

**SOT-323 DIGITAL TRANSISTOR
TRANSISTORS(NPN)**

FEATURES

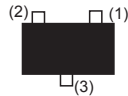
- * Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.(see equivalent circuit).
- * The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- * Only the on/off conditions need to be set for operation marking 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: 0.006 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.



(1) IN
(2) GND
(3) OUT

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

RATINGS	SYMBOL	LIMITS	UNITS
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	200	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ~150	°C

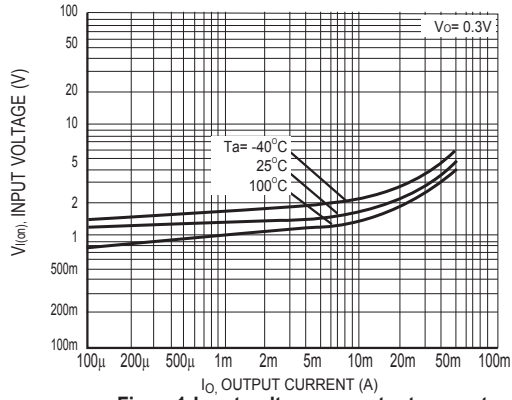
ELECTRICAL CHARACTERISTICS (@ TA = 25°C unless otherwise noted)

CHARACTERISTICS	SYMBOL	MIN	TYP	MAX	UNITS
Input voltage ($V_{CC}=5V, I_O=100\mu A$)	$V_{I(off)}$	-	-	0.5	V
Input voltage ($V_O=0.3V, I_O=10mA$)	$V_{I(on)}$	3	-	-	
Output voltage ($I_O / I_I = 10mA / 0.5mA$)	$V_{O(on)}$	-	-	0.3	V
Input current ($V_I=5V$)	I_I	-	-	0.88	mA
Output current ($V_{CC}=50V, V_I=0$)	$I_{O(off)}$	-	-	0.5	μA
DC current gain ($V_O=5V, I_O=5mA$)	G_I	30	-	-	-
Input resistance	R_1	7	10	13	K Ω
Resistance ratio	R_2 / R_1	0.8	1	1.2	-
Transition frequency ($V_O=10V, I_O=5mA, f=100MHz$)	f_T	-	250	-	MHz

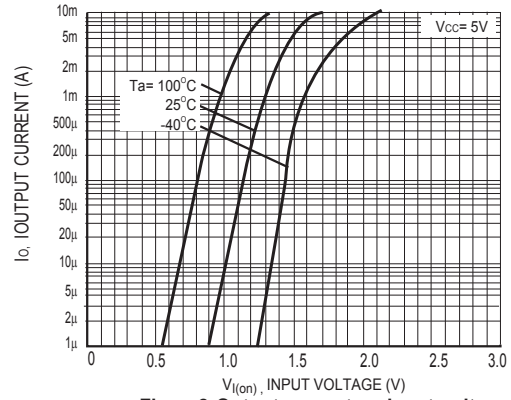
NOTE: "Fully ROHS compliant", "100% Sn plating (Pb-free)".

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RATING AND CHARACTERISTICS CURVES (DTC114EUA)



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



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

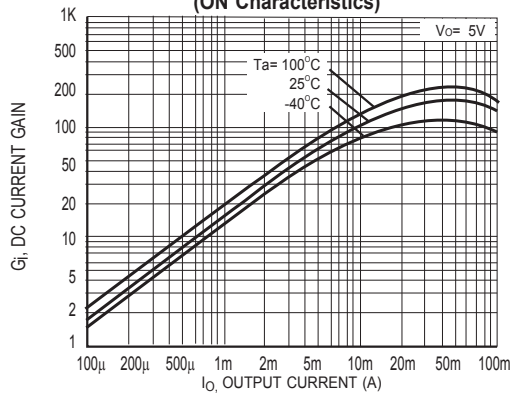


Figure3 DC current gain vs. output current

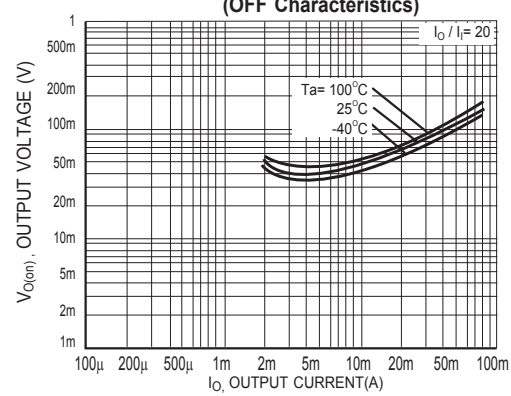


Figure 4 Output voltage vs. output current

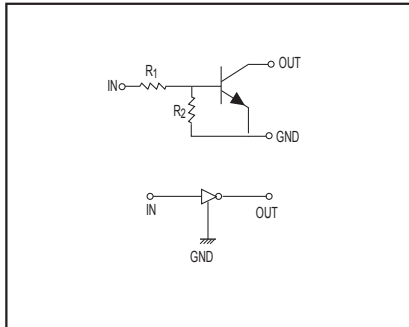


Figure5 Equivalent circuit

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