

# DTC124EE-TP Datasheet

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DiGi Electronics Part Number

DTC124EE-TP-DG

Manufacturer

[Micro Commercial Co](#)

Manufacturer Product Number

DTC124EE-TP

Description

TRANS PREBIAS NPN 50V SOT523

Detailed Description

Pre-Biased Bipolar Transistor (BJT) NPN - Pre-Biased 50 V 100 mA 250 MHz 150 mW Surface Mount SOT-523

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## Purchase and inquiry

Manufacturer Product Number:

DTC124EE-TP

Series:

-

Transistor Type:

NPN - Pre-Biased

Voltage - Collector Emitter Breakdown (Max):

50 V

Resistor - Emitter Base (R2):

22 kOhms

Vce Saturation (Max) @ Ib, Ic:

300mV @ 500µA, 10mA

Frequency - Transition:

250 MHz

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-523

Manufacturer:

Micro Commercial Co

Product Status:

Active

Current - Collector (Ic) (Max):

100 mA

Resistor - Base (R1):

22 kOhms

DC Current Gain (hFE) (Min) @ Ic, Vce:

56 @ 5mA, 5V

Current - Collector Cutoff (Max):

500nA

Power - Max:

150 mW

Package / Case:

SOT-523

Base Product Number:

DTC124

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

## Features

- Built-In Bias Resistors Enable the Configuration of an Inverter Circuit Without Connecting External Input Resistors
- The Bias Resistors Consist of Thin-Film Resistors With Complete Isolation to Allow Negative Biasing of the Input. They Also Have the Advantage of Almost Completely Eliminating Parasitic Effects
- Only the On/Off Conditions Need to Be Set For Operation, Making Device Design Easy
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

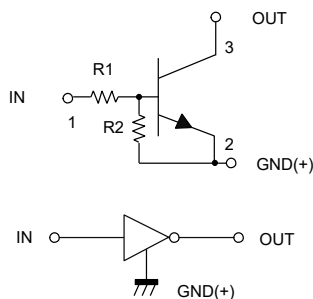
## Maximum Ratings @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	$V_{CC}$	---	50	---	V
Input Voltage	$V_{IN}$	-10	---	40	V
Output Current	$I_O$	---	30	---	mA
	$I_{C(Max)}$	---	100	---	mA
Power Dissipation	$P_D$	---	150	---	mW
Junction Temperature	$T_J$	---	---	150	°C
Storage Temperature	$T_{stg}$	-55	---	150	°C

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

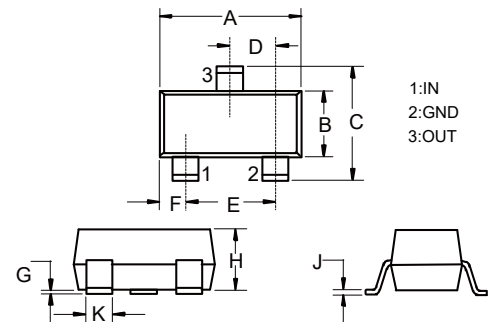
## Device Marking: 25

### Internal Structure



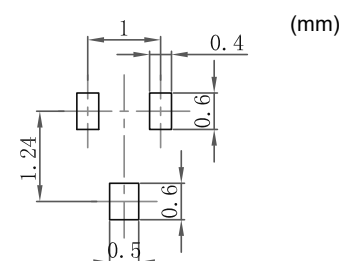
## NPN Digital Transistor

### SOT-523



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

### Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Input Voltage	$V_{I(off)}$	0.5	---	---	V	$V_{CC}=5V, I_O=100\mu A$
	$V_{I(on)}$	---	---	3.0	V	$V_O=0.2V, I_O=5mA$
Output Voltage	$V_{O(on)}$	---	0.1	0.3	V	$I_O=10mA, I_I=0.5mA$
Input Current	$I_I$	---	---	0.36	mA	$V_I=5V$
Output Current	$I_{O(off)}$	---	---	0.5	$\mu A$	$V_{CC}=50V, V_I=0$
DC Current Gain	$G_I$	56	---	---		$V_O=5V, I_O=5mA$
Input Resistance	$R_1$	15.4	22	28.6	K $\Omega$	
Resistance Ratio	$R_2/R_1$	0.8	1.0	1.2		
Transition Frequency	$f_T$	---	250	---	MHz	$V_{CE}=10V, I_E=-5mA, f=100MHz$

