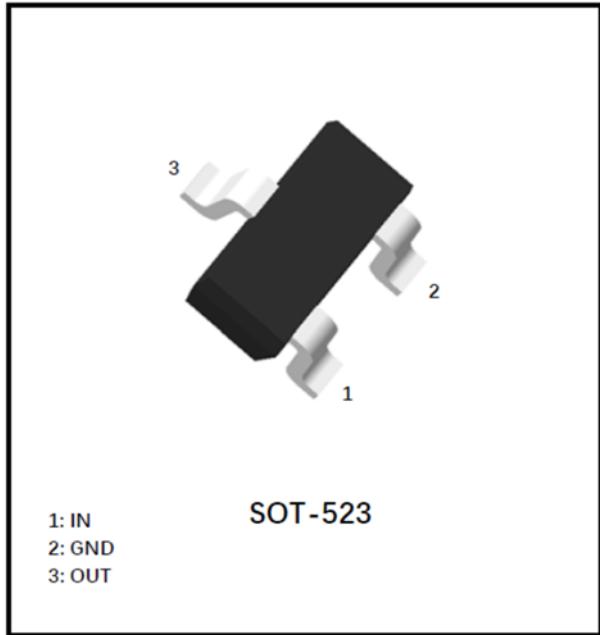




## NPN Digital Transistors (Built-in Resistors)



### Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

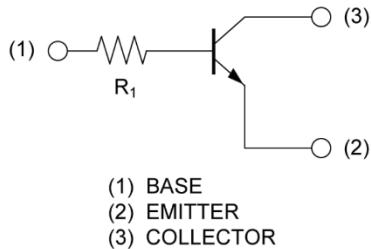
### Application

- Signal amplification
- Switching circuit

### Mechanical data

- **Package:** SOT-523
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

### ■ Equivalent circuit



### ■ Maximum Ratings (Ta=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device Marking Code				N16
Collector-Base Voltage	V <sub>CBO</sub>	V		50
Collector-Emitter Voltage	V <sub>CEO</sub>	V		50
Emitter-Base Voltage	V <sub>EBO</sub>	V		5
Output Current	I <sub>O</sub>	mA		100
Power Dissipation	P <sub>D</sub>	mW		150
Junction Temperature	T <sub>J</sub>	°C		-55 to +150
Storage Temperature	T <sub>STG</sub>	°C		-55 to +150



# DTC124TE

## ■ Electrical Characteristics (Ta=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-Base Breakdown Voltage	V <sub>CBO</sub>	V	I <sub>C</sub> =1mA	50		
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	V	I <sub>C</sub> =1mA	50		
Emitter-Base Breakdown Voltage	V <sub>EBO</sub>	V	I <sub>E</sub> =50uA	5		
Collector Cut-off Current	I <sub>CBO</sub>	uA	V <sub>CB</sub> =50V			0.5
Emitter Cut-off Current	I <sub>EBO</sub>	uA	V <sub>EB</sub> =4V			0.5
DC Current Gain	h <sub>FE</sub>		V <sub>CE</sub> =5V, I <sub>C</sub> =1mA	100		600
Input Resistance	R <sub>I</sub>	kΩ		15.4	22	28.6
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	V	I <sub>C</sub> =5mA, I <sub>E</sub> =0.5mA			0.3
Transition Frequency	f <sub>T</sub>	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz		250	

## ■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	833
Thermal resistance, junction-to-case	R <sub>θJ-C</sub> <sup>(1)</sup>	°C/W	666

### Note:

(1) Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 25.4mm\*25.4mm copper pad areas

## ■ Ordering Information

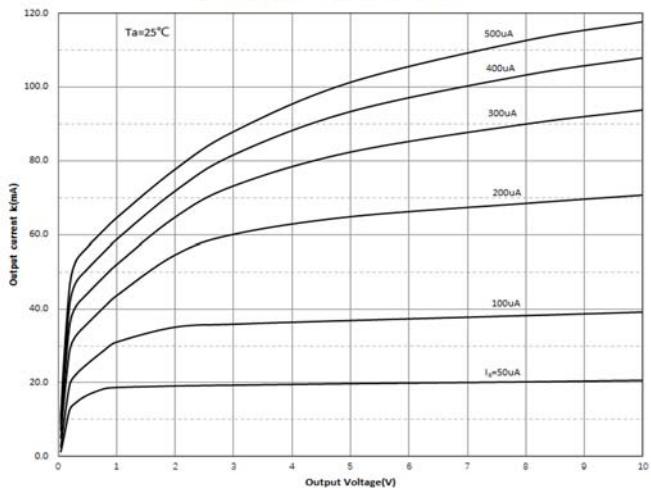
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DTC124TE	F2	Approximate 0.0027	3000	30000	120000	7" reel



