

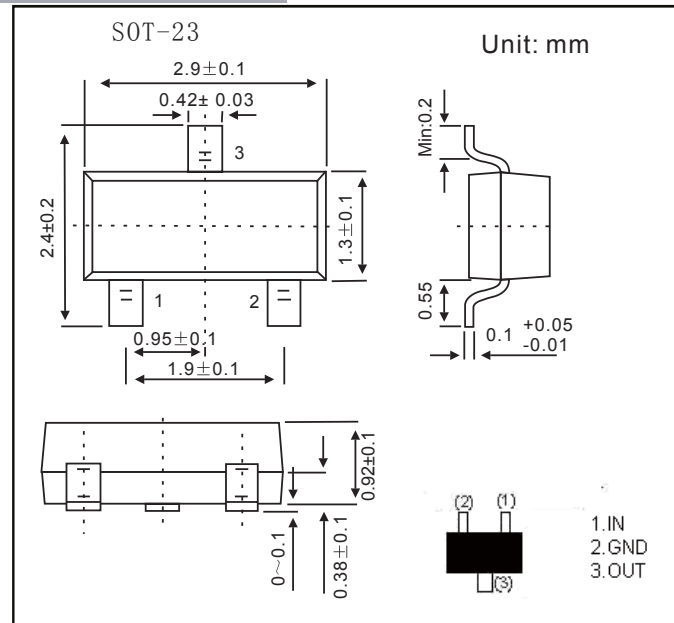
## Digital transistors (built-in resistors)

### Features

- DIGITAL TRANSISTOR (NPN)

### MECHANICAL DATA

- Case: SOT-23 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any



### ABSOLUTE MAXIMUM RATINGS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Limits (DTC143ECA )	Unit
Supply voltage	$V_{CC}$	50	V
Input voltage	$V_{IN}$	-10~+30	V
Output current	$I_O$	100	mA
	$I_{C(MAX)}$	100	
Power dissipation	$P_d$	200	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55~150	°C

### Electrical Specification ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$			0.5	V	$V_{CC}=5V, I_O=100\mu A$
	$V_{I(on)}$	3				$V_O=0.3V, I_O=20\text{ mA}$
Output voltage	$V_{O(on)}$			0.3	V	$I_O/I_I=10\text{mA}/0.5\text{mA}$
Input current	$I_I$			1.8	mA	$V_I=5V$
Output current	$I_{O(off)}$			0.5	$\mu A$	$V_{CC}=50V, V_I=0$
DC current gain	$G_I$	20				$V_O=5V, I_O=10\text{mA}$
Input resistance	$R_1$	3.29	4.7	6.11	K $\Omega$	
Resistance ratio	$R_2/R_1$	0.8	1	1.2		
Transition frequency	$f_T$		250		MHz	$V_O=10V, I_O=5\text{mA}, f=100\text{MHz}$

■ Typical Characteristics

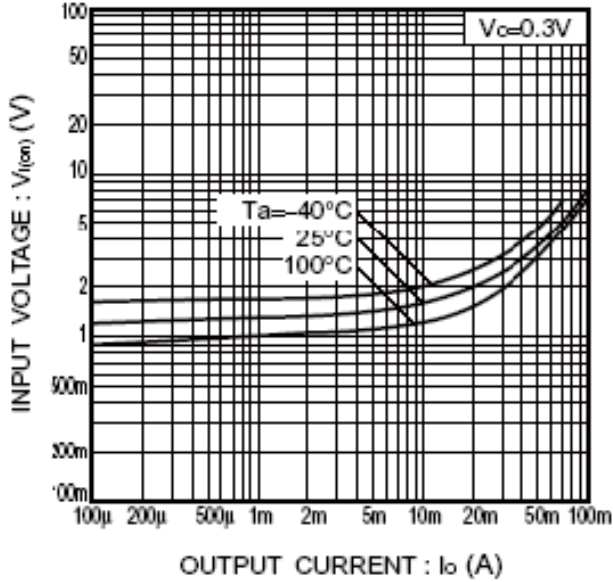


Fig.1 Input voltage vs. output current (ON characteristics)

