

## SOT-23-3L 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 making device design easy.

### MECHANICAL DATA

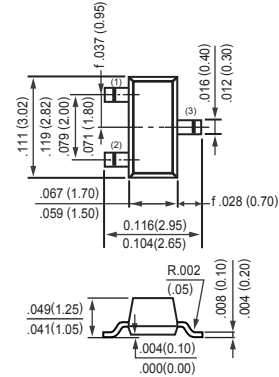
- \* Case: Molded plastic
- \* Epoxy: UL 94V-O rate flame retardant
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 0.009 gram

### 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 <sub>CBO</sub>	50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	50	V
Emitter-base Voltage	V <sub>EBO</sub>	5	V
Collector Continuous Current	I <sub>C</sub>	100	mA
Collector Dissipation	P <sub>C</sub>	200	mW
Junction Temperature	T <sub>J</sub>	150	°C
Junction and storage Temperature	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

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

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

RATING AND CHARACTERISTICS CURVES ( DTC144TKA )

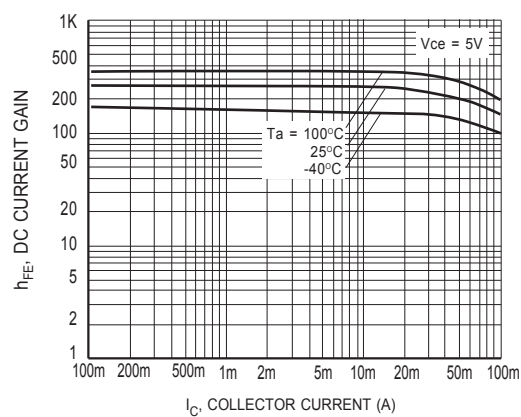


Figure1 DC current gain vs. collector current

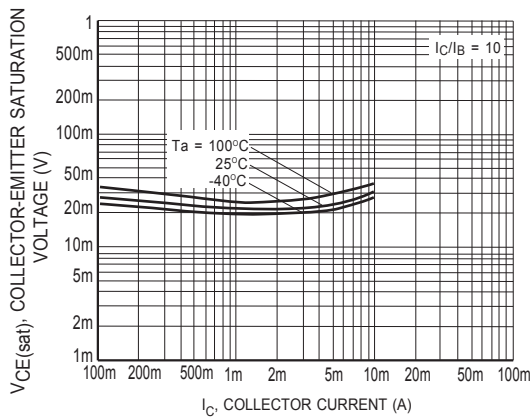


Figure2 Collector-emitter saturation voltage vs.collector current

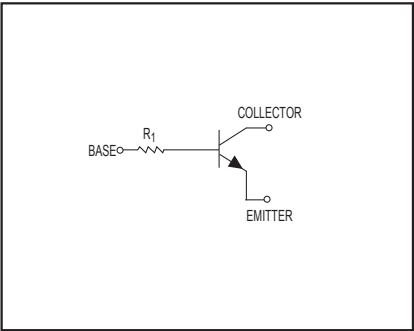


Figure3 Equivalent circuit

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