Curve Characteristics

Fig. 1 - DC Current Gain Characteristics

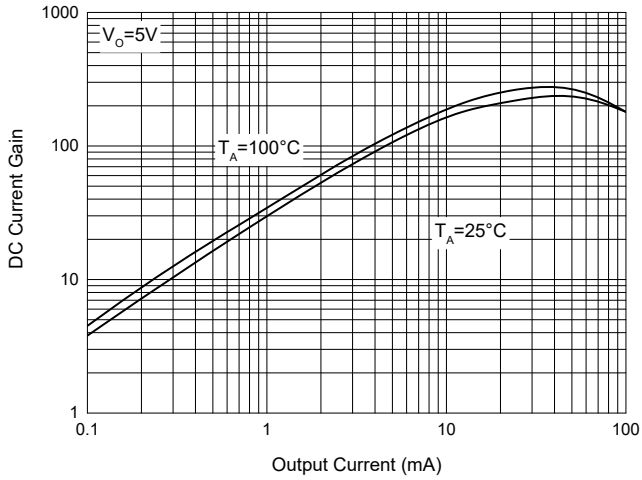


Fig. 2 - Input Voltage (on) Characteristics

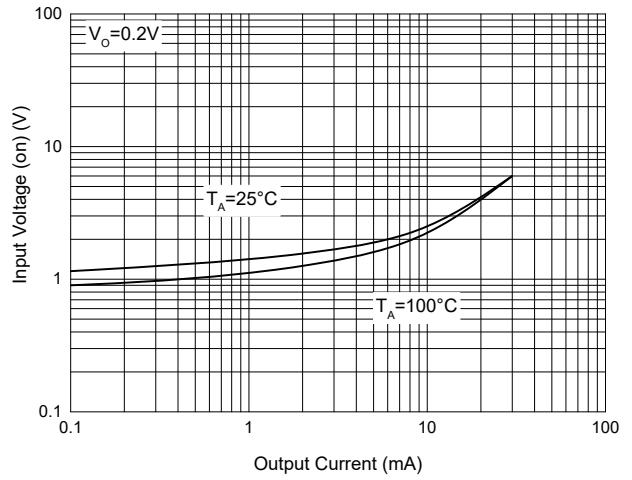


Fig. 3 - Input Voltage (off) Characteristics

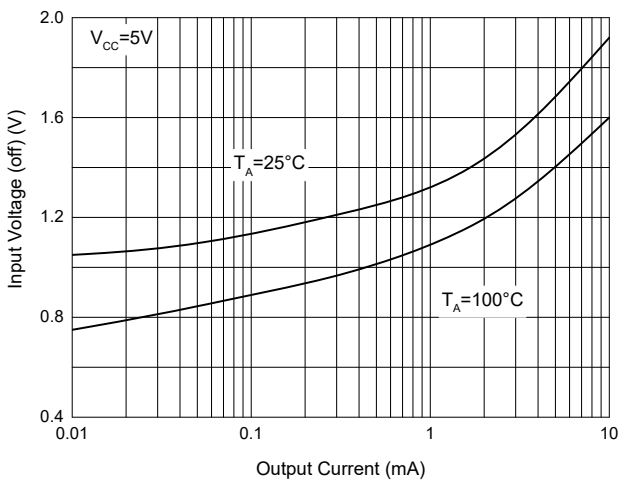


Fig. 4 - Output Voltage Characteristics

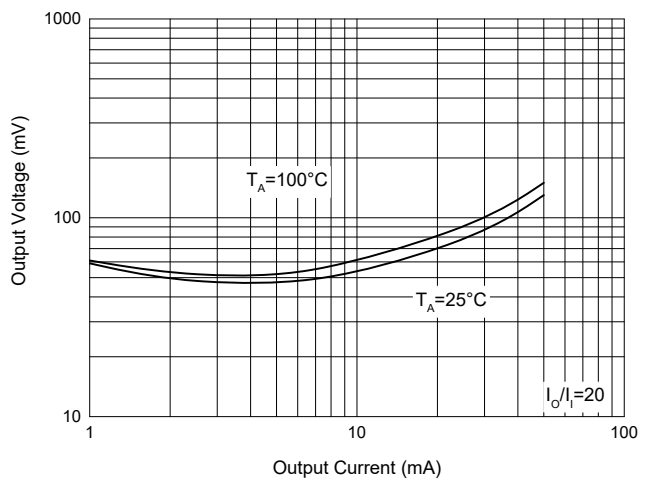
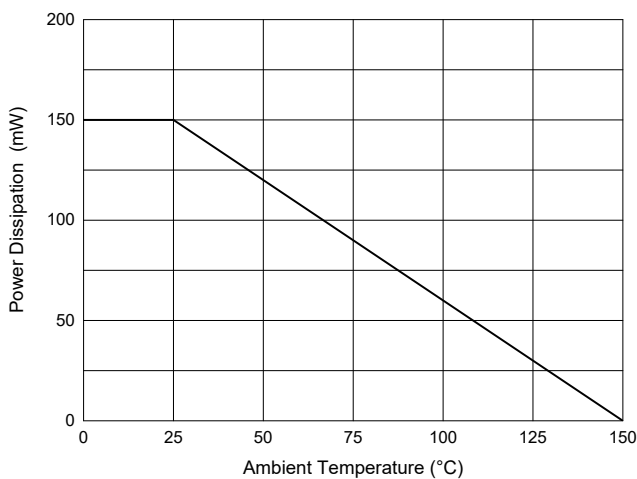


Fig. 5 - Power Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

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