

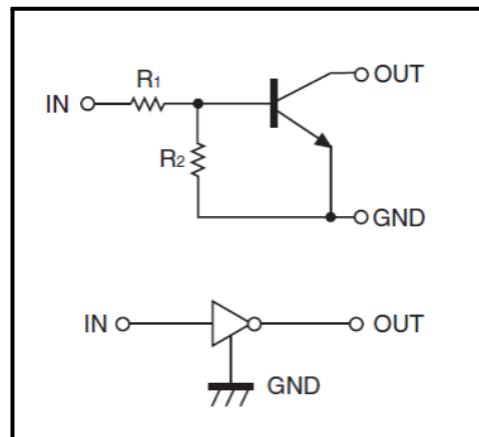
DTC124EXX series

NPN Digital transistors

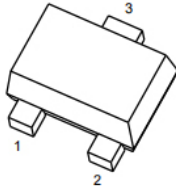
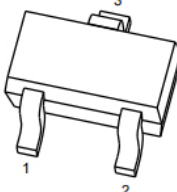
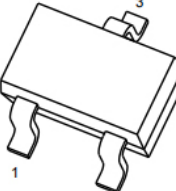
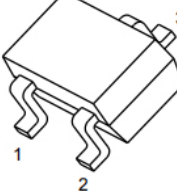
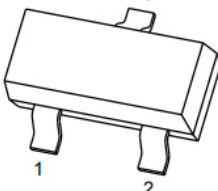
Features

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- 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

Equivalent Circuit



Pin Connenctions and Marking

DTC124EM 	SOT-723 1. IN 2. GND 3. OUT	DTC124EE 	SOT-523 1. IN 2. GND 3. OUT
DTC124EUA 	SOT-323 1. IN 2. GND 3. OUT	DTC124EKA 	SOT-23-3L 1. IN 2. GND 3. OUT
DTC124ECA 	SOT-23 1. IN 2. GND 3. OUT		



DTC124EXX series

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Ordering information

Order code	Package	Marking	Packing Method	Pack Quantity
DTC124EM	SOT-723	25	Reel	8000pcs/Reel
DTC124EE	SOT-523	25	Reel	3000pcs/Reel
DTC124EUA	SOT-323	25	Reel	3000pcs/Reel
DTC124EKA	SOT-23-3L	25	Reel	3000pcs/Reel
DTC124ECA	SOT-23	25	Reel	3000pcs/Reel

Notes:(1)Solid dot=Greenmolding compound device, if none, the normal device.

(2)xxx=Code

Absolute Maximum Ratings (T_A=+25°C, unless otherwise specified)

Symbol	Parameter	Limits(DTC124Exxx)					Unit
		M	E	UA	KA	CA	
V _{CC}	Supply Voltage	50					V
V _{IN}	Input Voltage	-10 to +40					V
I _O	Output Current	30					mA
I _{CM}	Peak Collector Current	100					mA
P _d	Power Dissipation	100	150	200	200	200	mW
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55 to +150					°C

Electrical Characteristics @T_A=25°C unless otherwise noted

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V _{I(off)}	Input Voltage	V _{CC} =5V, I _O =100uA	0.5			V
V _{I(on)}		V _O =0.2V, I _O =5mA			3	V
V _{O(on)}	Output Voltage	I _O /I _I =10mA/0.5mA		0.1	0.3	V
I _I	Input current	V _I =5V			0.36	mA
I _{O(off)}	Output current	V _{CC} =50V, V _I =0			0.5	uA
G _I	DC current gain	V _O =5V, I _O =5mA	56			
R ₁	Input resistance		15.4	22	28.6	kΩ
R ₂ /R ₁	Resistance ratio		0.8	1	1.2	
f _T	Transition frequency	V _O =10V, I _O =5mA, f=100MHz		250		MHz



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Typical Performance Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)

