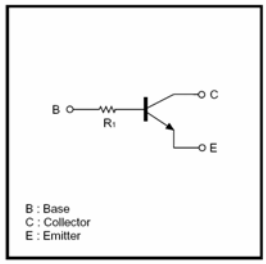
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

Digital transistors (built-in resistors)

DTC143TE/DTC143TUA /DTC143TKA /DTC143TSA/ DTC143TCA

DIGITAL TRANSISTOR (NPN)

●Equivalent circuit

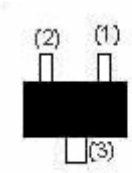


FEATURES

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.

PIN CONNENCTIONS AND MARKING

DTC143TE

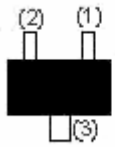


(1) Base
(2) Emitter
(3) Collector

SOT-523

Addreviated symbol: 03

DTC143TUA

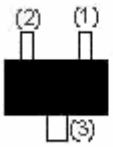


(1) Base
(2) Emitter
(3) Collector

SOT-323

Addreviated symbol: 03

DTC143TKA

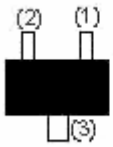


(1) Base
(2) Emitter
(3) Collector

SOT-23-3L

Addreviated symbol: 03

DTC143TCA

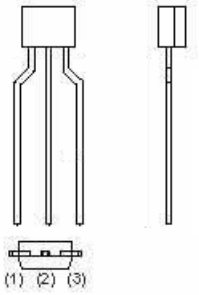


(1) Base
(2) Emitter
(3) Collector

SOT-23

Addreviated symbol: 03

DTC143TSA



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

TO-92S

Absolute maximum ratings(Ta=25℃)

Parameter	Symbol	Limits (DTC143T□)					Unit
		E	UA	CA	KA	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	I_C	100					mA
Collector Power dissipation	P_C	150	200			300	mW
Junction temperature	Tj	150					℃
Storage temperature	Tstg	-55~150					℃

Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	50			V	Ic=50μA
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	50			V	Ic=1mA
Emitter-base breakdown voltage	$V_{(BR)EBO}$	5			V	I_E=50μA
Collector cut-off current	I_{CBO}			0.5	μA	V_{CB}=50V
Emitter cut-off current	I_{EBO}			0.5	μA	V_{EB}=4V
Collector-emitter saturation voltage	$V_{CE(sat)}$			0.3	V	I_C=5mA,I_B=0.25mA
DC current transfer ratio	h_{FE}	100		600		V_{CE}=5V,I_C=1mA
Input resistance	R_1	3.29	4.7	6.11	KΩ	
Transition frequency	f_T		250		MHz	V_O=10V ,I_O=5mA,f=100MHz

Typical Characteristics

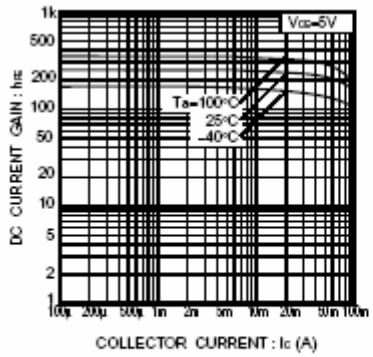


Fig.1 DC current gain vs. collector current

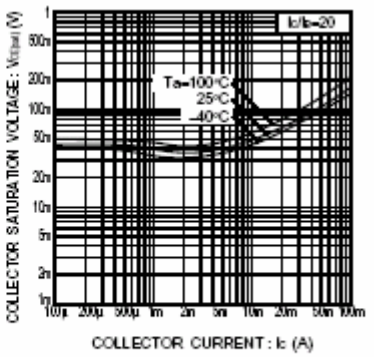


Fig.2 Collector-emitter saturation voltage vs. collector current