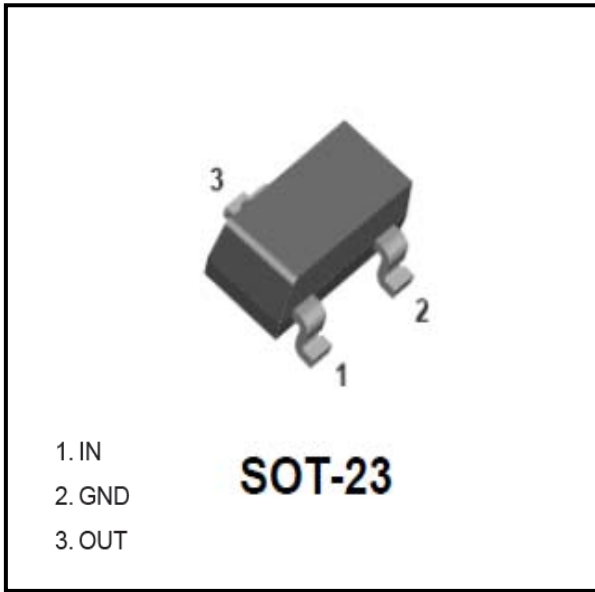


## Digital Transistors (Built-in Resistors)



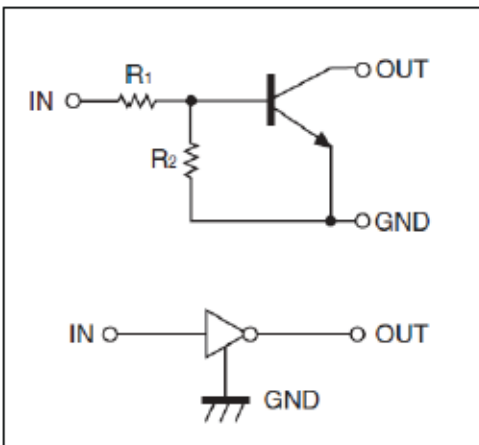
### Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Surface mount package ideally Suited for Automatic Insertion
- NPN

### Mechanical Data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 25

### ■Equivalent circuit



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

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	$V_{CC}$	V		50
Input Voltage	$V_{IN}$	V		-10 to +40
Output Current	$I_o$	mA		100
Power Dissipation	$P_D$	mW		200
Junction Temperature	$T_j$	°C		150
Storage Temperature	$T_{STG}$	°C		-55 to +150



# DTC124ECA

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

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$V_{I(off)}$	V	$V_{CC}=5V, I_C=100\mu A$ $V_O=0.2V, I_C=5mA$	0.5		
	$V_{I(on)}$	V				3
Output voltage	$V_{O(on)}$	V	$I_O / I_I = 10mA / 0.5 mA$			0.3
Input current	$I_I$	mA	$V_I=5V$			0.36
Output current	$I_{O(off)}$	$\mu A$	$V_{CC}=50V, V_I=0$			0.5
DC current gain	$G_I$		$V_O=5V, I_O=5mA$	56		
Input resistance	$R_I$	k $\Omega$		15.4	22	28.6
Resistance ratio	$R_2/R_1$			0.8	1	1.2
Transition frequency	$f_T$	MHz	$V_O=10V, I_O=-5mA, f=100MHz$		250	

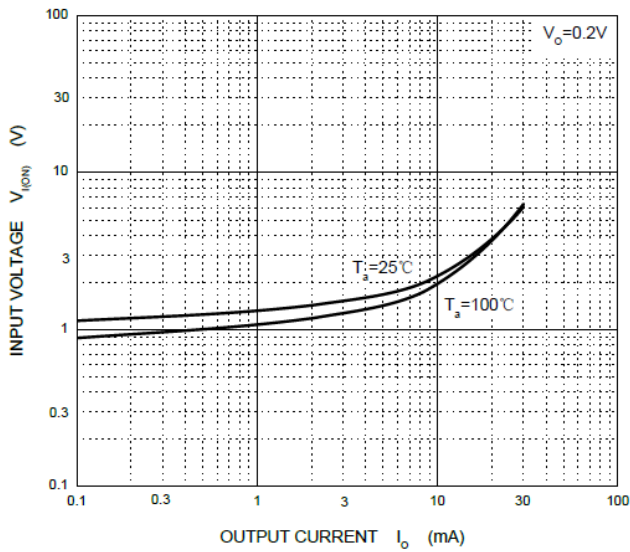
## ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
DTC124ECA	F2	Approximate 0.009	3000	30000	120000	7" reel