Figure 1 : On Characteristics

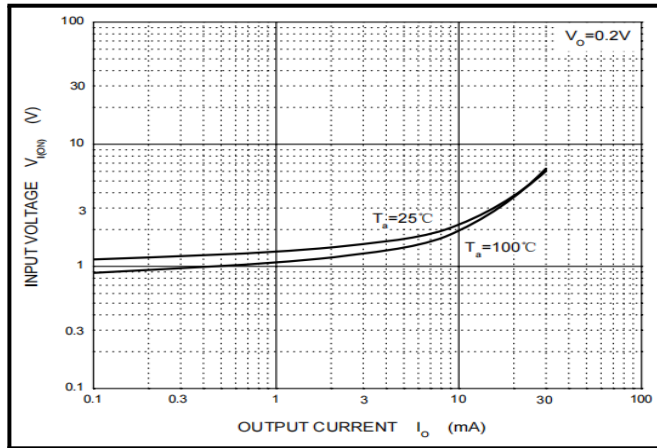


Figure 2 : OFF Characteristics

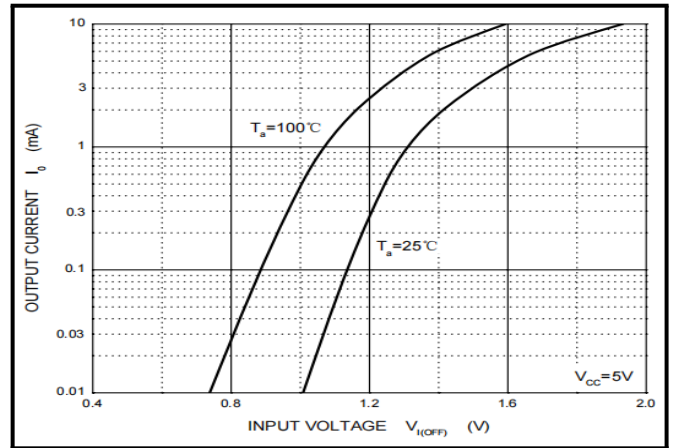


Figure 3 : $V_{o(on)} - I_o$

