DDTC124TUA-7 Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	DDTC124TUA-7-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	DDTC124TUA-7
Description	TRANS PREBIAS NPN 200MW SOT323
Detailed Description	Pre-Biased Bipolar Transistor (BJT)

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
DDTC124TUA-7	Diodes Incorporated
Series:	Product Status:
*	Active
Base Product Number:	
DDTC124	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

DDTC (R1 ONLY SERIES) UA

NPN PRE-BIASED SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Built-In Biasing Resistor, R1 Only
- Surface Mount Package Suited for Automated Assembly
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

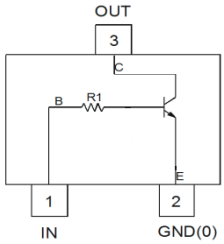
Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.006 grams (Approximate)

Part Number	R1(NOM)
DDTC113TUA	1kΩ
DDTC123TUA	2.2kΩ
DDTC143TUA	4.7kΩ
DDTC114TUA	10kΩ
DDTC124TUA	22kΩ
DDTC144TUA	47kΩ
DDTC115TUA	100kΩ
DDTC125TUA	200kΩ

SOT323

Top View



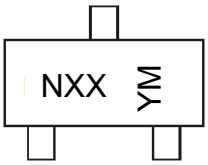
Device Schematic

Ordering Information (Note 4)

Product	Status	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DDTC113TUA-7-F	Active	Standard	N01	7	8	3,000
DDTC113TUA-13-F	Active	Standard	N01	13	8	10,000
DDTC123TUA-7-F	Active	Standard	N03	7	8	3,000
DDTC123TUA-13-F	Active	Standard	N03	13	8	10,000
DDTC143TUA-7-F	Active	Standard	N07	7	8	3,000
DDTC143TUA-13-F	Active	Standard	N07	13	8	10,000
DDTC114TUA-7-F	Active	Standard	N12	7	8	3,000
DDTC114TUA-13-F	Active	Standard	N12	13	8	10,000
DDTC124TUA-7-F	Active	Standard	N16	7	8	3,000
DDTC124TUA-13-F	Active	Standard	N16	13	8	10,000
DDTC144TUA-7-F	Active	Standard	N19	7	8	3,000
DDTC144TUA-13-F	Active	Standard	N19	13	8	10,000
DDTC115TUA-7-F	Active	Standard	N23	7	8	3,000
DDTC115TUA-13-F	Active	Standard	N23	13	8	10,000
DDTC125TUA-7-F	Obsolete	Standard	N25	7	8	3,000
DDTC125TUA-13-F	Obsolete	Standard	N25	13	8	10,000

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



NXX = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: I = 2021)
M = Month (ex: 9 = September)

Date Code Key

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	I	J	K	L	M	N	O	P	R	S	T	U

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Absolute Maximum Ratings NPN Section (@ 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

Thermal Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Note: 5. Mounted on FR4 PC Board with minimum recommended pad layout.

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 = 50µA
Collector-Emitter Breakdown Voltage	BV_{CEO}	50	—	—	V	I_C = 1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	5	—	—	V	I_E = 50µA
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 DDTC113TUA I_C/I_B = 5mA/0.5mA DDTC123TUA I_C/I_B = 2.5mA/0.25mA DDTC143TUA I_C/I_B = 1mA/0.1mA DDTC114TUA I_C/I_B = 5mA/0.5mA DDTC124TUA I_C/I_B = 2.5mA/0.25mA DDTC144TUA I_C/I_B = 1mA/0.1mA DDTC115TUA I_C/I_B = 0.5mA/0.05mA DDTC125TUA
DC Current Transfer Ratio	h_{FE}	100	250	600	—	I_C = 1mA, V_{CE} = 5V
Input Resistor (R_1) Tolerance	ΔR_1	-30	—	+30	%	—
Gain-Bandwidth Product (Note 6)	f_T	—	250	—	MHz	V_{CE} = 10V, I_E = -5mA, f = 100MHz

Note 6. Transistor only.

Typical Curves – DDTC114TUA (@ T_A = +25°C, unless otherwise specified.)

