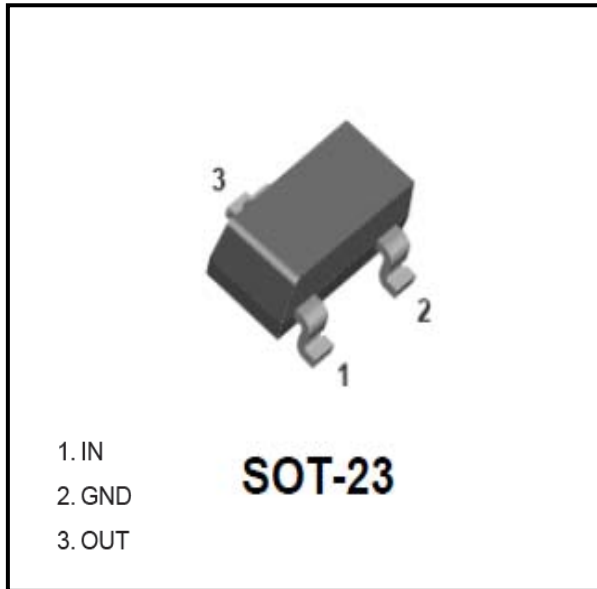


Digital Transistors (Built-in Resistors)



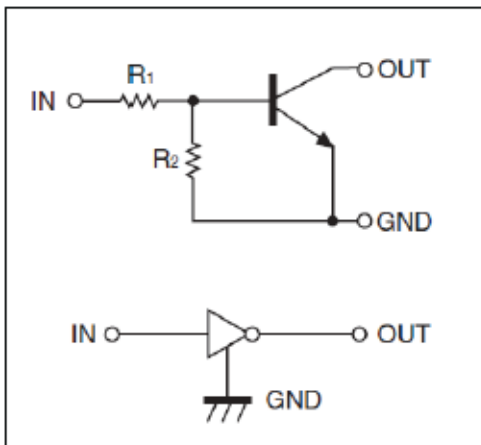
Features

- 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	$V_{CC}=5V, I_c=100\mu A$	0.5		
	$V_{I(on)}$	V	$V_o=0.2V, I_c=5mA$			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	$I_{O(off)}$	μA	$V_{CC}=50V, V_i=0$			0.5
DC current gain	G_i		$V_o=5V, I_o = 5mA$	56		
Input resistance	R_i	k Ω		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	

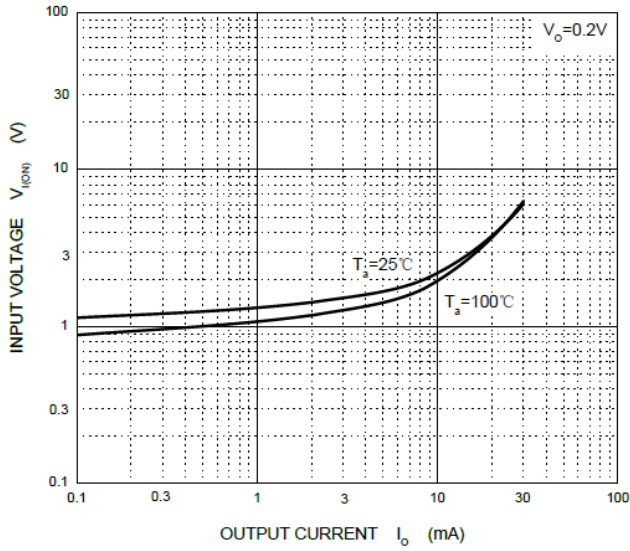
■ Ordering Information (Example)