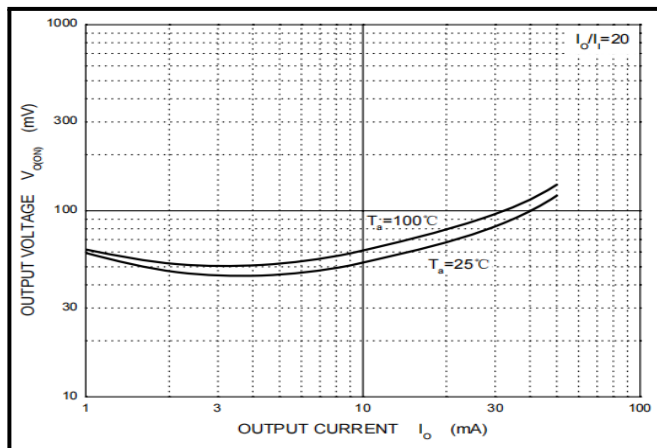


Figure 4 : $G_I - I_o$

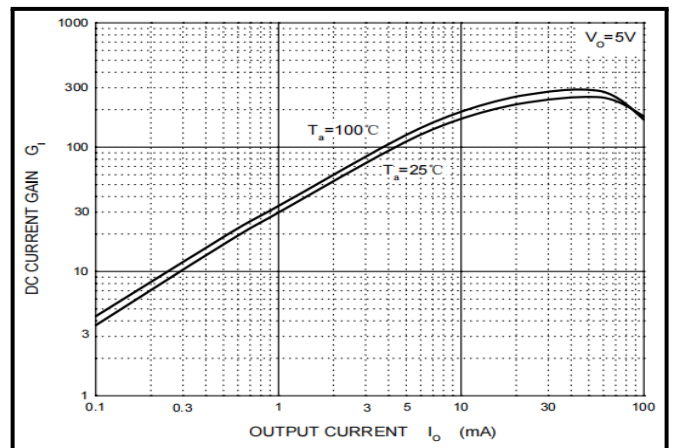


Figure 5 : $C_o - V_R$

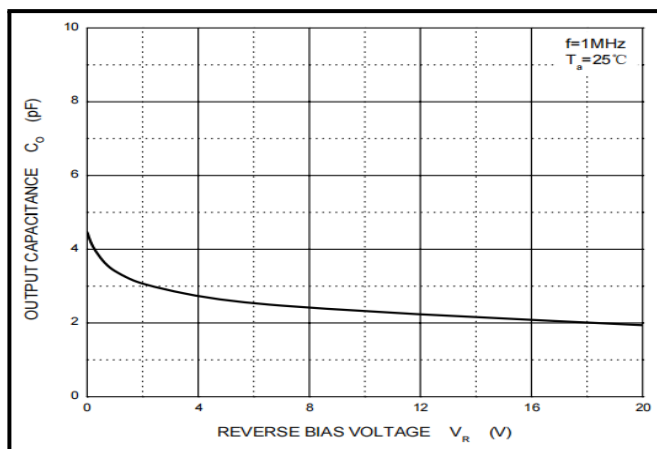
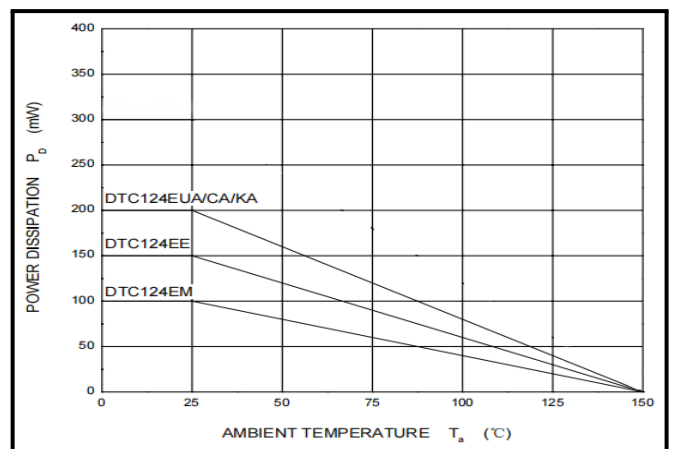


