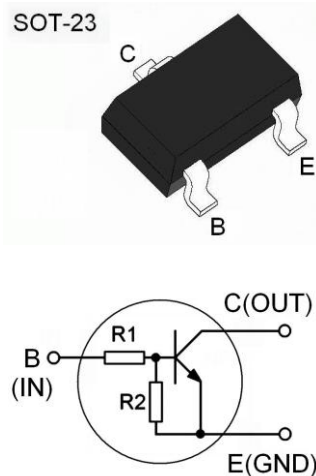


DTC114ECA Digital Transistors (NPN)

Feature

- Built-In Biasing Resistors, $R_1 = R_2 = 10k\Omega$
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- Only the on/off conditions need to be set for operation, making the circuit design easy.
- Complementary PNP Types: DTA114ECA



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10 ~ 40	V
Output current	I_O $I_{C(MAX)}$	50 100	mA
Power dissipation	P_D	200	mW
Junction temperature Storage temperature	T_j T_{stg}	150 -55~150	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$			0.5	V
	$V_{I(on)}$	$V_O=0.3V, I_O=10mA$	3			V
Output voltage	$V_{O(on)}$	$I_O/I_I=10mA/0.5mA$		0.1	0.3	V
Input current	I_I	$V_I=5V$			0.88	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_I=0$			0.5	μA
DC current gain	G_I	$V_O=5V, I_O=5mA$	30			
Input resistance	R_1		7	10	13	K Ω
Resistance ratio	R_2/R_1		0.8	1	1.2	
Transition frequency	f_T	$V_{CE}=10V, I_E=-5mA, f=100MHz$		250		MHz



Typical Characteristics

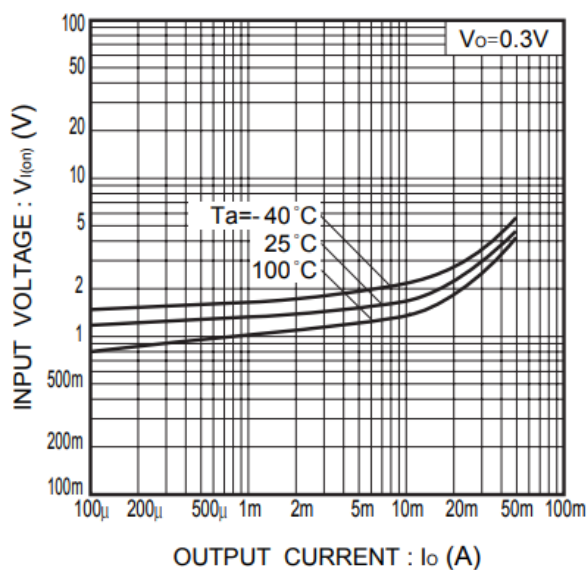


Figure 1. Input voltage vs. output current (ON characteristics)

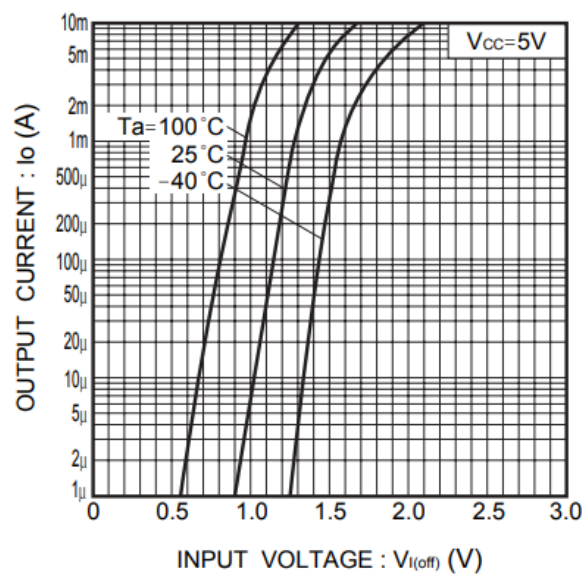


Figure 2. Output current vs. input voltage (OFF characteristics)

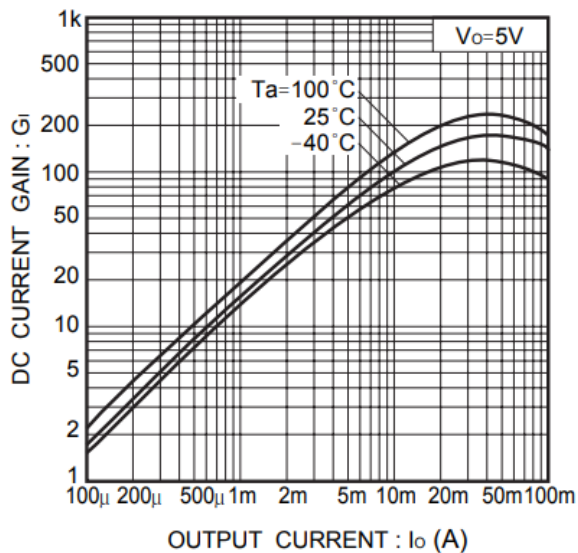


Figure 3. DC current gain vs. output current

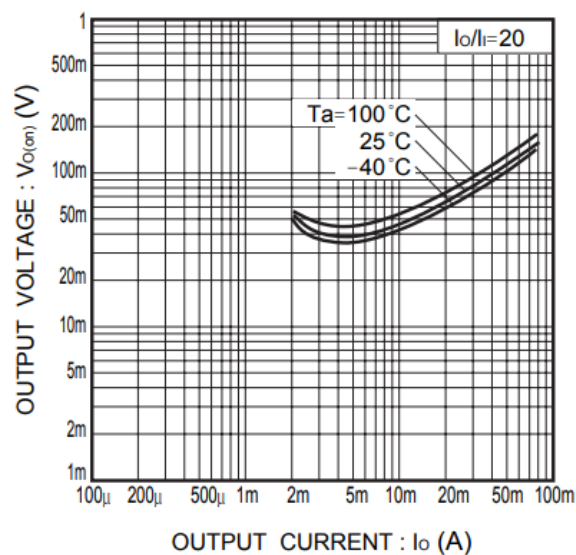


Figure 6. Output voltage vs. output current

Package Dimensions

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.90	1.00	0.035	0.039
e1	1.80	2.00	0.071	0.079
L	0.50	0.60	0.020	0.024
L1	0.30	0.50	0.012	0.020