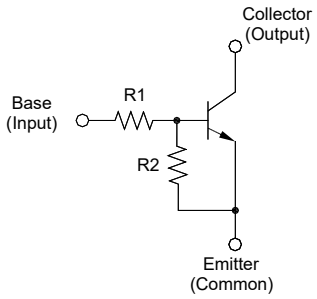
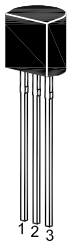
TC114

NPN Silicon Epitaxial Planar Digital Transistor

Features

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process





1. Emitter 2. Collector 3. Base
TO-92 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	- 10 to + 40	V
Output Current	I_O	50	mA
Maximum Output Current	$I_{C(Max.)}$	100	mA
Power Dissipation	P_{tot}	300	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_O = 5 V, I_O = 5 mA	h_{FE}	30	-	-	-
Output Current at V_{CC} = 50 V	$I_{O(off)}$	-	-	0.5	µA
Input Current at V_I = 5 V	I_I	-	-	0.88	mA
Output Voltage at I_O = 10 mA, I_I = 0.5 mA	$V_{O(on)}$	-	-	0.3	V
Input Voltage (ON) at V_O = 0.3 V, I_O = 10 mA	$V_{I(ON)}$	-	-	3	V
Input Voltage (OFF) at V_{CC} = 5 V, I_O = 100 µA	$V_{I(OFF)}$	0.5	-	-	V
Transition frequency [1] at V_{CE} = 10 V, $-I_E$ = 5 mA, f = 100 MHz	f_T	-	250	-	MHz
Input Resistance	R_1	7	10	13	KΩ
Resistance Ratio	R_2 / R_1	0.8	1	1.2	-

[1] Transition frequency of the device.

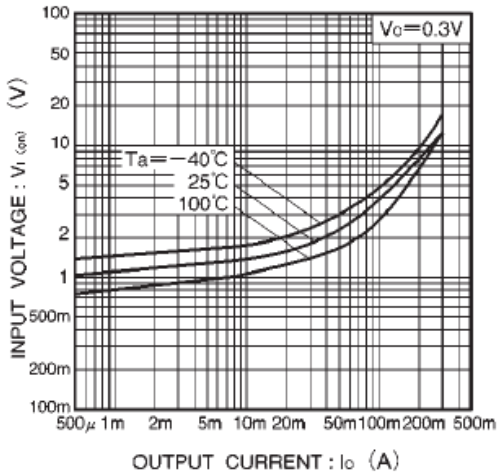


Fig.1 Input voltage vs. output current (ON characteristics)

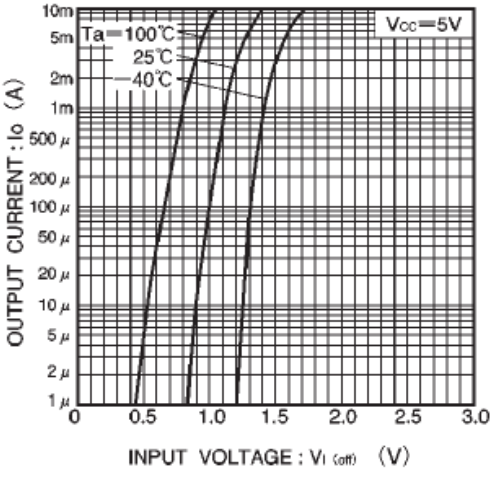


Fig.2 Output current vs. input voltage (OFF characteristics)

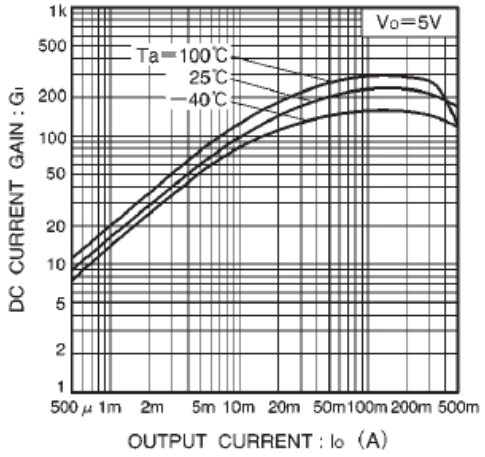


Fig.3 DC current gain vs. output current

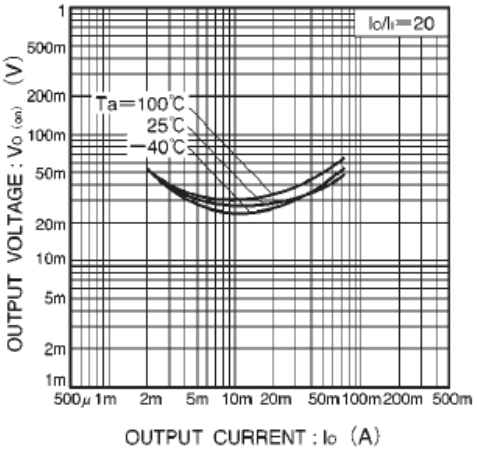


Fig.4 Output voltage vs. output current