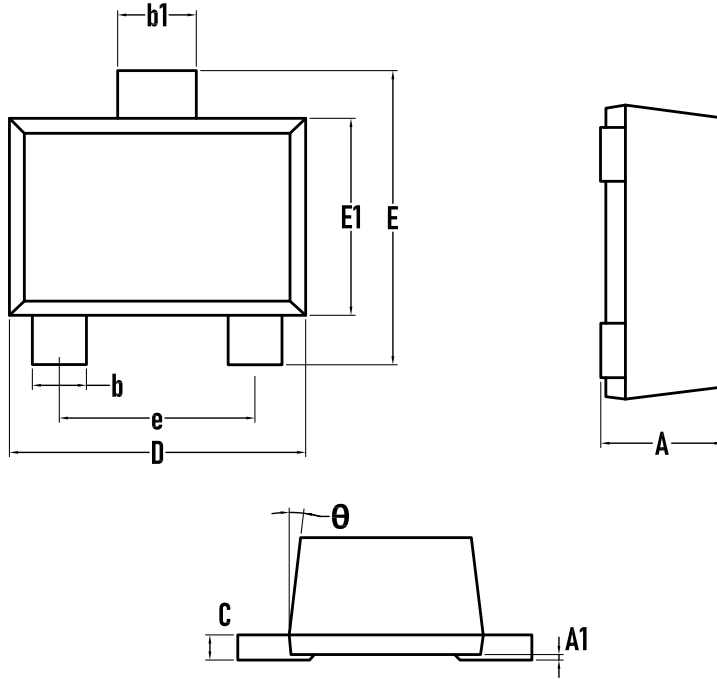
Figure 6 : $P_d - T_a$



DTC124EXX series

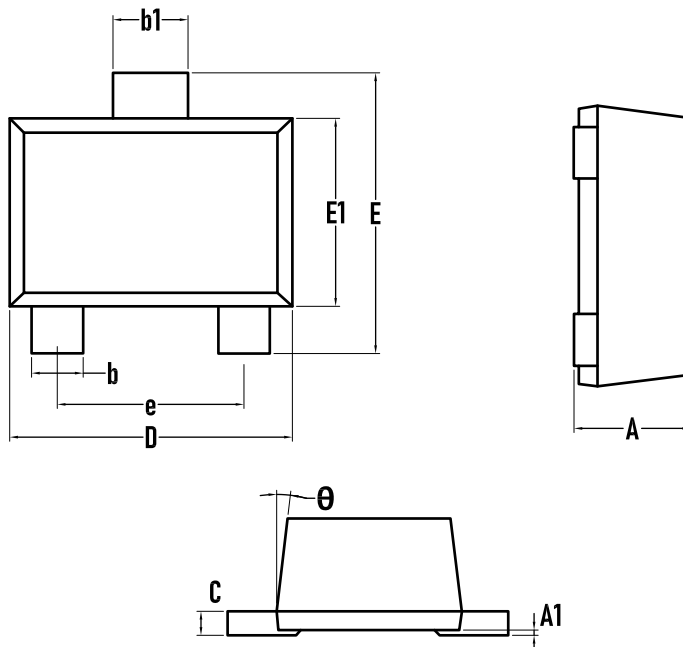
NPN Digital transistors

Outline Drawing – SOT-723



SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.430	–	0.500
A1	0.000	–	0.050
b	0.170	0.220	0.270
b1	0.270	–	0.370
C	0.080	–	0.150
D	1.150	–	1.250
E	1.150	–	1.250
E1	0.750	–	0.850
e	0.800TYP.		
θ	7°REF.		

Outline Drawing - SOT-523



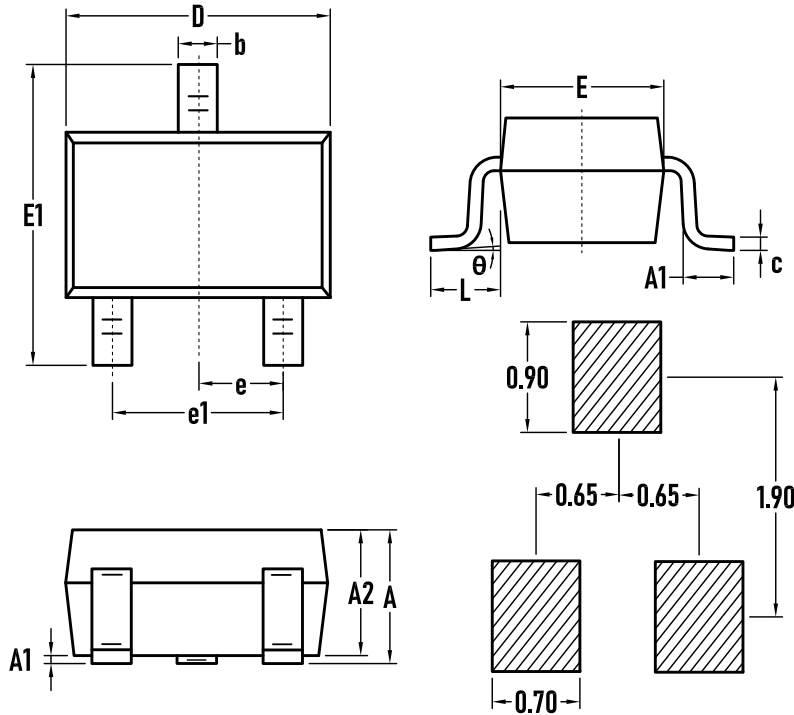
SYMBOL	MILLIMETER		
	MIN	TYP	MAX
A	0.70	0.80	0.90
A1	0.00	0.05	0.10
A2	0.70	0.75	0.80
b1	0.15	0.22	0.29
b2	0.25	0.32	0.39
D	1.50	1.60	1.70
E	1.45	1.60	1.75
E1	0.70	0.80	0.90
e	0.50(TPY.)		
e1	0.90	1.00	1.10
L	0.26	0.36	0.46
L1	0.40(REF)		
θ	0°	4°	8°



