

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

**FEATURES**

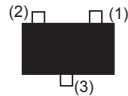
- \* Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.(see equivalent circuit).
- \* The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost 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

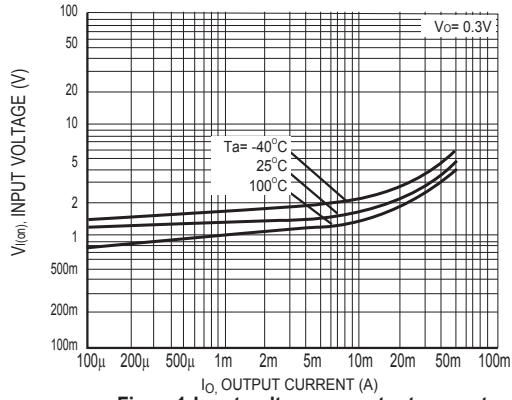
**ELECTRICAL CHARACTERISTICS** ( @ TA = 25°C unless otherwise noted )

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	$\mu A$
DC current gain ( $V_O=5V, I_O=5mA$ )	$G_I$	30	-	-	-
Input resistance	$R_1$	7	10	13	K $\Omega$
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

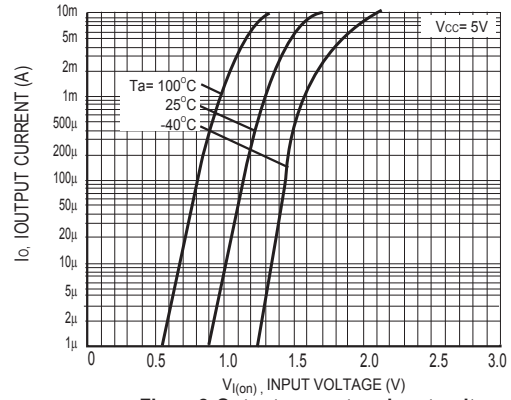
NOTE: "Fully ROHS compliant", "100% Sn plating (Pb-free)".

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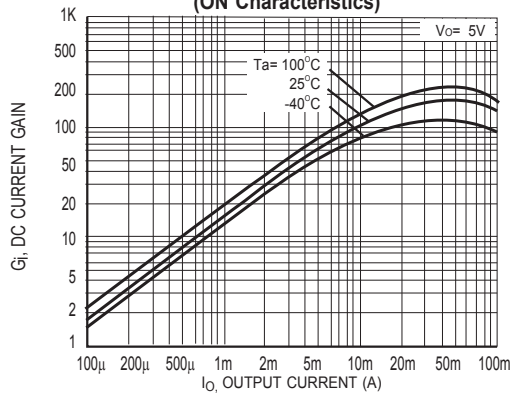
## RATING AND CHARACTERISTICS CURVES (DTC114EUA)



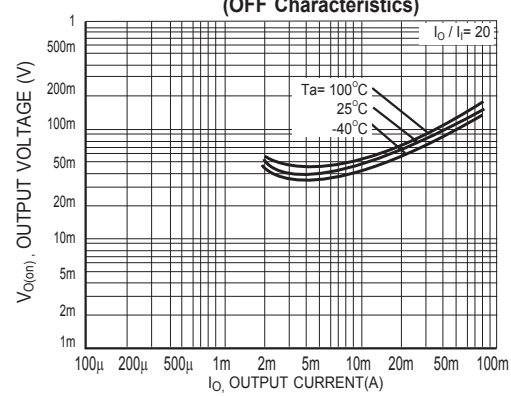
**Figure1 Input voltage vs. output current  
(ON Characteristics)**



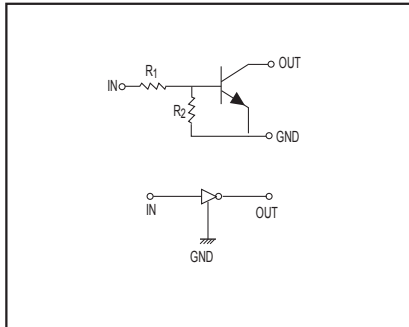
**Figure2 Output current vs input voltage  
(OFF Characteristics)**



**Figure3 DC current gain vs. output current**



**Figure 4 Output voltage vs. output current**



**Figure5 Equivalent circuit**

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