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

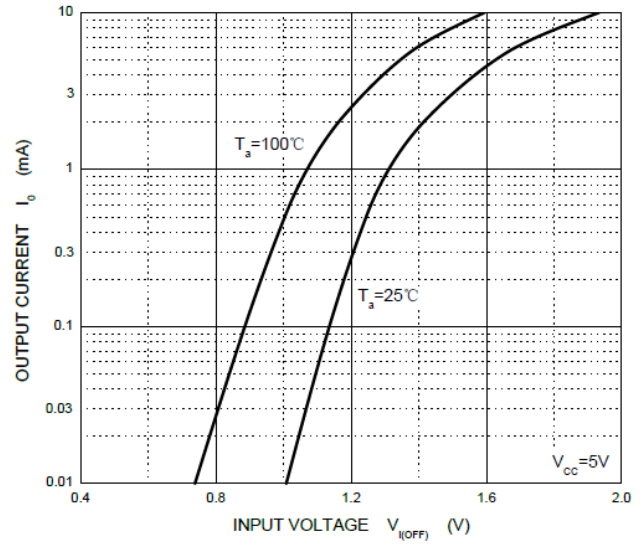


■ Characteristics (Typical)

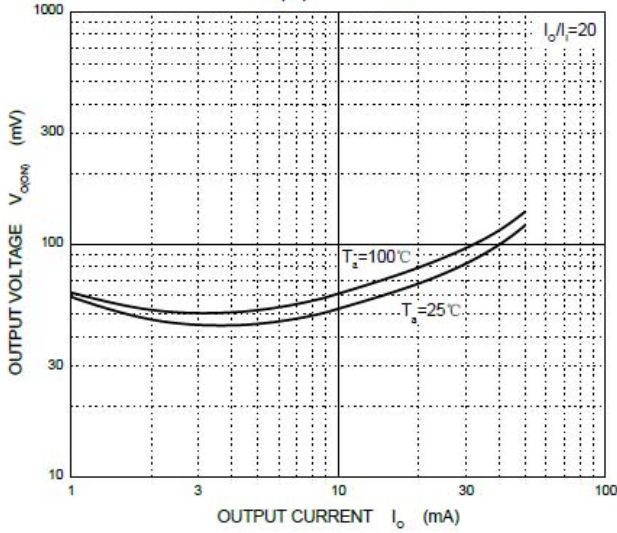
ON Characteristics



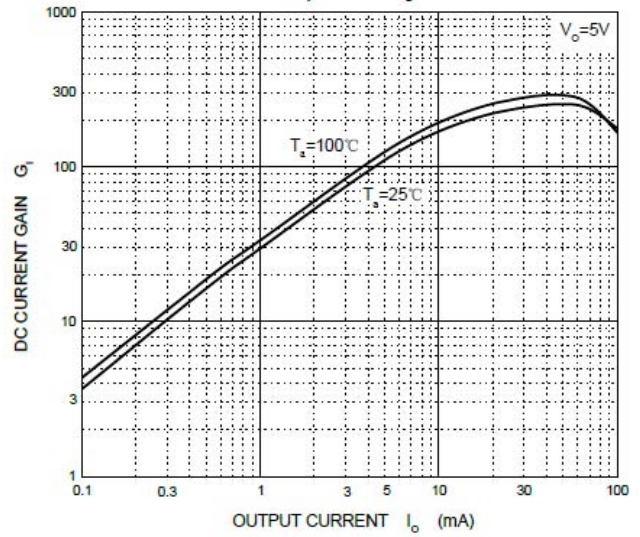
OFF Characteristics



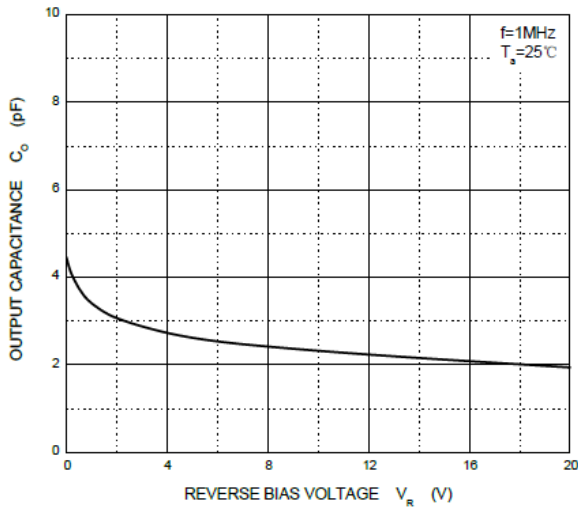
$V_{OL(on)}$ — I_o



