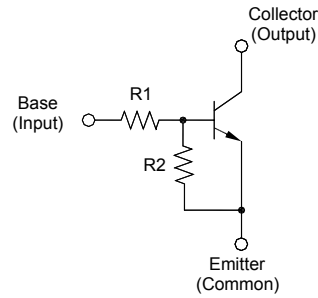


TC114

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

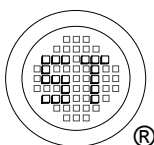
Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

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	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Characteristics at $T_a = 25\text{ }^\circ\text{C}$

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

¹⁾ Transition frequency of the device.



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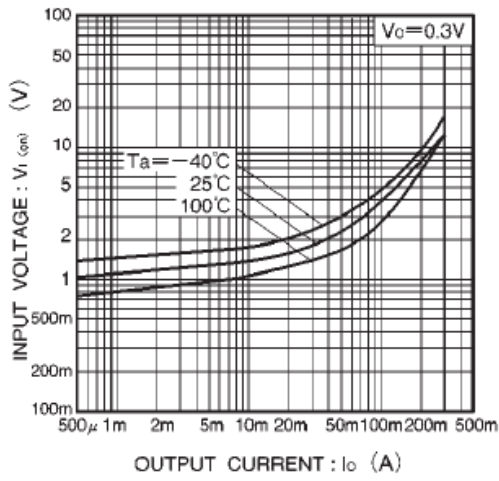


Fig.1 Input voltage vs. output current (ON characteristics)

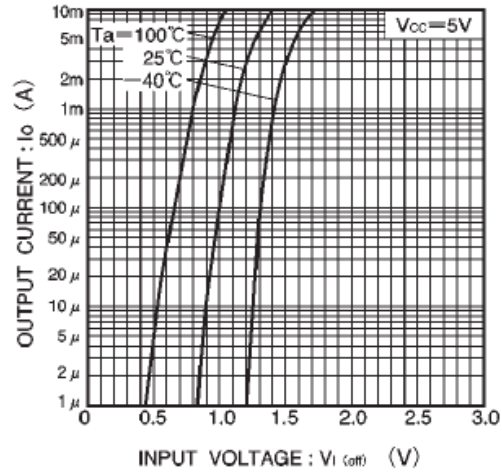


Fig.2 Output current vs. input voltage (OFF characteristics)

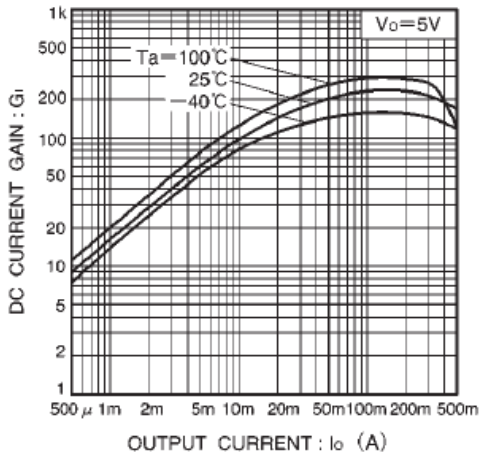


Fig.3 DC current gain vs. output current

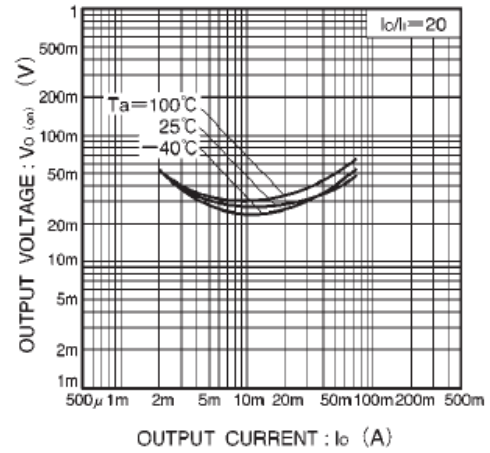


Fig.4 Output voltage vs. output current

