

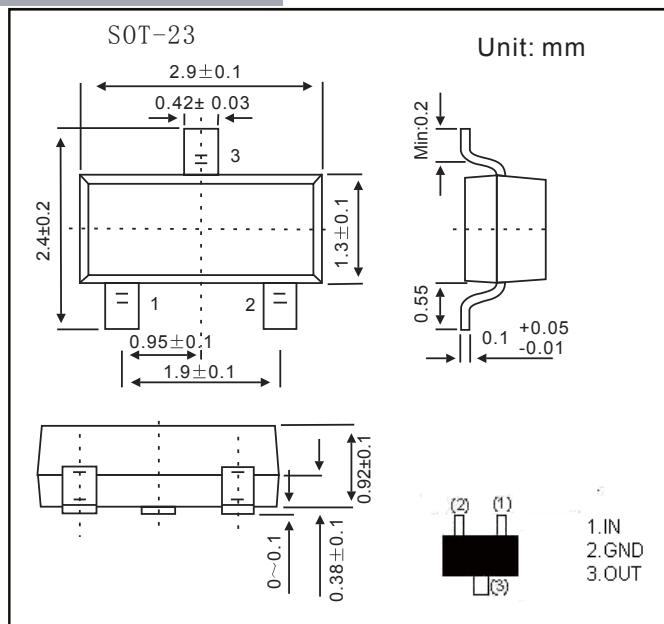
Digital transistors (built-in resistors)

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	μA	$V_{CC}=50V, V_I=0$
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 Ω	
Resistance ratio	R_2/R_1	0.8	1	1.2		
Transition frequency	f_T		250		MHz	$V_O=10V, I_O=5\text{mA}, f=100\text{MHz}$

RATINGS AND CHARACTERISTIC CURVES

Typical Characteristics

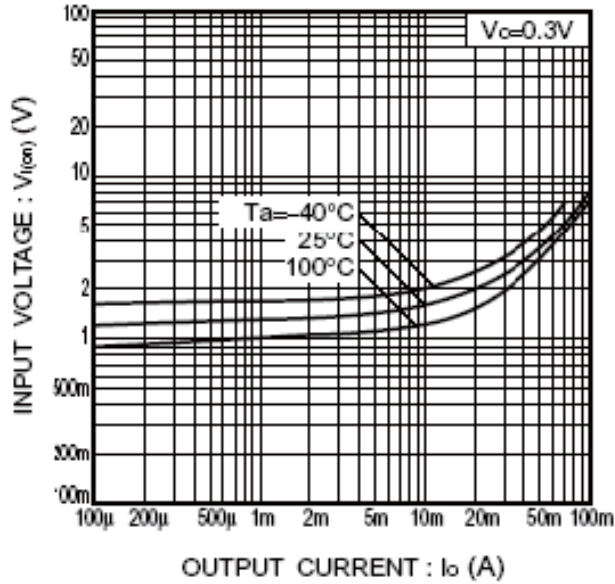


Fig.1 Input voltage vs. output current (ON characteristics)

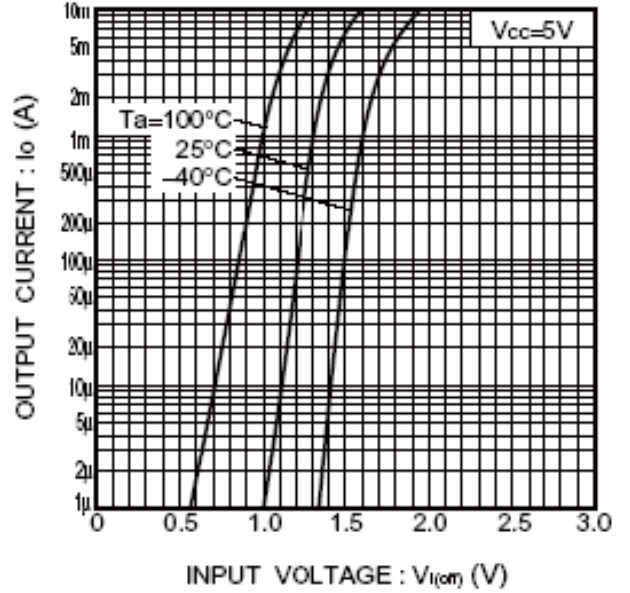


Fig.2 Output current vs. input voltage (OFF characteristics)

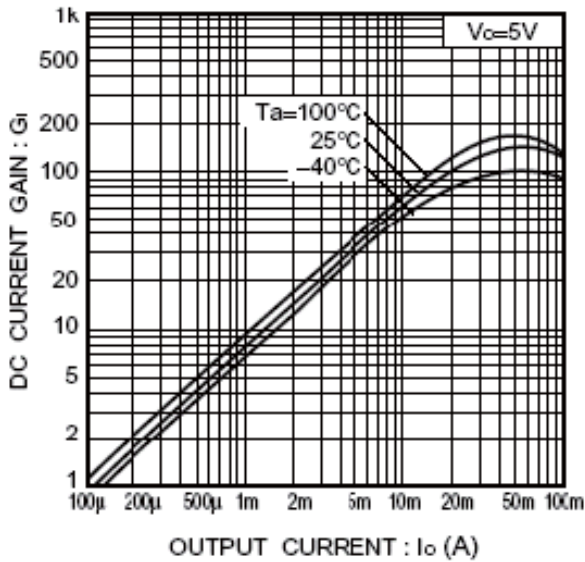


Fig.3 DC current gain vs. output current

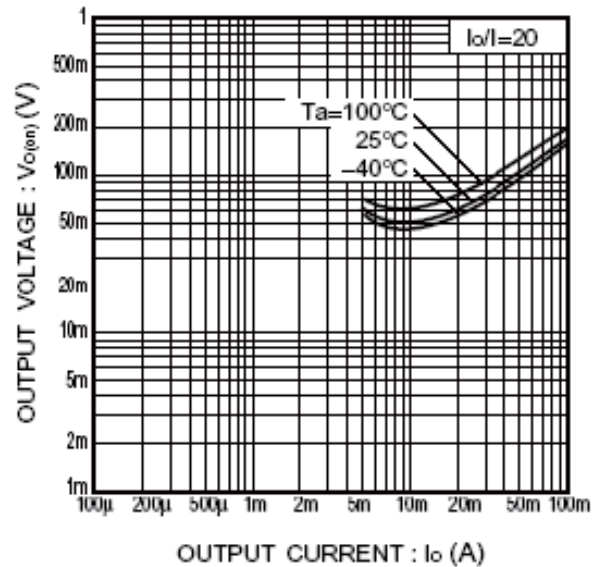


Fig.4 Output voltage vs. output current