

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

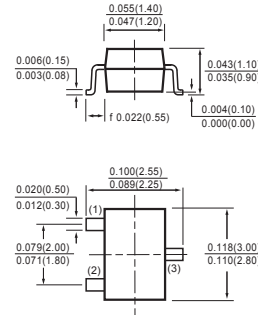
- * Case: Molded plastic
- * Epoxy: UL 94V-O rate flame retardant
- * Lead: MIL-STD-202E method 208C guaranteed
- * Mounting position: Any
- * Weight: 0.008 gram

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 ($V_{CC}=5V, I_O=100\mu A$)	$V_{I(off)}$	-	-	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	K Ω
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

NOTE: "Fully ROHS compliant", "100% Sn plating (Pb-free)".

RATING AND CHARACTERISTICS CURVES (DTC123YCA)

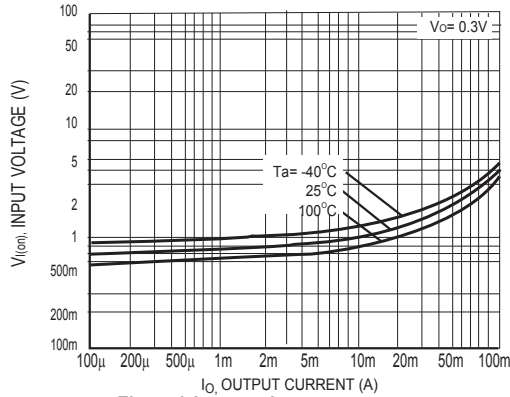


Figure1 Input voltage vs. output current
(ON Characteristics)

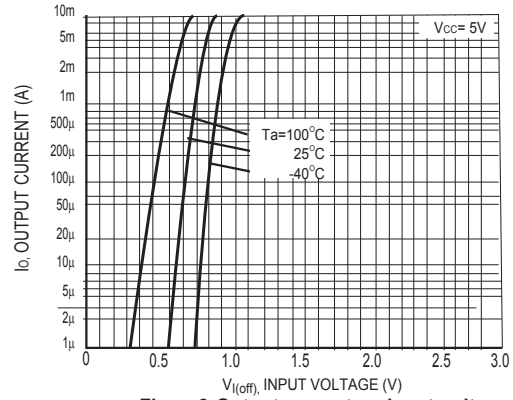


Figure2 Output current vs input voltage
(OFF Characteristics)

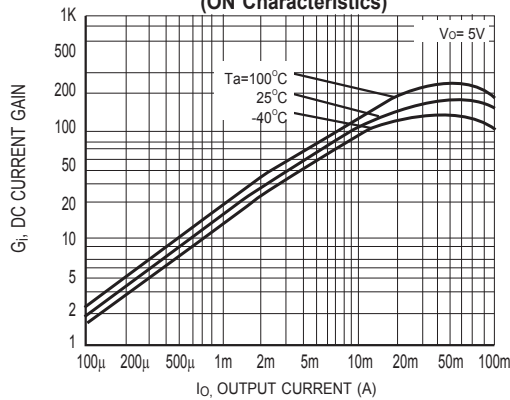


Figure3 DC current gain vs. output current

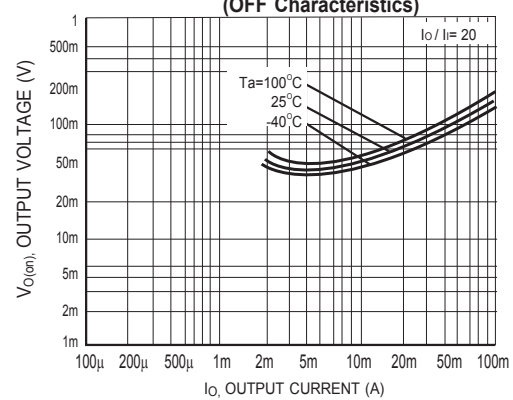


Figure4 Output voltage vs. output current

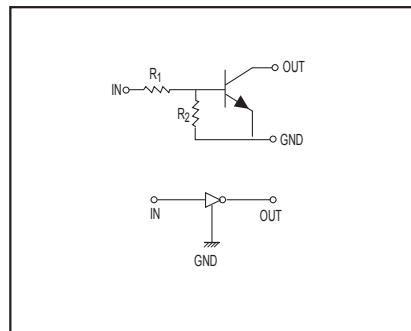


Figure5 Equivalent circuit

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