

**SOT-23 DIGITAL TRANSISTOR
TRANSISTORS(NPN)**

FEATURES

- * Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- * 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.

MECHANICAL DATA

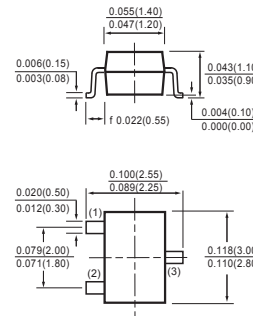
- * Case: Molded plastic
- * Epoxy: UL 94V-O rate flame retardant
- * Lead: MIL-STD-202E method 208C guaranteed
- * Mounting position: Any
- * Weight: 0.008 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.



SOT-23



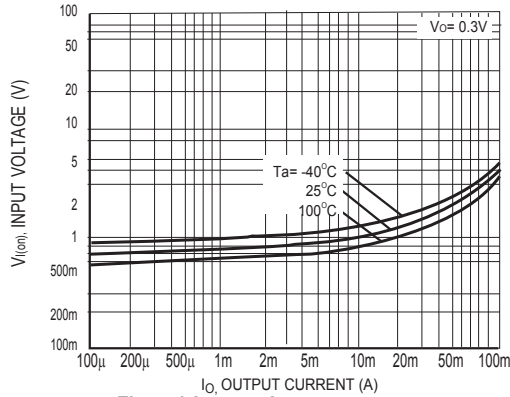
MAXIMUM RATINGS (@ TA = 25°C unless otherwise noted)

RATINGS	SYMBOL	LIMITS	UNITS
Supply voltage	V _{CC}	50	V
Input voltage	V _{IN}	-5~12	V
Output current	I _O	100	mA
	I _{C(MAX)}	100	
Power dissipation	P _d	200	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 ~150	°C

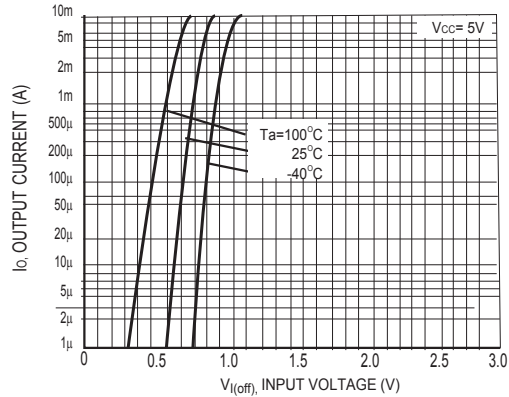
ELECTRICAL CHARACTERISTICS (@ TA = 25°C unless otherwise noted)

CHARACTERISTICS	SYMBOL	MIN	TYP	MAX	UNITS
Input voltage (V _{CC} = 5V, I _O = 100μA)	V _{I(off)}	-	-	0.3	V
Input voltage (V _O = 0.3V, I _O = 20mA)	V _{I(on)}	3	-	-	
Output voltage (I _O / I _I = 10mA / 0.5mA)	V _{O(on)}	-	0.1	0.3	V
Input current (V _I = 5V)	I _I	-	-	3.8	mA
Output current (V _{CC} = 50V, V _I = 0)	I _{O(off)}	-	-	0.5	μA
DC current gain (V _O = 5V, I _O =10mA)	G _I	33	-	-	-
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 (V _O = 10V, I _O = 5mA, f = 100MHz)	f _T	-	250	-	MHz

RATING AND CHARACTERISTICS CURVES (DTC123YCA)



**Figure1 Input voltage vs. output current
(ON Characteristics)**



**Figure2 Output current vs input voltage
(OFF Characteristics)**

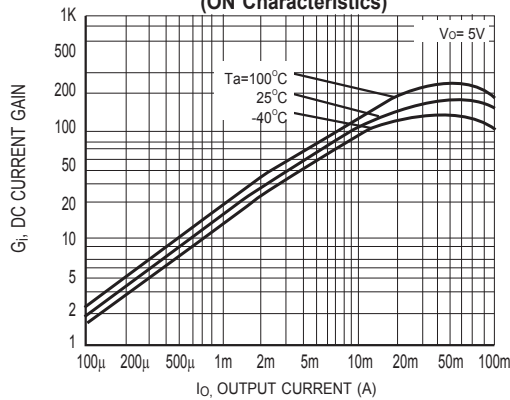


Figure3 DC current gain vs. output current

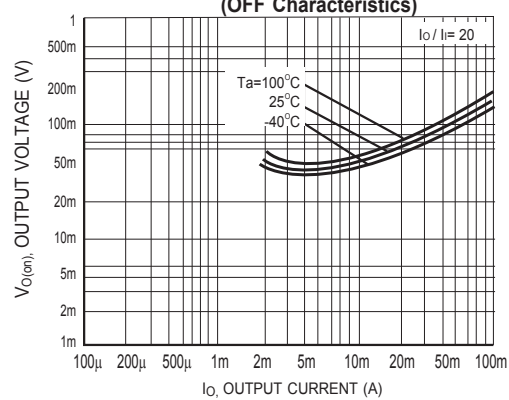


Figure4 Output voltage vs. output current

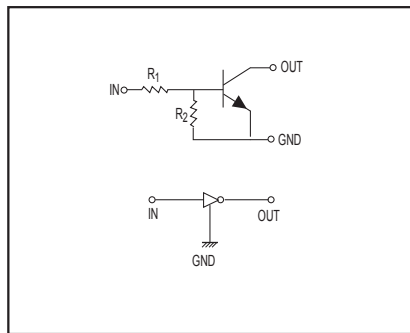


Figure5 Equivalent circuit

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