Elektronische Bauelemente

DTC123YM / DTC123YE / DTC123YUA / DTC123YCA

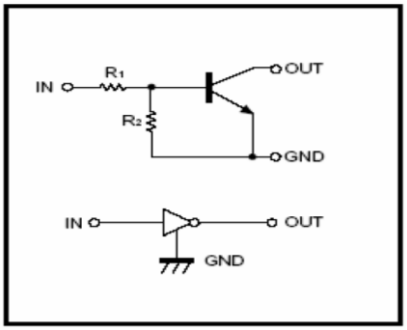
NPN Digital Transistors (Built-in Resistors)

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

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 positive 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.

EQUIVALENT CIRCUIT



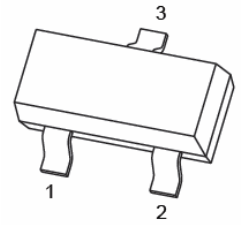
ORDER INFORMATION

Part Number	Type
DTC123Y Series	Lead (Pb)-free
DTC123Y Series-C	Lead (Pb)-free and Halogen-free

PIN CONNENCTIONS AND MARKING

DTC123YCA

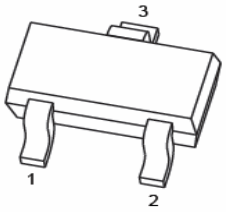
1. IN
2. GND
3. OUT



SOT-23
MARKING:62

DTC123YE

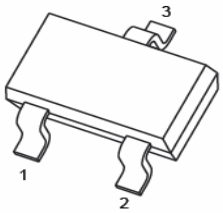
1. IN
2. GND
3. OUT



SOT-523
MARKING:62

DTC123YUA

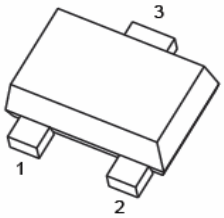
1. IN
2. GND
3. OUT



SOT-323
MARKING:62

DTC123YM

1. IN
2. GND
3. OUT



SOT-723
MARKING:62

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

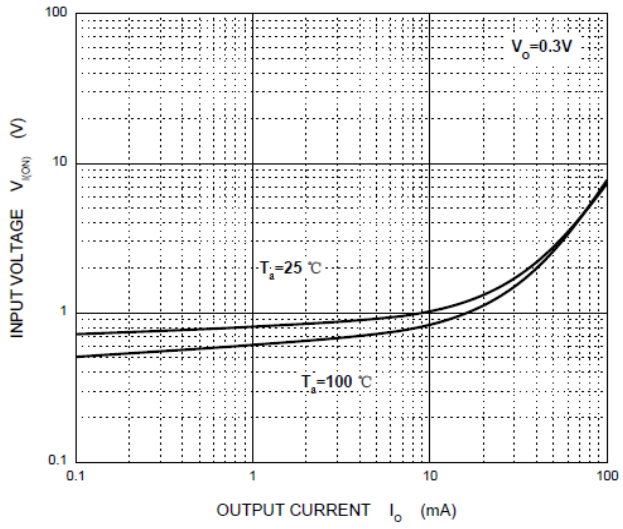
Parameter	Symbol	Limits (DTC123Y☐)				Unit
		M	E	UA	CA	
Supply Voltage	V_{CC}	50				V
Input Voltage	V_{IN}	-5~12				V
Output Current	I_O	100				mA
Power Dissipation	P_D	100	150	200		mW
Junction & Storage Temperature	T_J, T_{STG}	150, -55~150				°C

