

**SOT-23 DIGITAL TRANSISTORS
TRANSISTORS (NPN)**


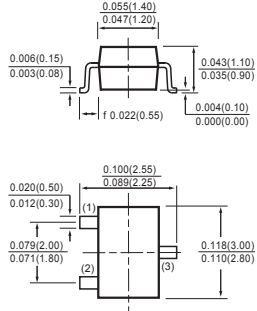
FEATURES

- * 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

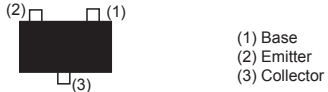
- * Case: Molded plastic
- * Epoxy: UL 94V-O rate flame retardant
- * Lead: MIL-STD-202E method 208C guaranteed
- * Mounting position: Any
- * Weight: 0.008 gram

SOT-23

Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS
Ratings at 25°C ambient temperature unless otherwise specified.



(1) Base
(2) Emitter
(3) Collector

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

RATINGS	SYMBOL	VALUE	UNITS
Collector-Base Voltage	V _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	50	V
Emitter-base Voltage	V _{EBO}	5	V
Collector Continuous Current	I _C	100	mA
Collector Dissipation	P _C	200	mW
Junction Temperature	T _J	150	°C
Junction and storage Temperature	T _J , T _{STG}	-55 to +150	°C

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

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Collector-base breakdown voltage (I _C =50uA, I _E =0)	V _{(BR)CBO}	50	-	-	V
Collector-emitter breakdown voltage (I _C =1mA, I _B =0)	V _{(BR)CEO}	50	-	-	V
Emitter-base breakdown voltage (I _E =50uA, I _C =0)	V _{(BR)EBO}	5	-	-	V
Collector cut-off current (V _{CB} =50V, I _E =0)	I _{CBO}	-	-	0.5	mA
Emitter cut-off current (V _{EB} =4V, I _C =0)	I _{EBO}	-	-	0.5	mA
DC current gain (V _{CE} =5V, I _C =1mA)	h _{FE}	100	300	600	
Collector-emitter saturation voltage (I _C =5mA, I _B =0.5mA)	V _{CE(sat)}	-	-	0.3	V
Transition frequency (V _{CE} =10V, I _C = -5mA, f=100MHz)	f _T	-	250	-	MHz
Input resistor	R ₁	32.9	47	61.1	KΩ

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

RATING AND CHARACTERISTICS CURVES (DTC144TCA)

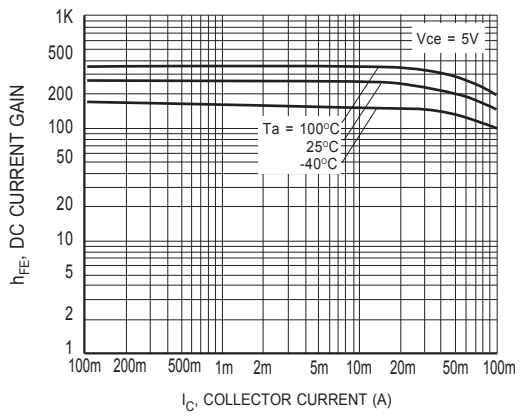


Figure1 DC current gain vs. collector current

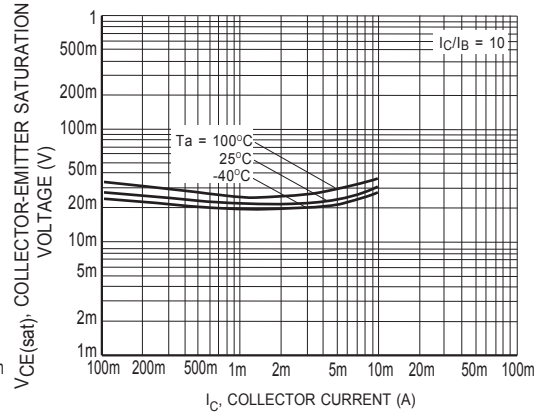


Figure2 Collector-emitter saturation voltage vs. collector current

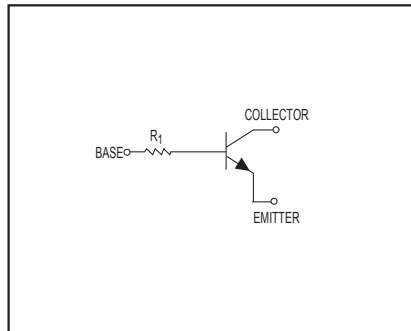


Figure3 Equivalent circuit

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