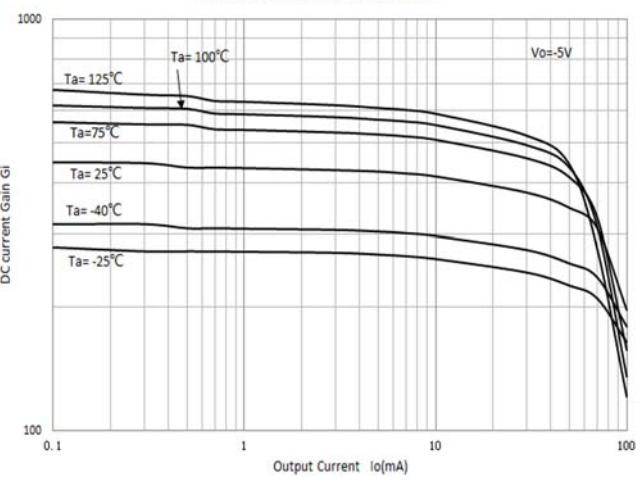
# DTC124TE

## ■ Characteristics(Typical)

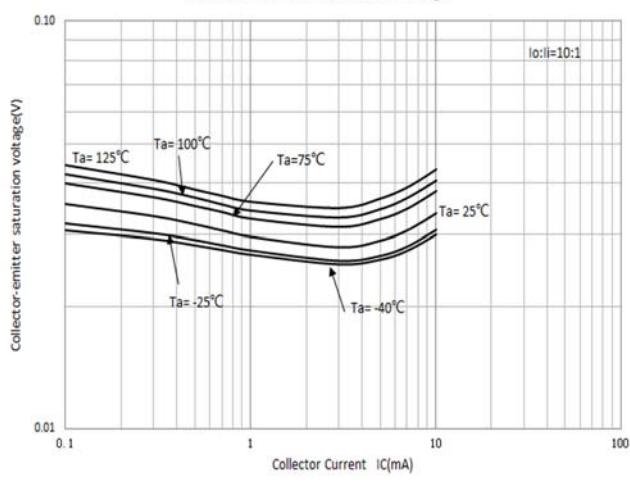
Output current vs. output voltage



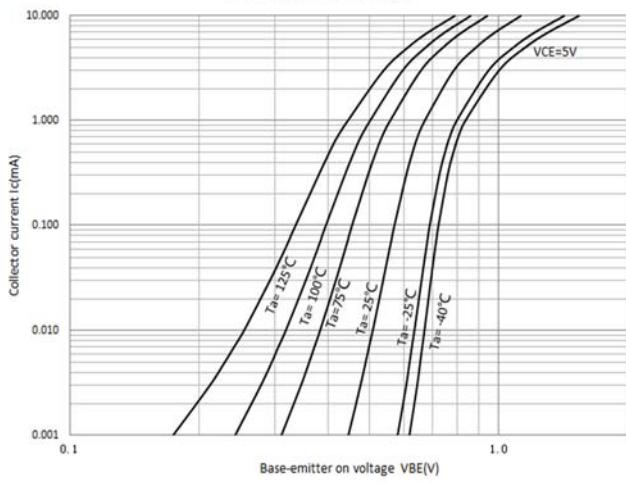
DC current Gain Characteristics



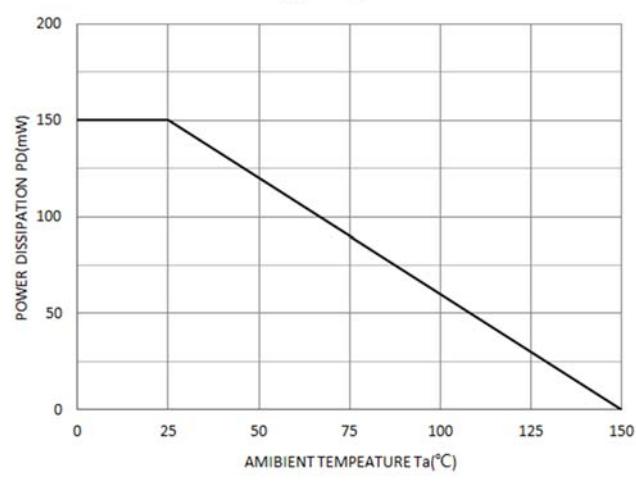
Collector-emitter saturation voltage

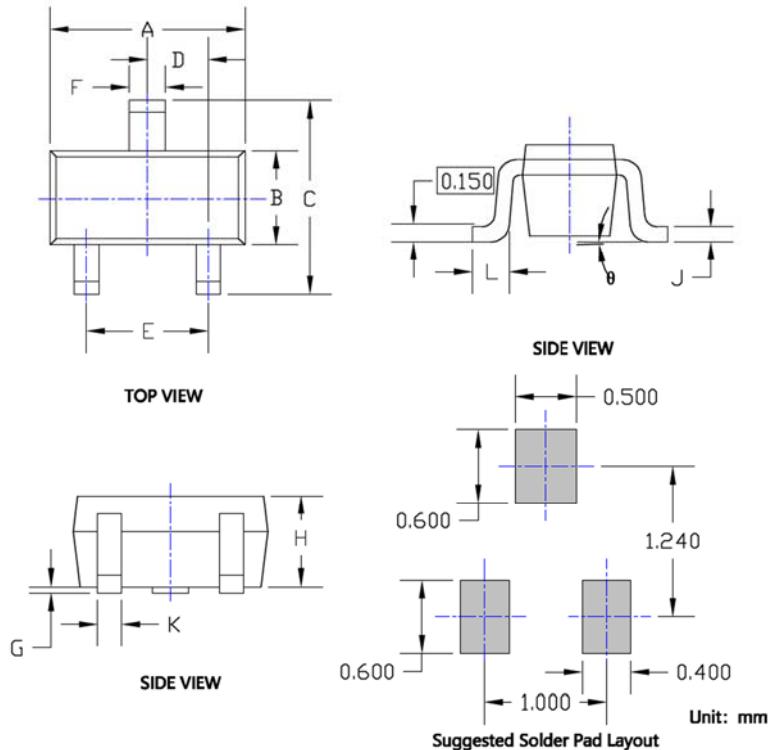


Base-Emitter On Voltage



P<sub>D</sub>-----T<sub>A</sub>



**■ Outline Dimensions**

SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.059	0.067	1.500	1.700
B	0.030	0.033	0.750	0.850
C	0.057	0.069	1.450	1.750
D	0.020TYP		0.500TYP	
E	0.035	0.043	0.900	1.100
F	0.010	0.018	0.250	0.450
G	0.000	0.004	0.000	0.100
H	0.024	0.031	0.600	0.800
J	0.004	0.008	0.100	0.200
K	0.006	0.014	0.150	0.350
L	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

## NOTE:

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

## Note:

1. All dimensions are in millimeters (mm) unless otherwise specified.  
[所有尺寸均以毫米为单位, 除非另有说明]