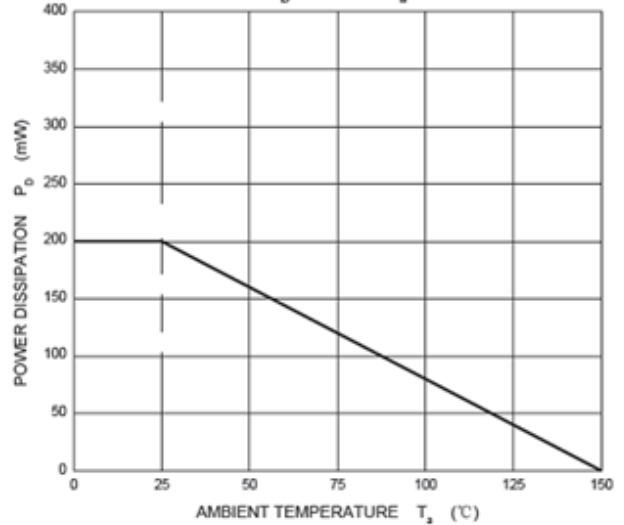
G_1 — I_o



C_o — V_R



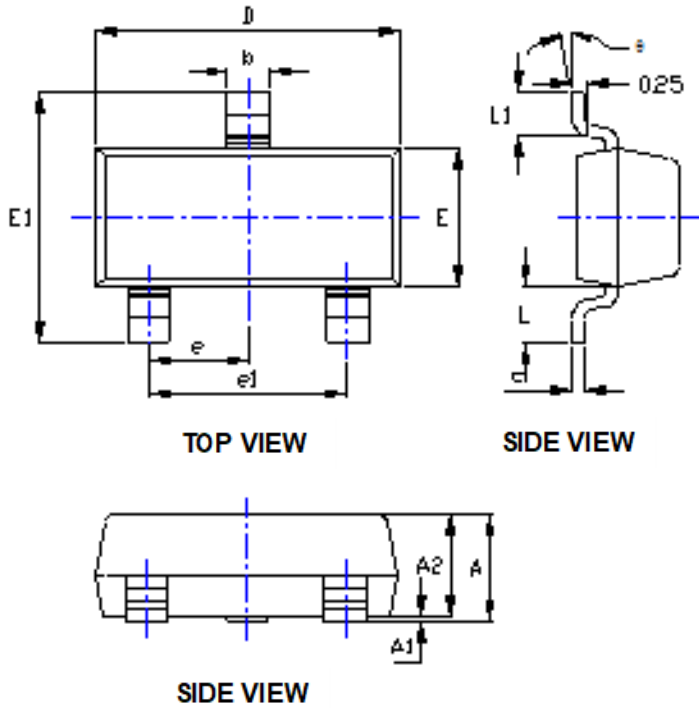
P_D — T_a





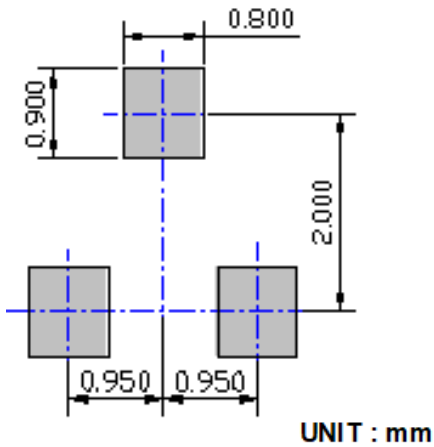
DTC124ECA

■SOT-23 Package Outline Dimensions



DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

■SOT-23 Suggested Pad Layout





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