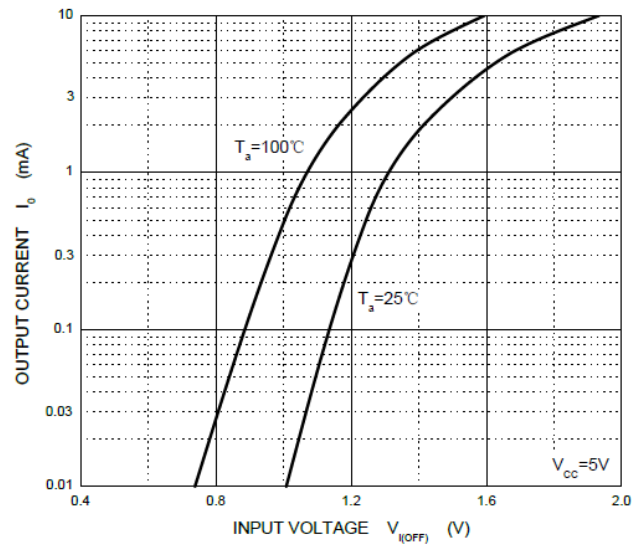


## ■ Characteristics (Typical)

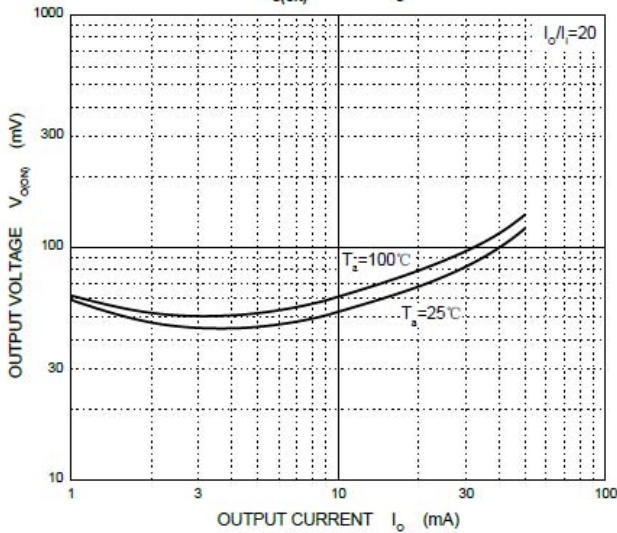
### ON Characteristics



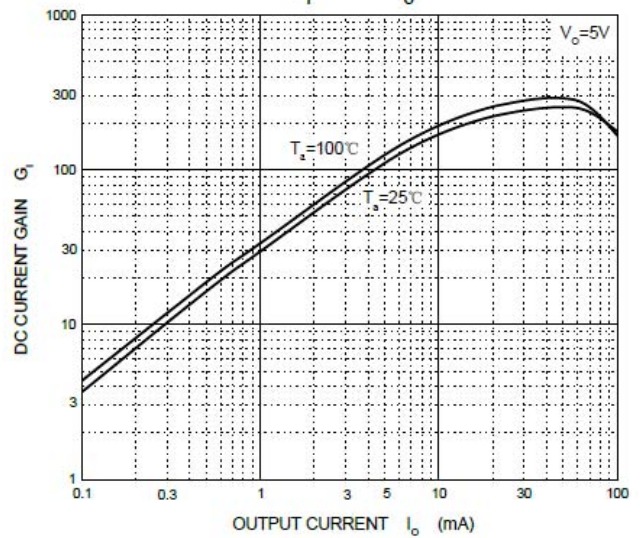
### OFF Characteristics



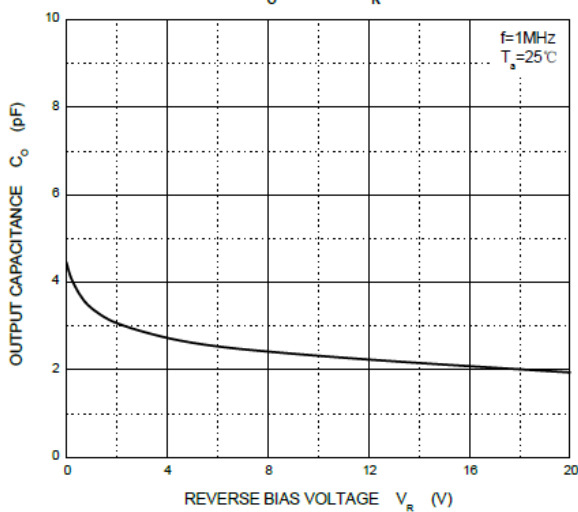
### $V_{OL(on)}$ — $I_o$



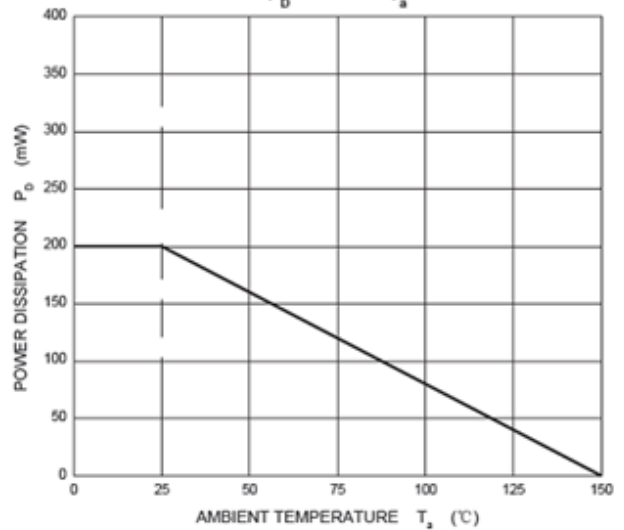
