

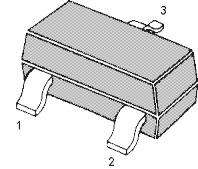
SOT-23 Plastic-Encapsulate Digital Transistors

DTC114WCA 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

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

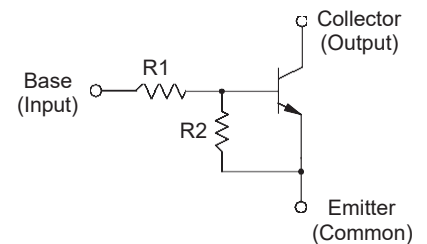
MARKING

Marking code:C114

MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Limits	Unit
V_{CC}	Supply Voltage	50	V
V_{IN}	Input Voltage	$-5 \sim +30$	V
I_O	Output Current	100	mA
P_D	Power Dissipation	200	mW
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	$-55 \sim +150$	$^{\circ}\text{C}$

Equivalent Circuit

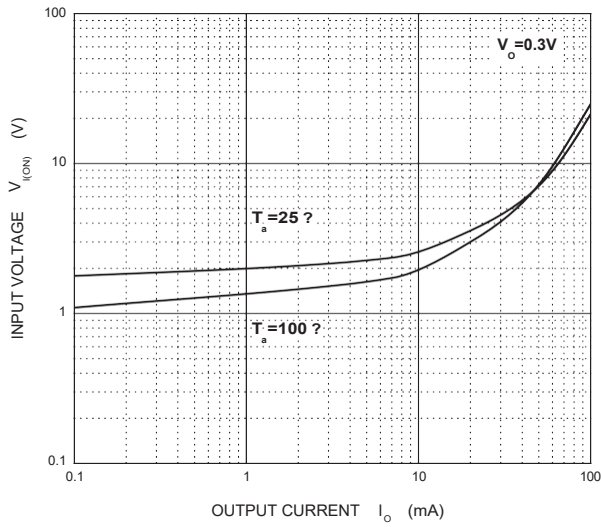


ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

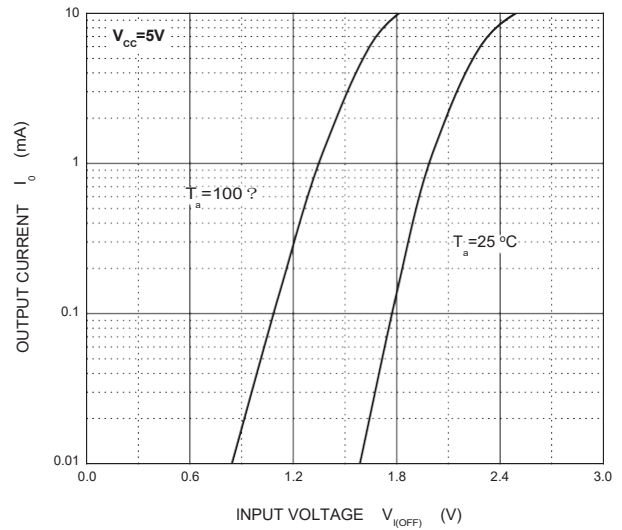
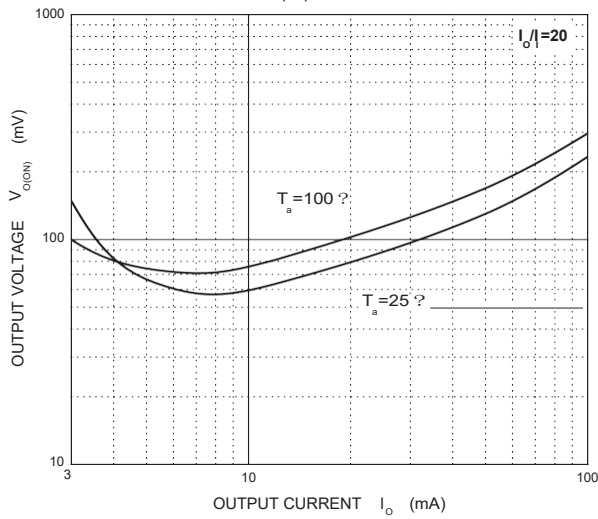
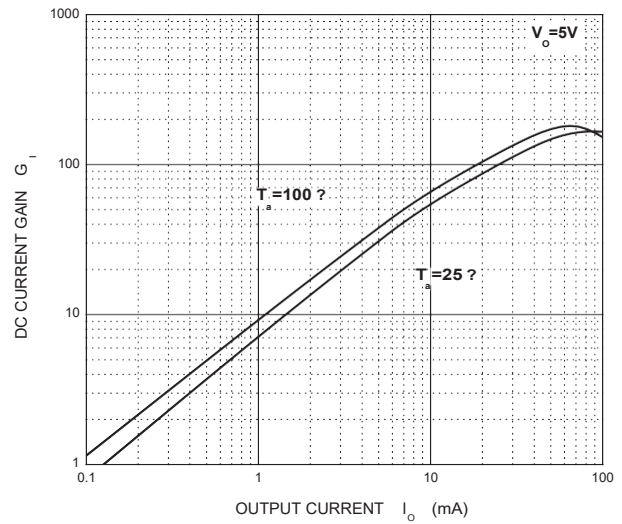
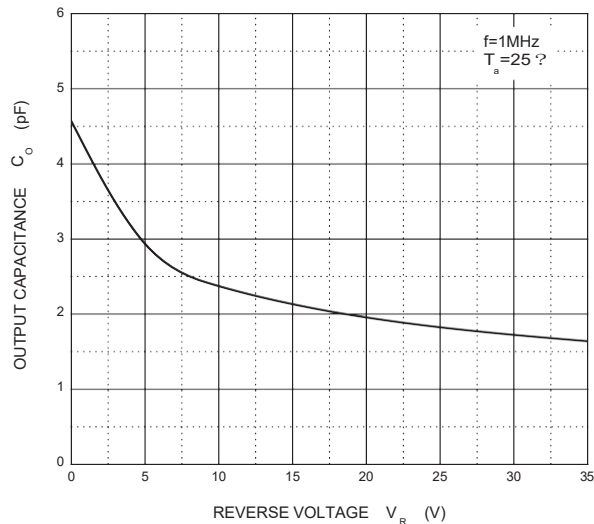
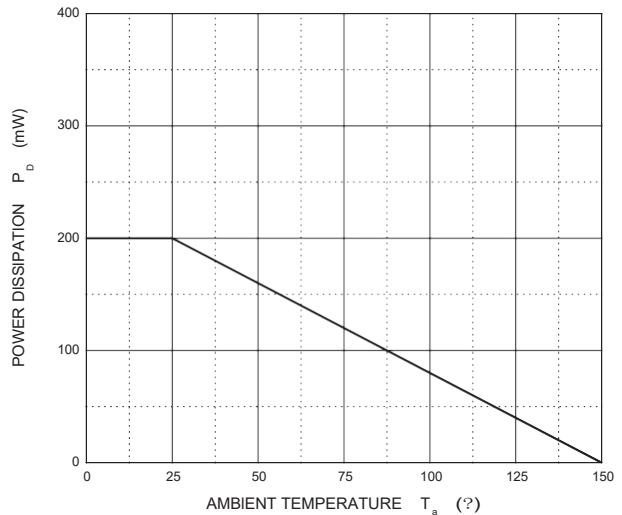
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	0.8			V
	$V_{I(on)}$	$V_O=0.3V, I_O=2\text{ mA}$			3	V
Output voltage	$V_{O(on)}$	$I_O/I_I=10\text{mA}/0.5\text{mA}$			0.3	V
Input current	I_I	$V_I=5V$			0.88	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_I=0$			0.5	μA
DC current gain	G_I	$V_O=5V, I_O=10\text{mA}$	24			
Input resistance	R_I		7	10	13	$k\Omega$
Resistance ratio	R_2/R_1		0.37	0.47	0.57	
Transition frequency	f_T	$V_O=10V, I_O=5\text{mA}, f=100\text{MHz}$		250		MHz

