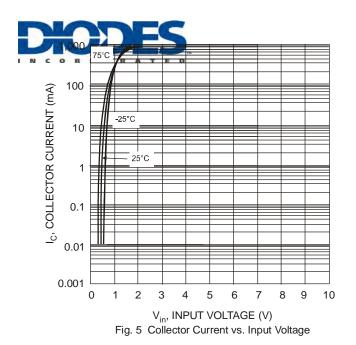
Typical Curves - DDTC114GCA

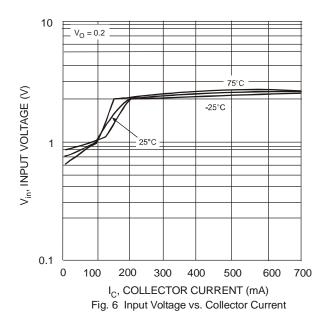










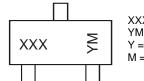


Ordering Information (Note 4)

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	X	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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