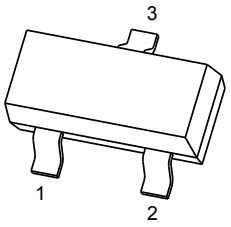
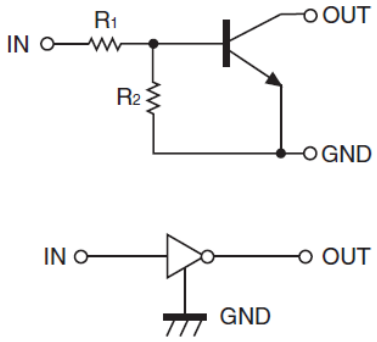
Digital Transistors (Built-in Resistors)

SOT-23



1. IN
2. GND
3. OUT

• **Equivalent Circuit**



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 se
  t for operation, making device design easy

MAXIMUM RATINGS(Ta=25℃ unless otherwise noted)

Symbol	Parameter	Limits	Unit
		DTC114YCA	
V_{CC}	Supply Voltage	50	V
V_{IN}	Input Voltage	-6～+40	V
I_O	Output Current	70	mA
I_{CM}	Peak Collector Current	100	mA
P_D	Power Dissipation	200	mW
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

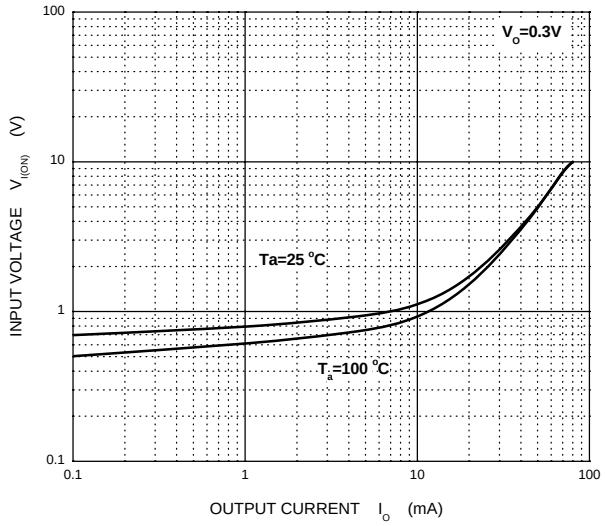
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.3			V
	$V_{I(on)}$	V_O=0.3V,I_O=1mA			1.4	V
Output voltage	$V_{O(on)}$	I_O/I_I=5mA/0.25mA			0.3	V
Input current	I_I	V_I=5V			0.88	mA
Output current	$I_{O(off)}$	V_{CC}=50V,V_I=0			0.5	μA
DC current gain	G_I	V_O=5V,I_O=5mA	68			
Input resistance	R_1		7	10	13	kΩ
Resistance ratio	R_2/R_1		3.7	4.7	5.7	
Transition frequency	f_T	V_O=10V,I_O=5mA,f=100MHz		250		MHz

ORDERING INFORMATION

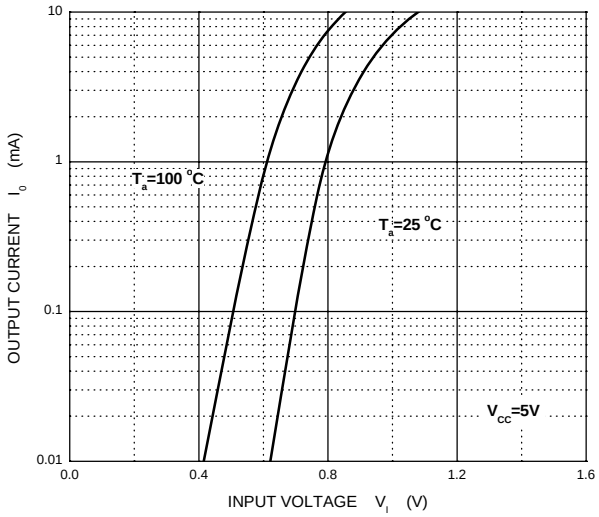
Part Number	Package	Packing Method	Pack Quantity
DTC114YCA	SOT-23	Reel	3000pcs/Reel