2. General tolerances:  $\pm 0.10\text{mm}$  unless otherwise specified.  
[通用公差为 $\pm 0.10\text{mm}$ , 除非另有说明]
3. Dimensions and tolerances per ASME Y14.5M-2018.  
[尺寸和公差遵循 ASME Y14.5M-2018 标准]
4. All dimensions shown are exclusive of burrs and gate residues. Burrs and gate vestiges shall not exceed 0.15 mm in maximum.  
[所有尺寸均不包括毛刺和浇口残留。毛刺与浇口残留的尺寸最大不得超过 0.15mm]
5. Dimension b does not include dambar protrusion of max 0.100 mm per side.  
[尺寸b不包括单边最大0.100 MM的中筋凸出部分]
6. Dimensions A and B are the overall extreme outer dimensions of the mold compound. These dimensions exclude mold flash, lead flash, protrusions and burrs but include the maximum allowable mold mismatch.  
[A和B是塑封体的外部极限尺寸, 不包括包封溢料、内引线溢料、凸出部分以及胶体毛刺, 但是包含了包封错位的最大尺寸]
7. Formed leads shall be planar with respect to one another within a maximum of 0.076 mm relative to the seating plane.  
[成型的管脚应为同一平面, 共面性最大为0.1mm]
8. ★It is the key size.  
[★ 标记为关键尺寸]



## DTC124TE

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