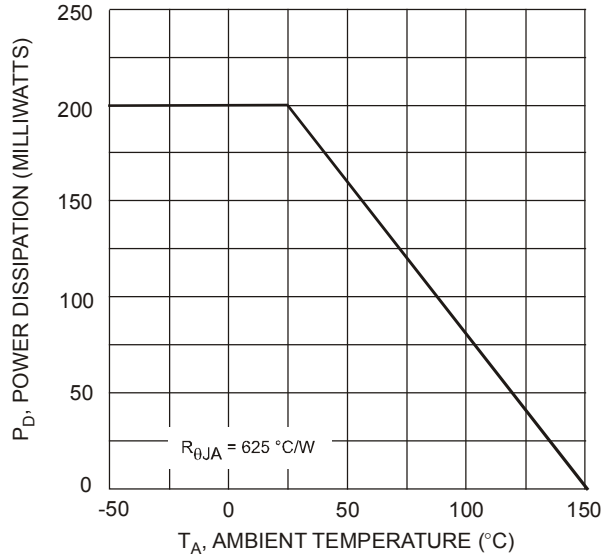


Fig. 1 Derating Curve

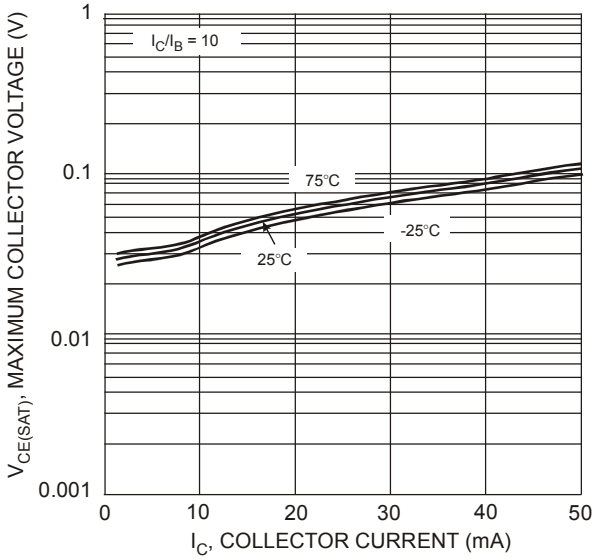


Fig. 2 $V_{CE(SAT)}$ vs. I_C

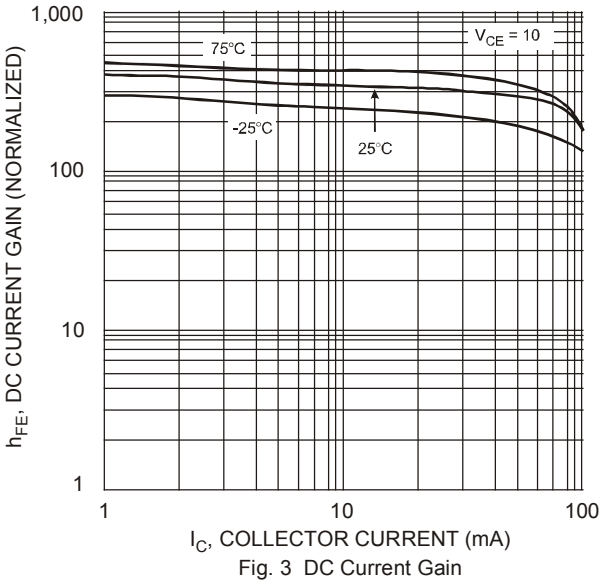


Fig. 3 DC Current Gain

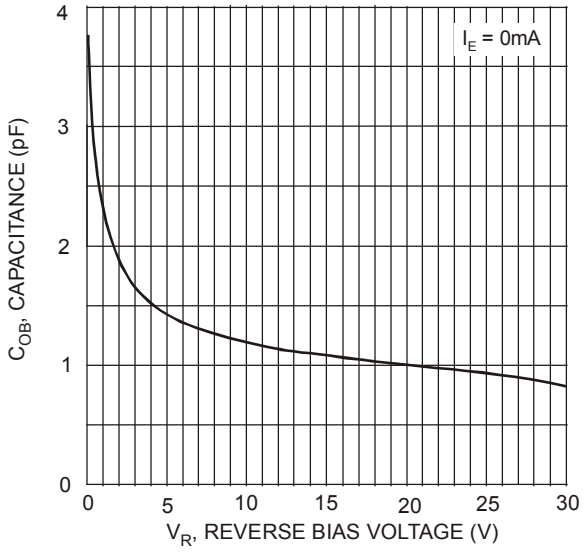


Fig. 4 Output Capacitance

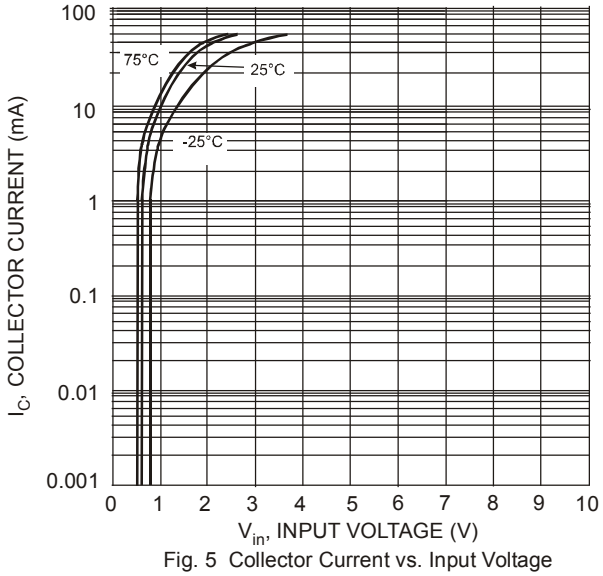


Fig. 5 Collector Current vs. Input Voltage

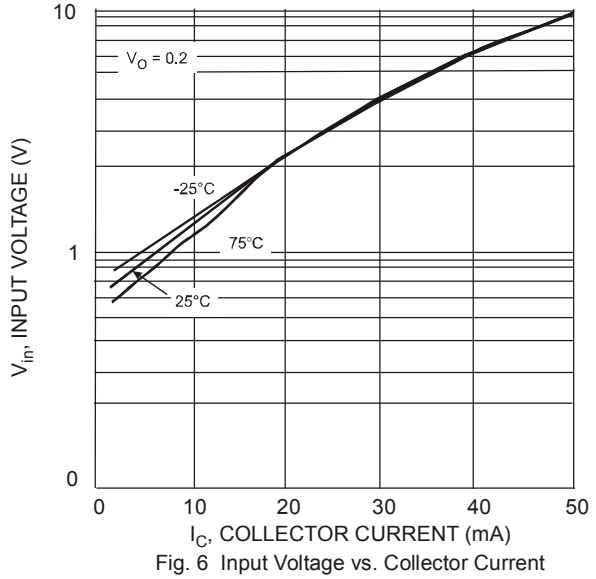
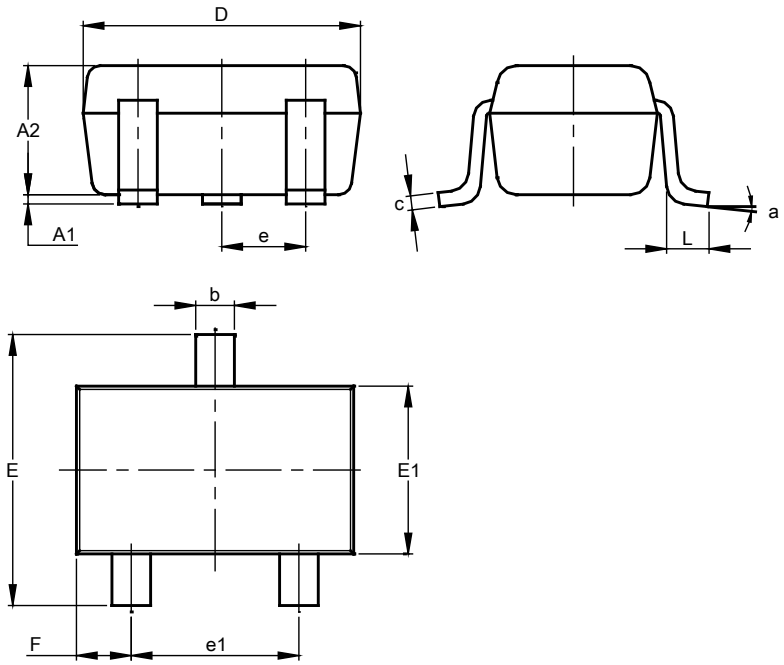


Fig. 6 Input Voltage vs. Collector Current

