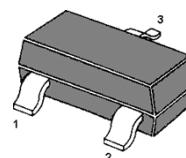


DTC114ECA DIGITAL TRANSISTOR (NPN)

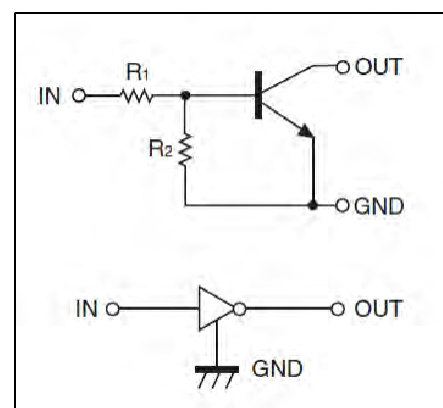
FEATURES

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy

MARKING: 24



1.Base (IN) 2.Emitter (GND)
3.Collector (OUT)
SOT-23 Plastic Package



Equivalent Circuit

MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10 ~ 40	V
Output current	I_O	50	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 CHARACTERISTICS (Ta=25°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		$V_O=0.3V, I_O=10 mA$
Output voltage	$V_{O(on)}$		0.1	0.3	V	$I_O/I_I=10mA/0.5mA$
Input current	I_I			0.88	mA	$V_I=5V$
Output current	$I_{O(off)}$			0.5	μA	$V_{CC}=50V, V_I=0$
DC current gain	G_I	30				$V_O=5V, I_O=5mA$
Input resistance	R_I	7	10	13	K Ω	
Resistance ratio	R_2/R_I	0.8	1	1.2		
Transition frequency	f_T		250		MHz	$V_{CE}=10V, I_E=-5mA, f=100MHz$

Typical Characteristics

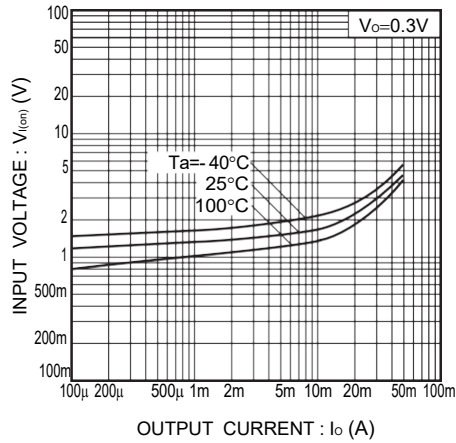


Fig.1 Input voltage vs. output current (ON characteristics)

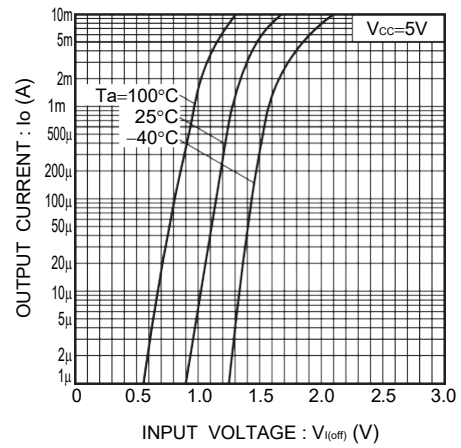


Fig.2 Output current vs. input voltage (OFF characteristics)