### $G_1$ — $I_o$



### $C_o$ — $V_R$



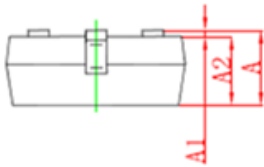
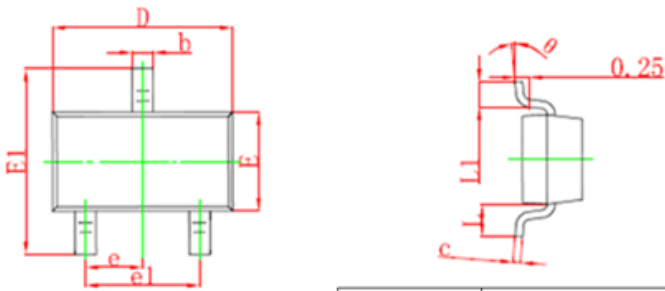
### $P_D$ — $T_a$





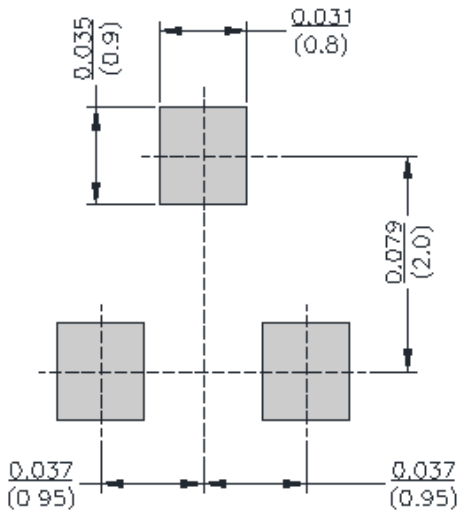
# DTC124ECA

## ■SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

## ■SOT-23 Suggested Pad Layout





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