Typical Characteristics

ON Characteristics



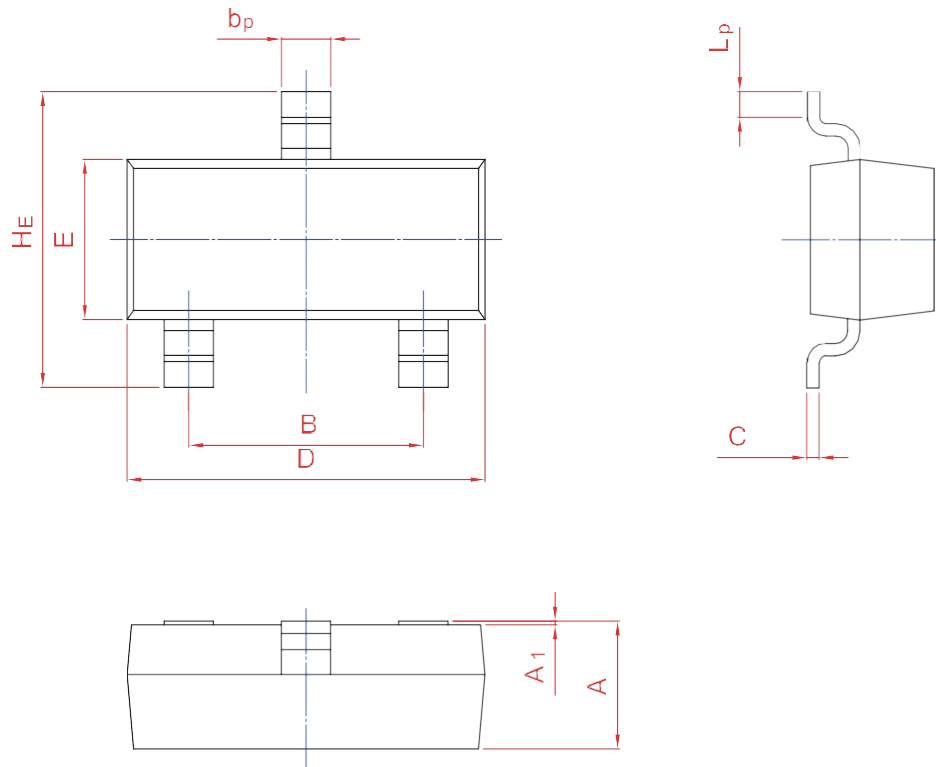
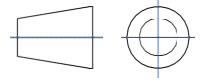
OFF Characteristics

 $V_{o(ON)}$ — I_o  G_i — I_o  C_o — V_R  P_D — T_a 

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