

**SOT-23-3L DIGITAL TRANSISTORS  
TRANSISTOR (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**

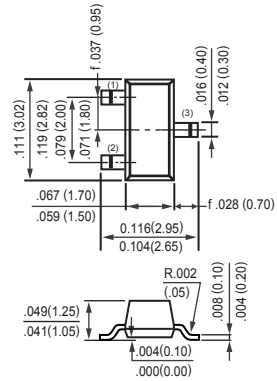
- \* Case: Molded plastic
- \* Epoxy: UL 94V-O rate flame retardant
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 0.009 gram

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25°C ambient temperature unless otherwise specified.



**SOT-23-3L**



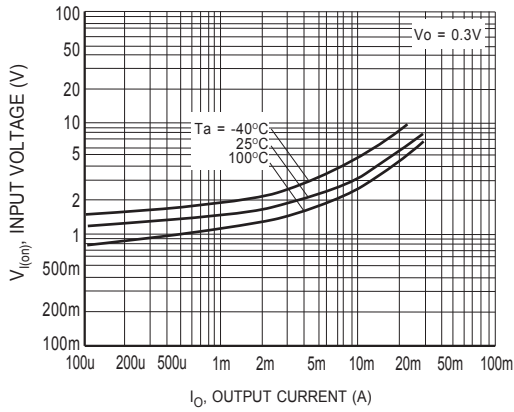
**MAXIMUM RATINGS** ( @ TA = 25°C unless otherwise noted )

RATINGS	SYMBOL	VALUE	UNITS
Collector-base Voltage	$V_{(BR)CBO}$	50	V
Collector-emitter Voltage	$V_{(BR)CEO}$	50	V
Emitter-base Voltage	$V_{(BR)EBO}$	5	V
Collector Current	$I_C$	100	mA
Collector Power dissipation	$P_C$	200	mW
Junction temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

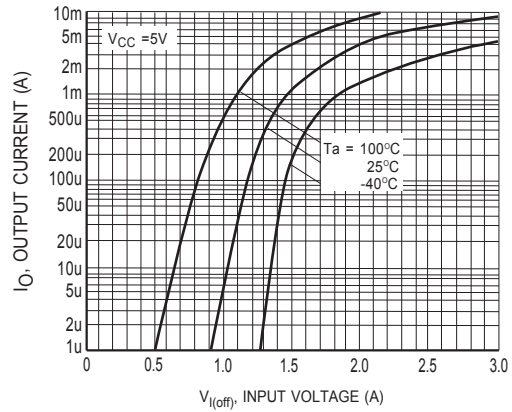
**ELECTRICAL CHARACTERISTICS** ( @ TA = 25°C unless otherwise noted )

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Input voltage	$(V_{CC}= 5V, I_O=100\mu A)$	$V_{I(off)}$	-	0.5	V
	$(V_O= 0.3V, I_O=2mA)$	$V_{I(on)}$	3	-	V
Output voltage $(I_O/I_I=10mA/0.5mA)$	$V_{O(on)}$	-	-	0.3	V
Input current $(V_I= 5V)$	$I_I$	-	-	0.18	mA
Output current $(V_{CC}= 50V, V_I=0)$	$I_{O(off)}$	-	-	0.5	uA
DC current gain $(V_O= 5V, I_O= 5mA)$	$G_I$	68	-	-	
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
Input resistance	$R_1$	32.9	47	61.1	KΩ

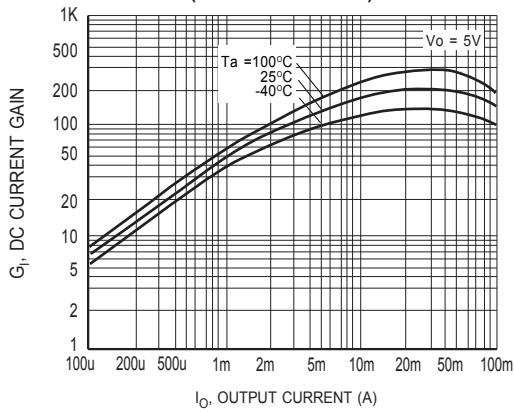
## RATING AND CHARACTERISTICS CURVES ( DTC144EKA )



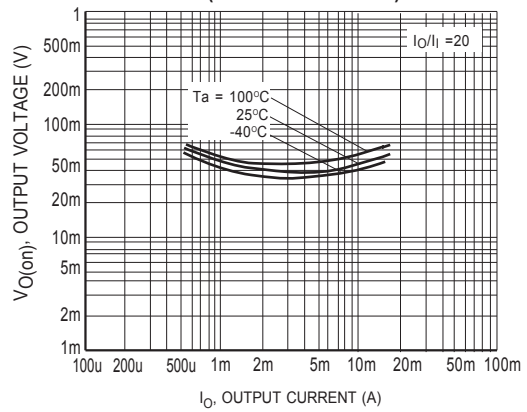
**Figure1 Input voltage vs. output current (ON characteristics)**



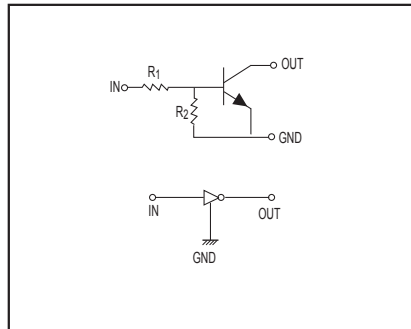
**Figure2 Output current vs. input voltage (OFF characteristics)**



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



**Figure4 Output voltage vs. output current**



**Figure5 Equivalent circuit**

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