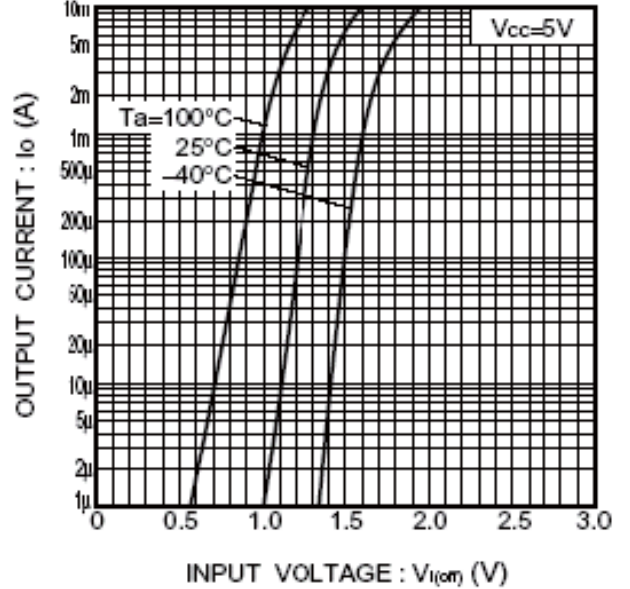


Fig.2 Output current vs. input voltage (OFF characteristics)

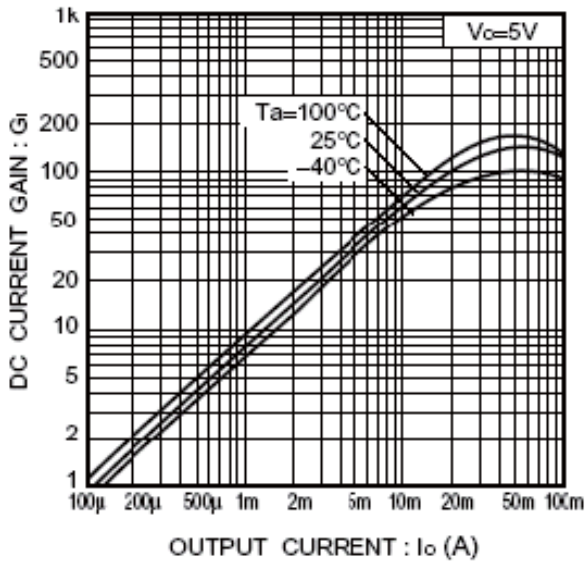


Fig.3 DC current gain vs. output current

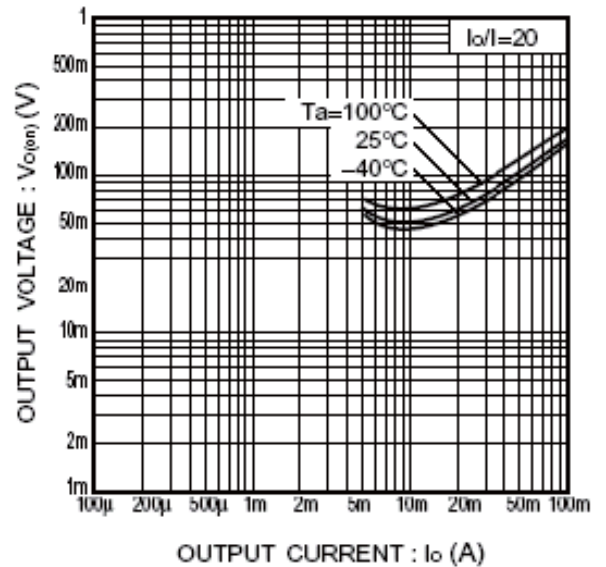


Fig.4 Output voltage vs. output current