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

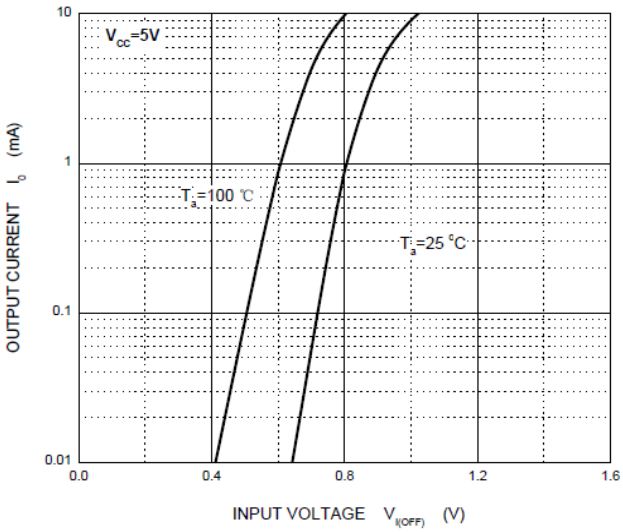
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Input Voltage	$V_{I(off)}$	0.3	-	-	V	V_{CC}=5V, I_O=100μA
	$V_{I(on)}$	-	-	3		V_O=0.3V, I_O=20mA
Output Voltage	$V_{O(on)}$	-	0.1	0.3	V	I_O/I_I=10mA/0.5mA
Input Current	I_I	-	-	3.8	mA	V_I=5V
Output Current	$I_{O(off)}$	-	-	0.5	μA	V_{CC}=50V, V_I=0
DC Current Gain	G_I	33	-	-		V_O=5V, I_O=10mA
Input Resistance	R_1	1.54	2.2	2.86	kΩ	
Resistance Ratio	R_2/R_1	3.6	4.5	5.5		
Transition Frequency	f_T	-	250	-	MHz	V_O=10V, I_O=5mA, f=100MHz

CHARACTERISTIC CURVES

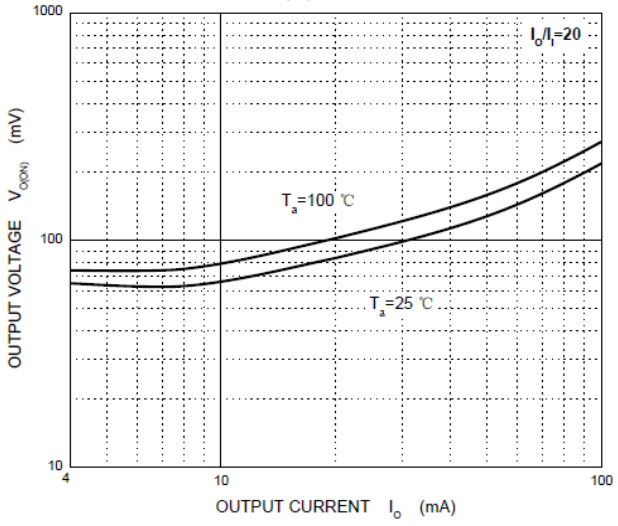
ON Characteristics



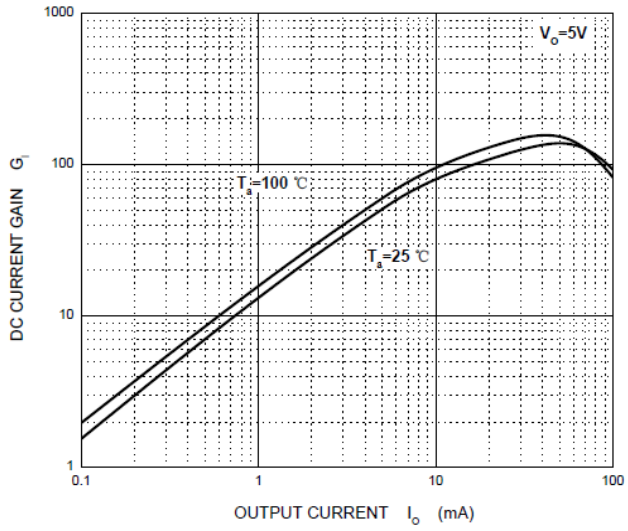
OFF Characteristics



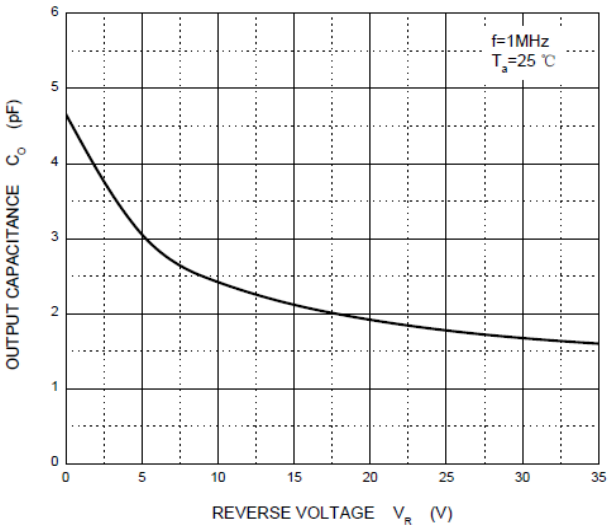
$V_{O(ON)}$ —— I_O



G_I —— I_O



C_O —— V_R



P_D —— T_a