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT323



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Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

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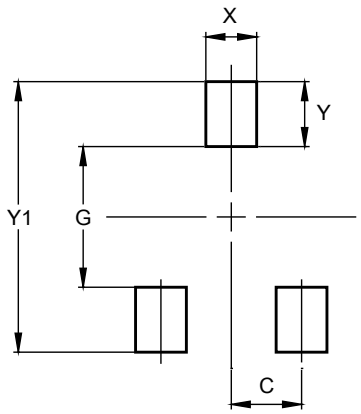

Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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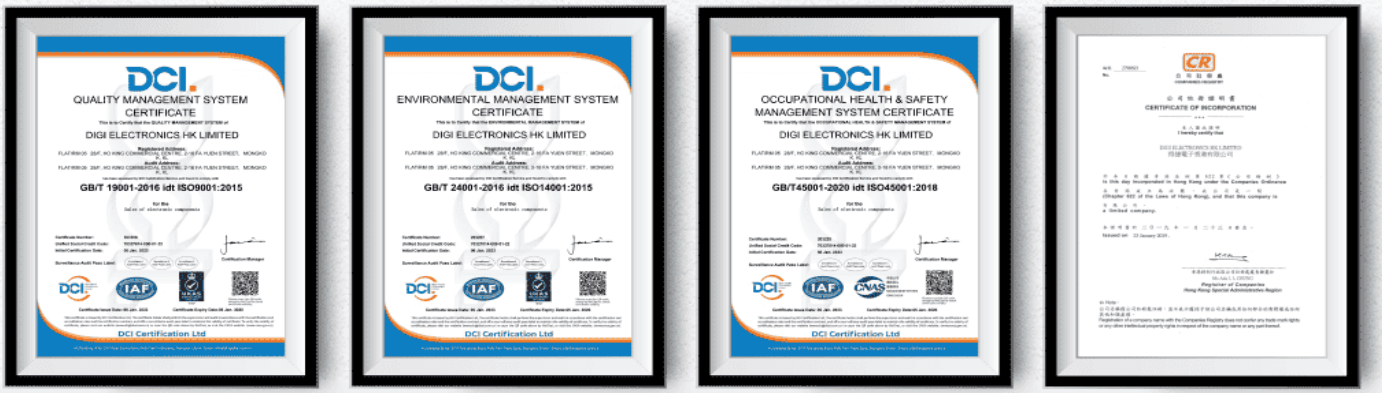

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