Typical Characteristics

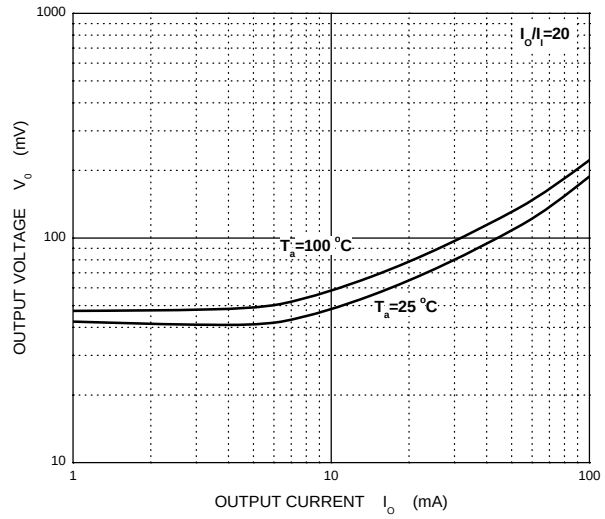
ON Characteristics



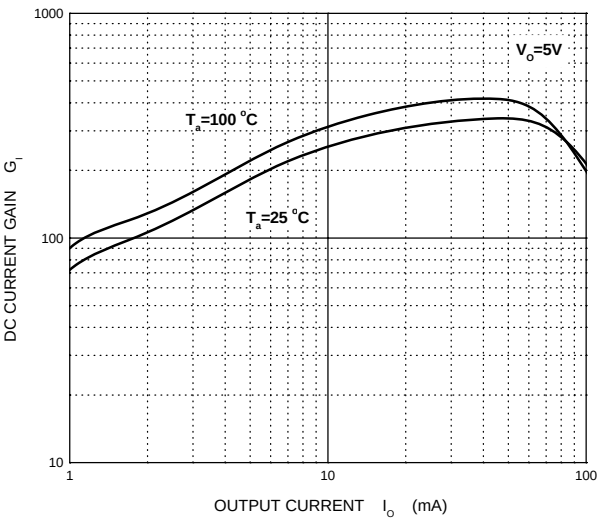
OFF Characteristics



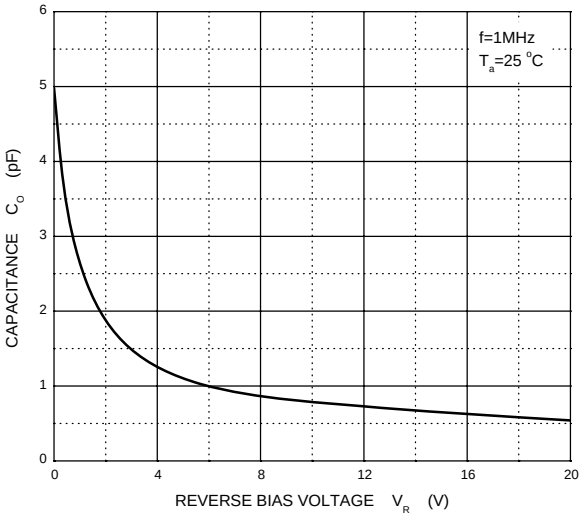
V_O —— I_O



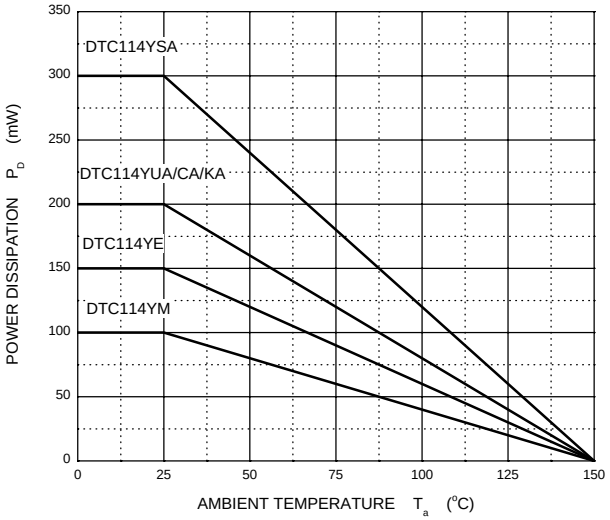
G_I —— I_O



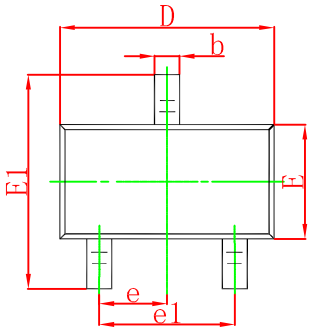
C_O —— V_R

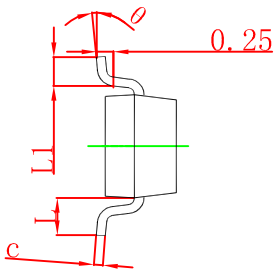


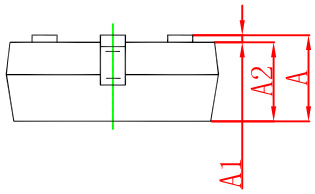
P_D —— T_a



SOT-23 Package Outline Dimensions

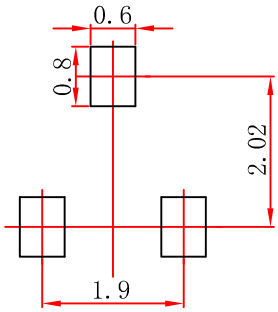






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.