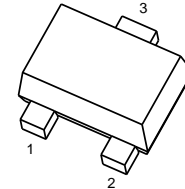


Digital transistors (built-in resistors)

• Features

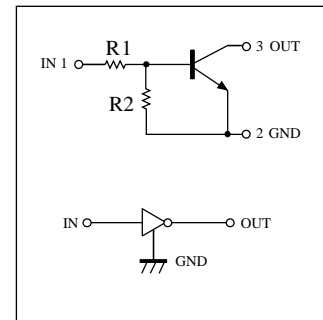
- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost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



SOT-723

• Device Marking and Ordering Information

Device	Marking	Shipping
DTC702EM	24	8000/Tape&Reel



• Absolute maximum ratings ($T_A = 25^\circ\text{C}$)

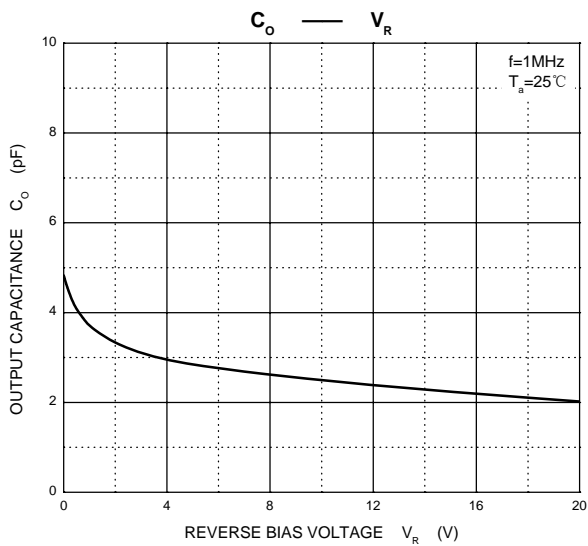
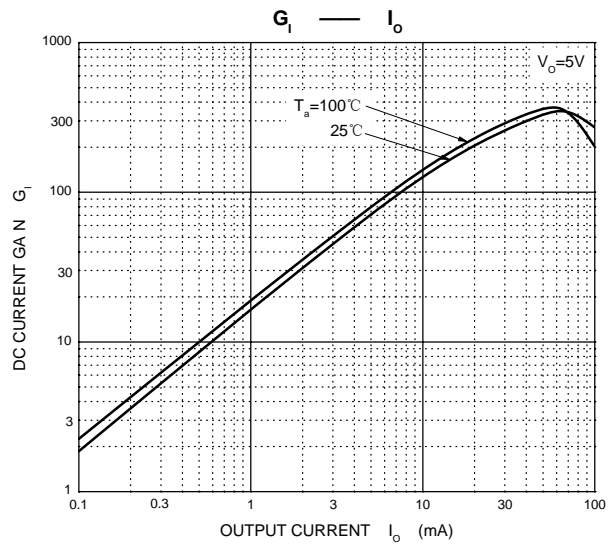
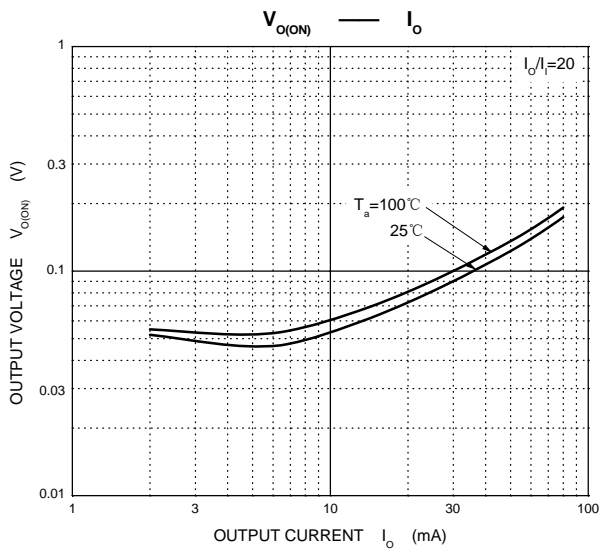
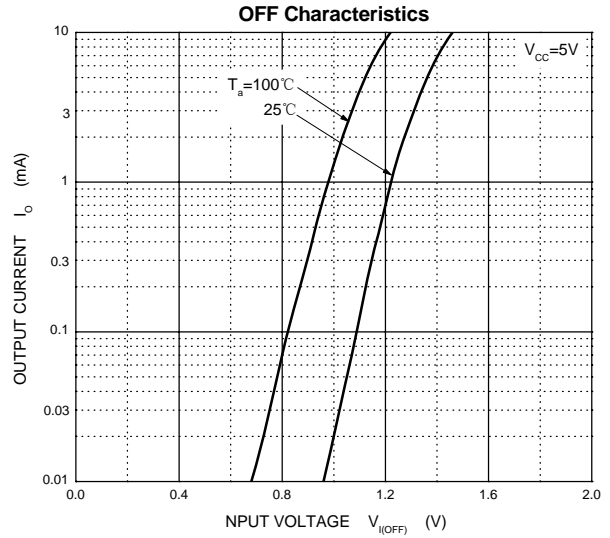
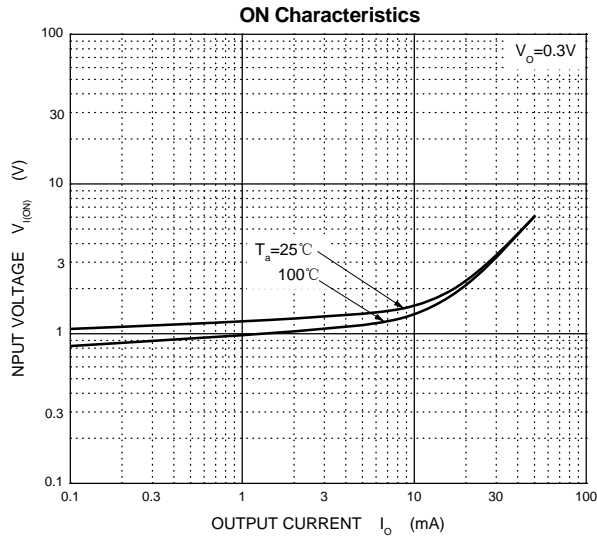
Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10~+40	V
Output current	I_O	50	mA
	$I_{C(Max)}$	100	
Power dissipation	P_d	100	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55~+150	$^\circ\text{C}$

