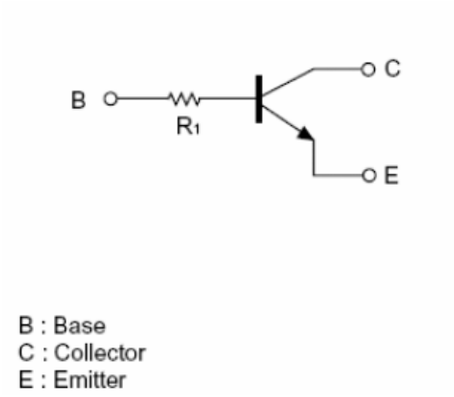
DIGITAL TRANSISTOR (NPN)

Digital Transistor (built-in resistor)

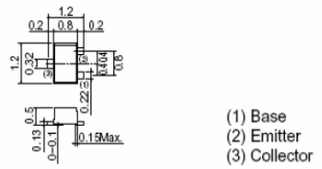
FEATURES

- 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.



B : Base
C : Collector
E : Emitter

DTC144TM

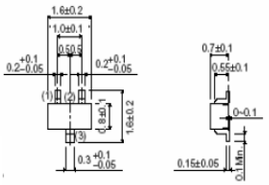


SOT-523

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

Abbreviated symbol : 96

DTC144TE

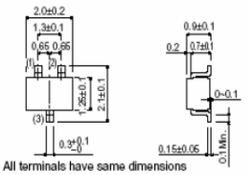


SOT-523

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

Abbreviated symbol : 96

DTC144TUA

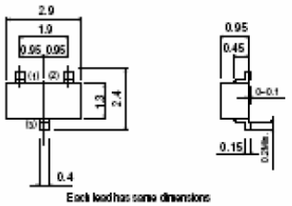


SOT-323

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

Abbreviated symbol : 96

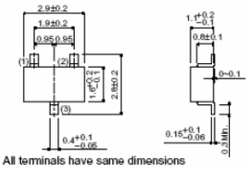
DTC144TCA



SOT-23

(1) GND
(2) IN
(3) OUT

DTC144TKA

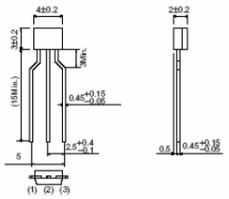


SOT-23-3L

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

Abbreviated symbol : 96

DTC144TSA



TO-92S

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

RoHS Pb-free TIP Semiconductor

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25℃ ambient temperature unless otherwise specified.

ABSOLUTE MAXIMUM RATINGS

Parameters	Symbols	Limits (DTC144T□)						UNITS
		M	E	UA	KA	CA	SA	
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 - Continuous	I_C	100						mA
Collector Power Dissipation	P_C	150		200			300	mW
Junction Temperature	T_j	150						℃
Junction and Storage Temperature	T_{stg}	-55~+150						℃

ELECTRICAL CHARACTERISTICS

Parameters	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=50μA,I_E=0	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=50μA,I_C=0	5			V
Collector cut-off current	I_{CBO}	V_{CB}=50V,I_E=0			0.5	μA
Emitter cut-off current	I_{EBO}	V_{EB}=4V,I_C=0			0.5	μA
DC current gain	h_{FE}	V_{CE}=5V,I_C=1mA	100	300	600	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=10mA,I_B=1mA			0.3	V
Transition frequency	f_T	V_{CE}=10V,I_E=-5mA, f=100MHz		250		MHz
Input resistor	R1		32.9	47	61.1	kΩ