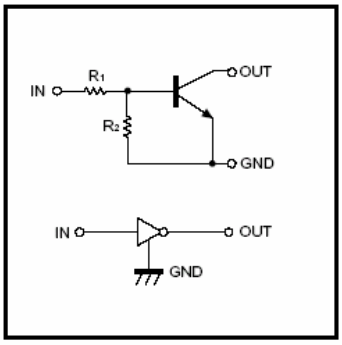
DTC143EE/DTC143EUA/DTC143ECA
DTC143EKA/DTC143ESA

Digital Transistor(NPN)

Features

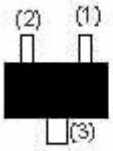
1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost 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

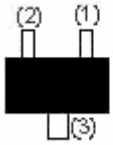
DTC143EE



1.IN
2.GND
3.OUT

SOT-523 Addreviated symbol: 23

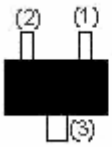
DTC143EUA



1.IN
2.GND
3.OUT

SOT-323 Addreviated symbol: 23

DTC143EKA

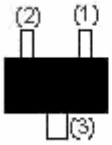


1.IN
2.GND
3.OUT

SOT-23-3L

Addreviated symbol: 23

DTC143ECA

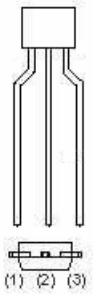


1.IN
2.GND
3.OUT

SOT-23

Addreviated symbol: 23

DTC143ESA



1.GND
2.OUT
3.IN

TO-92S

DTC143EE/DTC143EUA/DTC143ECA
DTC143EKA/DTC143ESA

Digital Transistor(NPN)

Absolute maximum ratings(Ta=25℃)

Parameter	Symbol	Limits (DTC143E□)					Unit
		E	UA	KA	CA	SA	
Supply voltage	V_{CC}	50					V
Input voltage	V_{IN}	-10~+30					V
Output current	I_O	100					mA
	$I_{C(MAX)}$	100					
Power dissipation	Pd	150	200			300	mW
Junction temperature	T_j	150					℃
Storage temperature	Tstg	-55~150					℃

Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$			0.5	V	V_{CC}=5V ,I_O=100μA
	$V_{I(on)}$	3				V_O=0.3V ,I_O=20 mA
Output voltage	$V_{O(on)}$			0.3	V	I_O/I_I=10mA/0.5mA
Input current	I_I			1.8	mA	V_I=5V
Output current	$I_{O(off)}$			0.5	μA	V_{CC}=50V ,V_I=0
DC current gain	G_I	20				V_O=5V ,I_O=10mA
Input resistance	R_1	3.29	4.7	6.11	KΩ	
Resistance ratio	R_2/R_1	0.8	1	1.2		
Transition frequency	f_T		250		MHz	V_O=10V ,I_O=5mA,f=100MHz

Typical Characteristics

●Electrical characteristic curves

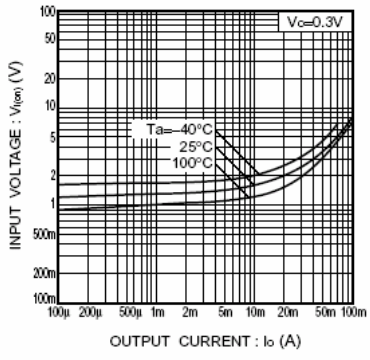


Fig.1 Input voltage vs. output current (ON characteristics)

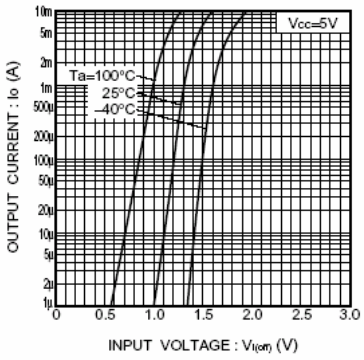


Fig.2 Output current vs. input voltage (OFF characteristics)

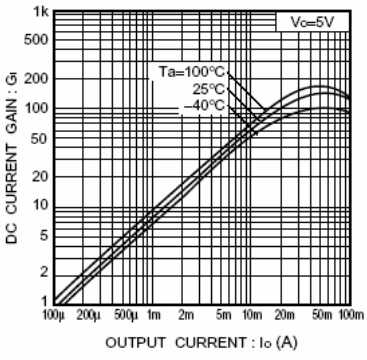


Fig.3 DC current gain vs. output current

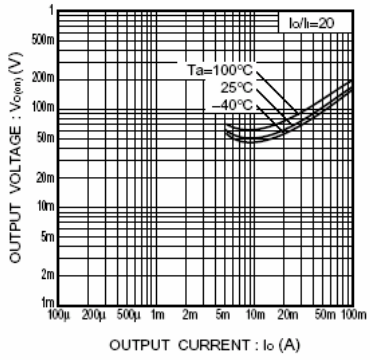


Fig.4 Output voltage vs. output current