DTC124EXX series

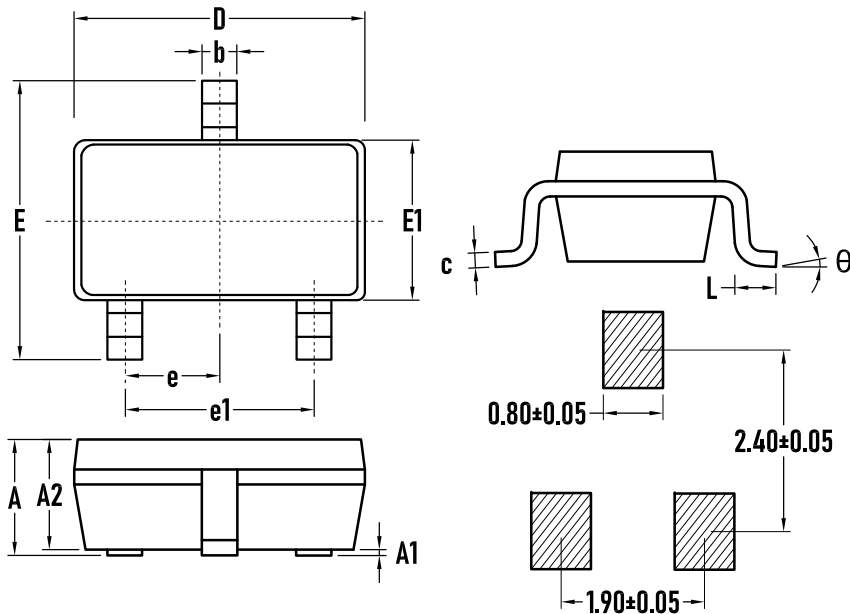
NPN Digital transistors

Outline Drawing - SOT-323



SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.95	1.00	—
A1	0.02	0.06	0.10
A2	—	0.60	—
D	2.85	2.90	2.95
b	0.37	0.40	0.43
E1	2.35	2.40	2.45
E	1.25	1.30	1.35
e	1.85	1.90	1.95
L	0.35	0.40	0.48
θ	0	—	6°

Outline Drawing - SOT23-3L



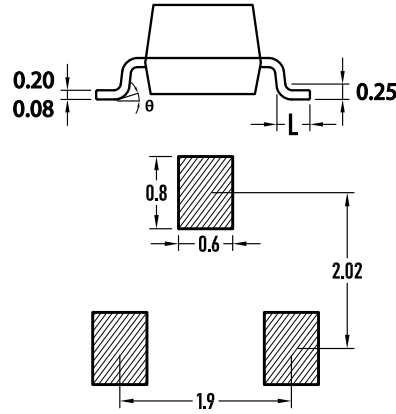
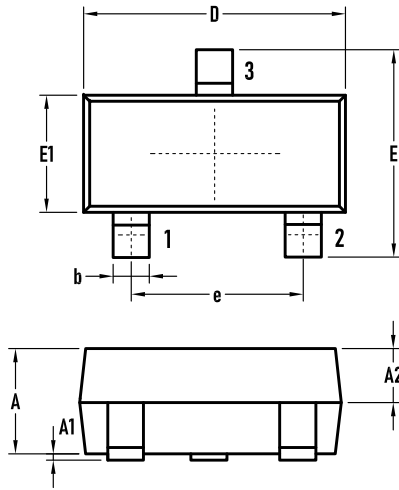
SYMBOL	MILLIMETER		Inches	
	MIN.	MAX.	MIN.	MAX.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



DTC124EXX series

NPN Digital transistors

Outline Drawing - SOT-23



SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.95	1.00	—
A1	0.02	0.06	0.10
A2	—	0.60	—
D	2.85	2.90	2.95
b	0.37	0.40	0.43
E	2.35	2.40	2.45
E1	1.25	1.30	1.35
e	1.85	1.90	1.95
L	0.35	0.40	0.48
θ	0	—	6°

