

**SOT-23 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

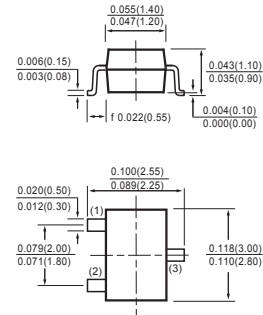
- * Case: Molded plastic
- * Epoxy: UL 94V-O rate flame retardant
- * Lead: MIL-STD-202E method 208C guaranteed
- * Mounting position: Any
- * Weight: 0.008 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.



SOT-23



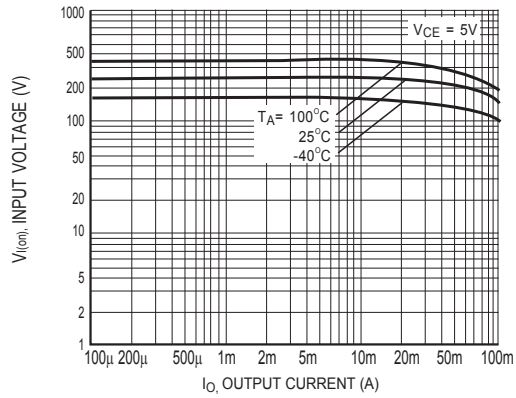
MAXIMUM RATINGS (@ TA = 25°C unless otherwise noted)

RATINGS	SYMBOL	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}	-55~150	°C

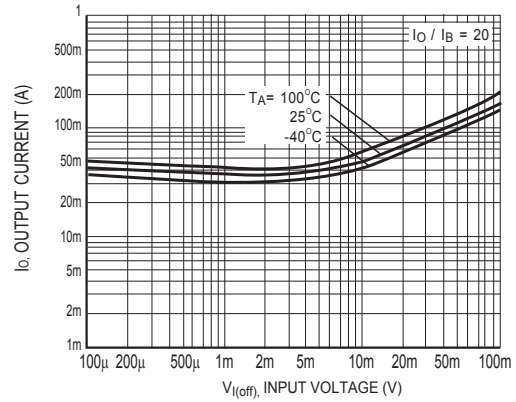
ELECTRICAL CHARACTERISTICS (@ TA = 25°C unless otherwise noted)

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Collector-base breakdown voltage ($I_C = 50\mu A$)	$V_{(BR)CBO}$	50	-	-	V
Collector-emitter breakdown voltage ($I_C = 1mA$)	$V_{(BR)CEO}$	50	-	-	V
Emitter-base breakdown voltage ($I_E = 50\mu A$)	$V_{(BR)EBO}$	5	-	-	V
Collector cut-off current ($V_{CB} = 50V$)	I_{CBO}	-	-	0.5	μA
Emitter cut-off current ($V_{EB} = 4V$)	I_{EBO}	-	-	0.5	μA
Collector-emitter saturation voltage ($I_C = 5mA, I_B = 0.25mA$)	h_{FE}	-	-	0.3	V
DC current gain ($V_{CE} = 5V, I_C = 1mA$)	$V_{CE(sat)}$	100	-	600	-
Input resistor	R_1	3.29	4.7	6.11	K Ω
Transition frequency ($V_O = 10V, I_O = 5mA, f = 100MHz$)	f_T	-	250	-	MHz

RATING AND CHARACTERISTICS CURVES (DTC143TCA)



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



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

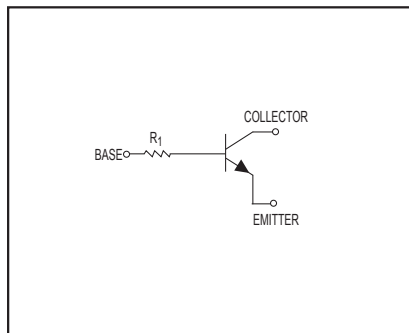


Figure3 Equivalent circuit

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