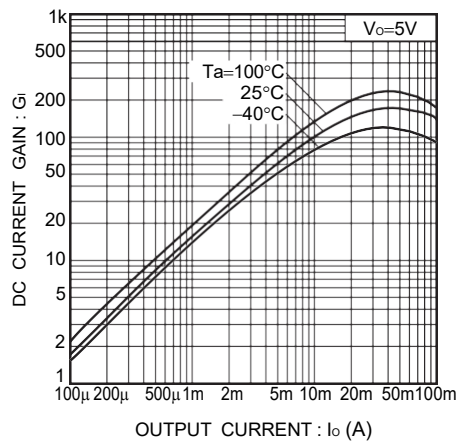


Fig.3 DC current gain vs. output current

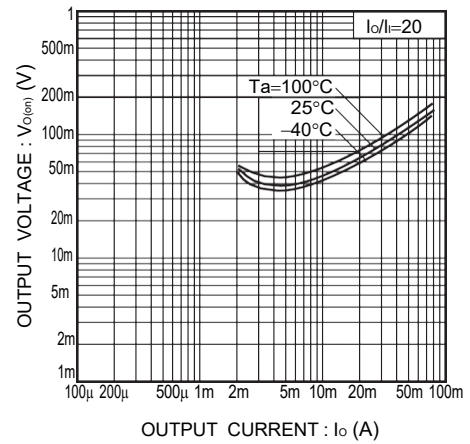
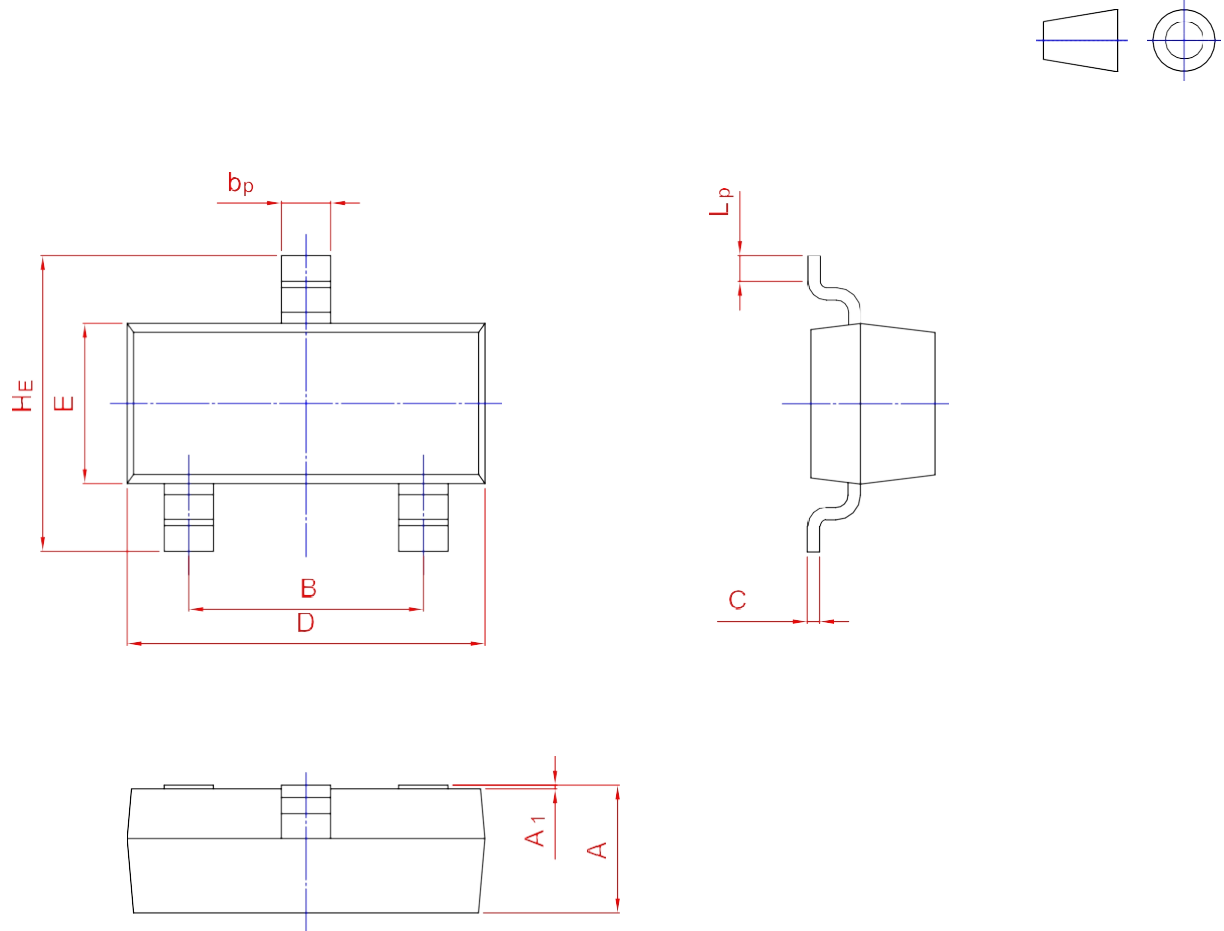


Fig.4 Output voltage vs. output current

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b _p	C	D	E	H _E	A ₁	L _p
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20