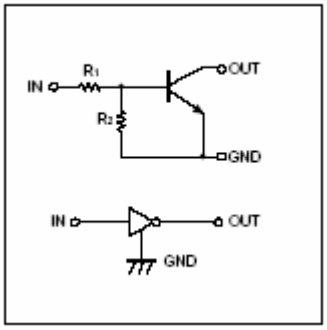
DTC114EE/DTC114EUA/DTC114ECA
DTC114EKA/DTC114ESA

Digital Transistor(NPN)

Features

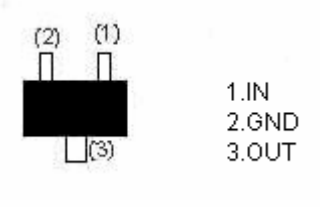
1. Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit).
2. The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely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

●Equivalent circuit



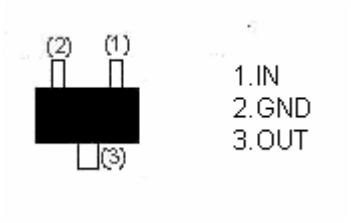
PIN CONNENCTIONS AND MARKING

DTC114EE



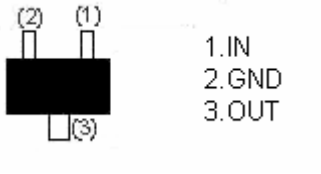
SOT-523 Addreviated symbol: 24

DTC114EUA



SOT-323 Addreviated symbol: 24

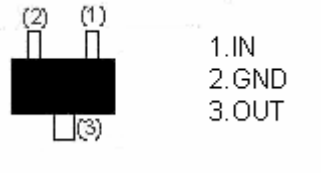
DTC114EKA



SOT-23-3L

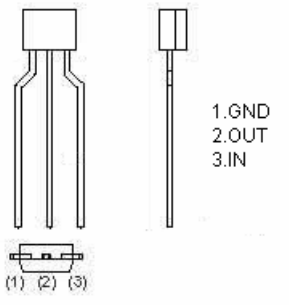
Addreviated symbol: 24

DTC114ECA



SOT-23 Addreviated symbol: 24

DTC114ESA



TO-92S

DTC114EE/DTC114EUA/DTC114ECA
DTC114EKA/DTC114ESA

Digital Transistor(NPN)

Absolute maximum ratings(Ta=25℃)

Parameter	Symbol	Limits (DTC114E□)					Unit
		E	UA	CA	KA	SA	
Supply voltage	V_{CC}	50					V
Input voltage	V_{IN}	-10~40					V
Output current	I_O	50					mA
	$I_{C(MAX)}$	100					
Power dissipation	Pd	150	200			300	mW
Junction temperature	Tj	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=10 mA
Output voltage	$V_{O(on)}$			0.3	V	I_O/I_I=10mA/0.5mA
Input current	I_I			0.88	mA	V_I=5V
Output current	$I_{O(off)}$			0.5	μA	V_{CC}=50V, V_I=0
DC current gain	G_I	30				V_O=5V ,I_O=5mA
Input resistance	R_1	7	10	13	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**

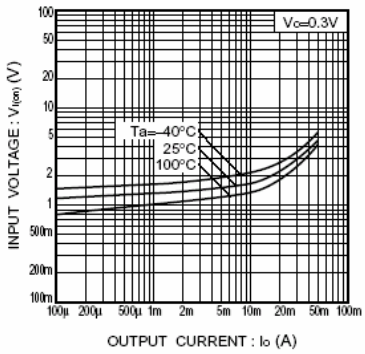


Fig.1 Input voltage vs. output current (ON characteristics)

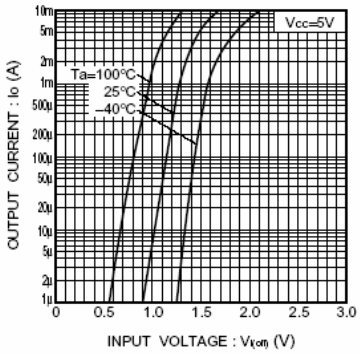


Fig.2 Output current vs. input voltage (OFF characteristics)

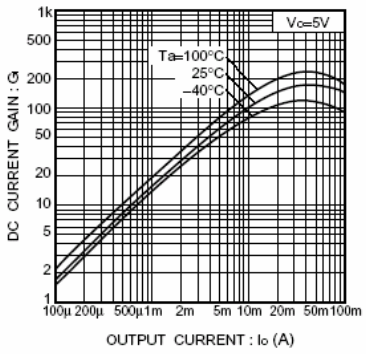


Fig.3 DC current gain vs. output current

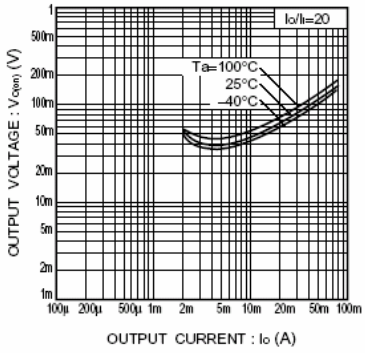


Fig.4 Output voltage vs. output current