JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

Digital transistors (built-in resistors)

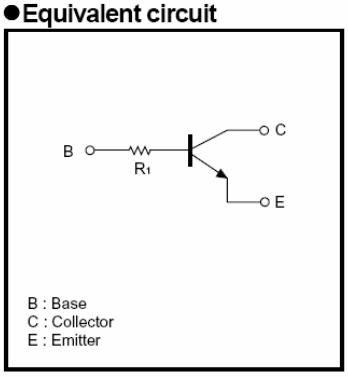
DTC144TE/ DTC144TUA/ DTC144TCA/DTC144TKA/DTC144TSA

DIGITAL TRANSISTOR (NPN)

Features

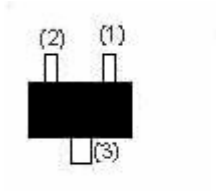
1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
3) Only the on/off conditions need to be set for operation, making device design easy.

●Equivalent circuit



PIN CONNENCTIONS AND MARKING

DTC144TE

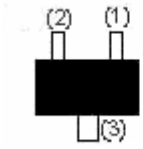


(1) Base
(2) Emitter
(3) Collector

SOT-523

Addreviated symbol: 06

DTC144TUA

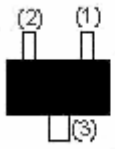


(1) Base
(2) Emitter
(3) Collector

SOT-323

Addreviated symbol: 06

DTC144TKA

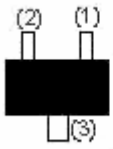


(1) Base
(2) Emitter
(3) Collector

SOT-23-3L

Addreviated symbol: 06

DTC144TCA

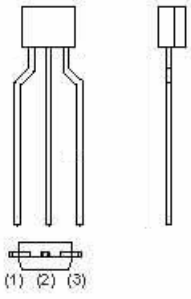


(1) Base
(2) Emitter
(3) Collector

SOT-23

Addreviated symbol: 06

DTC144TSA



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

TO-92S

MAXIMUM RATINGS* T_A=25℃ unless otherwise noted

Symbol	Parameter	LIMITS(DTC144T□)					Units
		E	UA	KA	CA	SA	
V_{CBO}	Collector-Base Voltage	50					V
V_{CEO}	Collector-Emitter Voltage	50					V
V_{EBO}	Emitter-Base Voltage	5					V
I_C	Collector Current -Continuous	100					mA
P_C	Collector Dissipation	150	200			300	mW
Tj	Junction temperature	150					℃
T_J, T_{stg}	Junction and Storage Temperature	-55~+150					℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

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

Typical Characteristics

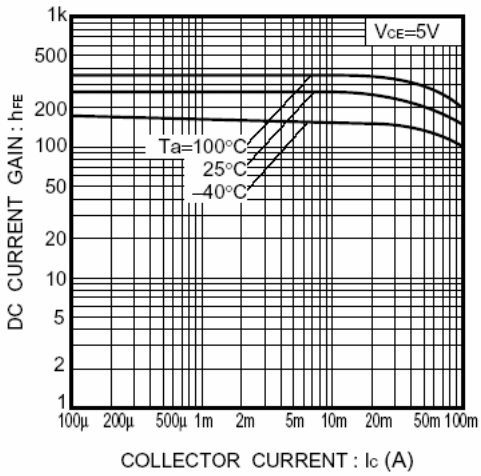


Fig.1 DC current gain vs. collector current

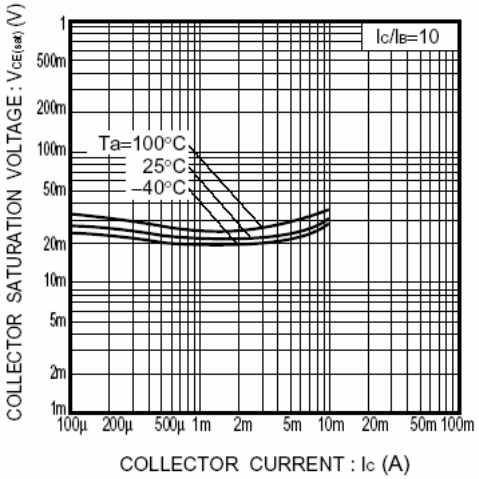


Fig.2 Collector-emitter saturation voltage vs. collector current