



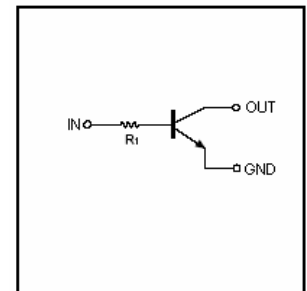
POWER SKY (H.K.) LTD.

Digital transistors (built-in resistors)

**DTC143TM/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.IN 2.GND 3.OUT SOT-523 Abbreviated symbol: 03	DTC143TUA 1.IN 2.GND 3.OUT SOT-323 Abbreviated symbol: 03
DTC143TKA 1.IN 2.GND 3.OUT SOT-23-3L Abbreviated symbol: 03	DTC143TCA 1.IN 2.GND 3.OUT SOT-23 Abbreviated symbol: 03
DTC143TSA 1.GND 2.OUT 3.IN TO-92S	DTC143TM 1.IN 2.GND 3.OUT SOT-723 Abbreviated symbol: 03

Absolute maximum ratings(Ta=25°C)

Parameter	Symbol	Limits (DTC143T□)						Unit
		M	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	100	150	200			300	mW
Junction temperature	T _j	150						℃
Storage temperature	T _{stg}	-55~150						℃

Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	50			V	$I_C=50\mu A$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	50			V	$I_C=1mA$
Emitter-base breakdown voltage	$V_{(BR)EBO}$	5			V	$I_E=50\mu A$
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	K Ω	
Transition frequency	f_T		250		MHz	$V_O=10V, I_O=5mA, f=100MHz$

Typical Characteristics

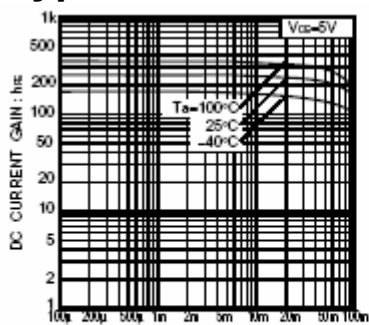


Fig.1 DC current gain vs. collector current

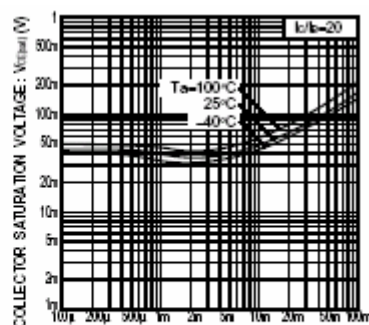


Fig.2 Collector-emitter saturation voltage vs. collector current