• Electrical characteristics ($T_A = 25^\circ\text{C}$)

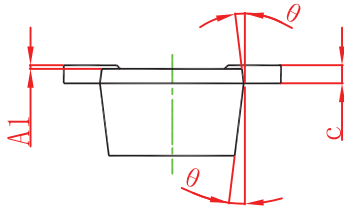
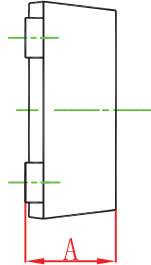
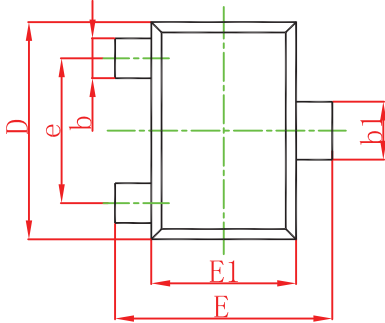
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	0.5	V	$V_{CC} = 5V, I_O = 100\mu A$
	$V_{I(on)}$	3	—	—		$V_O = 0.3V, I_O = 2mA$
Output voltage	$V_{O(on)}$	—	—	0.3	V	$I_O/I_I = 10mA/0.5mA$
Input current	I_I	—	—	0.88	mA	$V_I = 5V$
Output current	$I_{O(off)}$	—	—	0.5	μA	$V_{CC} = 50V, V_I = 0V$
DC current gain	G_I	30	—	—	—	$V_O = 5V, I_O = 5mA$
Input resistance	R_1	7	10	13	k Ω	—
Resistance ratio	R_2/R_1	0.8	1	1.2	—	—
Transition frequency	f_T	—	250	—	MHz	$V_{CE} = 10V, I_E = -5mA, f = 100MHz$ *

* Transition frequency of the device

• Electrical characteristic curves

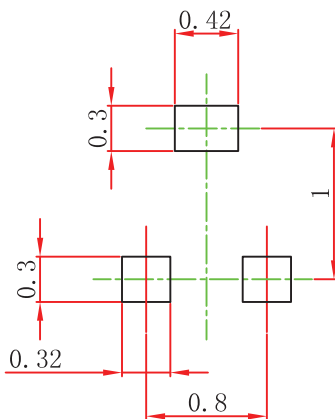


SOT-723 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

SOT-723 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.