



# DDTB (LO-R1) C

PNP PRE-BIASED 500 mA SURFACE MOUNT TRANSISTOR

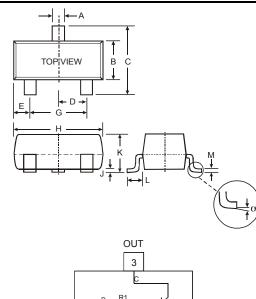
## Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTD)
- Built-In Biasing Resistors
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 1 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 Information: See Table Below & Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

P/N	R1 (NOM)	R2 (NOM)	Type Code
DDTB122LC	0.22KΩ	10KΩ	P75
DDTB142JC	0.47KΩ	10KΩ	P76
DDTB122TC	0.22KΩ	OPEN	P77
DDTB142TC	0.47KΩ	OPEN	P78



SOT-23									
Dim	Dim Min								
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							
Н	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°	<b>8</b> °							
All Dimensions in mm									



1

IN

R2

2

GND(+)

#### Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified Characteristic Symbol Value Unit -50 V Supply Voltage, (3) to (2) Vcc Input Voltage, (1) to (2) DDTB122LC +5 to -6 V VIN DDTB142JC +5 to -6 Input Voltage, (2) to (1) DDTB122TC -5 V VEBO (MAX) DDTB142TC Output Current All -500 mΑ lc Power Dissipation (Note 2) Pρ 200 mW Thermal Resistance, Junction to Ambient Air (Note 2) 625 °C/W $R_{\theta JA}$ Operating and Storage Temperature Range -55 to +150 °C TJ, TSTG

Notes: 1. No purposefully added lead. Halogen and Antimony Free.

2. Mounted on FR4 PC Board with recommended pad layout at http://www.diodes.com/datasheets/ap02001.pdf.

 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 Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.

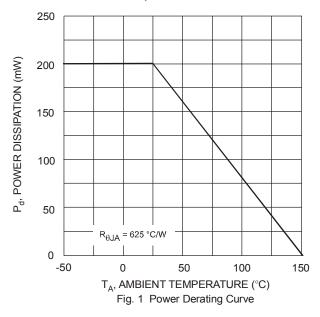


Electrical Characteristics @T <sub>A</sub> = 25°C unless otherwise specified R1, R2 Types									
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition			
Input Voltage	DDTB122LC DDTB142JC	V <sub>l(off)</sub>	-0.3 -0.3	_	_	v	V <sub>CC</sub> = -5V, I <sub>O</sub> = -100μA		
	DDTB122LC DDTB142JC	V <sub>l(on)</sub>			-2.0 -2.0	v	V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA		
Output Voltage	V <sub>O(on)</sub>	_	_	-0.3V	V	I <sub>O</sub> /I <sub>I</sub> = -50mA/-2.5mA			
Input Current DDTB122LC DDTB142JC		lı			-28 -13	mA	V <sub>1</sub> = -5V		
Output Current		I <sub>O(off)</sub>	_	_	-0.5	μA	$V_{CC} = -50V, V_{I} = 0V$		
DC Current Gain	DDTB122LC DDTB142JC	GI	56 56				V <sub>O</sub> = -5V, I <sub>O</sub> = -50mA		
Gain-Bandwidth Product*		f⊤	_	200	_	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> = -5mA, f = 100MHz		

\* Transistor - For Reference Only

Electrical Characteristics @T <sub>A</sub> = 25°C unless otherwise specified R1- Only Types										
Characteristic	Symbol	Min	Тур	Мах	Unit	Test Condition				
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-50		—	V	I <sub>C</sub> = -50μA				
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	-40		_	V	I <sub>C</sub> = -1mA				
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-5			V	I <sub>E</sub> = -50μA I <sub>E</sub> = -50μA				
Collector Cutoff Current	I <sub>СВО</sub>	_		-0.5	μA	V <sub>CB</sub> = -50V				
Emitter Cutoff Current DDTB122TC DDTB142TC		I <sub>EBO</sub>			-0.5 -0.5	μA	V <sub>EB</sub> = -4V			
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub>	_		-0.3	V	I <sub>C</sub> = -50mA, I <sub>B</sub> = -2.5mA			
DC Current Transfer Ratio	DDTB122TC DDTB142TC	h <sub>FE</sub>	100 100	250 250	600 600		I <sub>C</sub> = -5mA, V <sub>CE</sub> = -5V			
Gain-Bandwidth Product*	f⊤	_	200	_	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> = 5mA, f = 100MHz				

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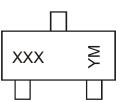


## Ordering Information (Note 4)

Device	Packaging	Shipping
DDTB122LC-7-F	SOT-23	3000/Tape & Reel
DDTB142JC-7-F	SOT-23	3000/Tape & Reel
DDTB122TC-7-F	SOT-23	3000/Tape & Reel
DDTB142TC-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	200	6	2007 2008		2008	2009		2010		2011	2	2012
Code	Т		U		V		W			Y	Z	
Month	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	Ν	D

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