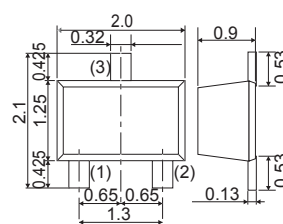


●Applications

● 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 the device design easy.

UMT3F



Each lead has same dimensions

- (1) IN
(2) GND
(3) OUT

Abbreviated symbol : 15

PNP silicon epitaxial planar transistor type
(Resistor built-in)

Part No.	Package	UMT3F
	Packaging type	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
DTA124EUB		○

The top diagram is a BJT common-emitter amplifier. It features an input terminal 'IN' connected to a resistor R_1 , which leads to the base of an NPN BJT. A resistor R_2 connects the base to ground, labeled 'GND(+)' with a ground symbol. The collector is connected to a resistor R_3 , which is then connected to a positive supply voltage V_{CC} . The output 'OUT' is taken from the collector. The bottom diagram is an inverting op-amp circuit. It shows an operational amplifier with its non-inverting input connected to ground, labeled 'GND(+)' with a ground symbol. The inverting input is connected to an input terminal 'IN' through a resistor R_1 . A feedback resistor R_2 connects the output 'OUT' back to the inverting input.

$$R_1=R_2=22\text{k}\Omega$$

Parameter	Symbol	Limits	Unit
Supply voltage	V _{CC}	−50	V
Input voltage	V _{IN}	−40 to +10	V
Collector current	I _{C(max.)} *1	−100	mA
Output current	I _O	−30	mA
Power dissipation	P _D *2	200	mW
Junction temperature	T _j	150	°C
Range of storage temperature	T _{stg}	−55 to +150	°C

*1 Characteristics of built-in transistor

*2 Each terminal mounted on a recommended land

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	-0.5	V	$V_{CC}=-5V, I_o=-100\mu A$
	$V_{I(on)}$	-3	—	—		$V_o=-0.2V, I_o=-5mA$
Output voltage	$V_{O(on)}$	—	-100	-300	mV	$I_o=-10mA, I_i=-0.5mA$
Input current	I_i	—	—	-360	μA	$V_i=-5V$
Output current	$I_{O(off)}$	—	—	-500	nA	$V_{CC}=-50V, V_i=0V$
DC current gain	G_i	56	—	—	—	$V_o=-5V, I_o=-5mA$
Transition frequency	f_T *	—	250	—	MHz	$V_{CE}=-10V, I_E=5mA, f=100MHz$
Input resistance	R_i	15.4	22	28.6	$k\Omega$	—
Resistance ratio	R_2/R_1	0.8	1	1.2	—	—

*Characteristics of built-in transistor.

●Electrical characteristic curves

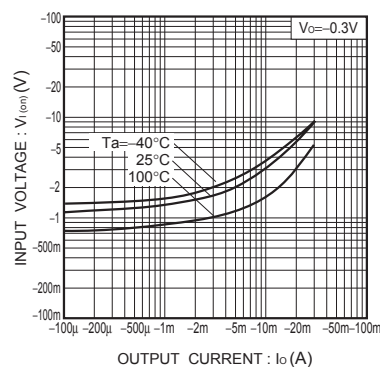


Fig.1 Input voltage vs. output current (ON characteristics)

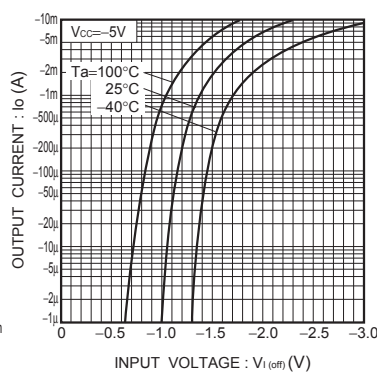


Fig.2 Output current vs. input voltage (OFF characteristics)

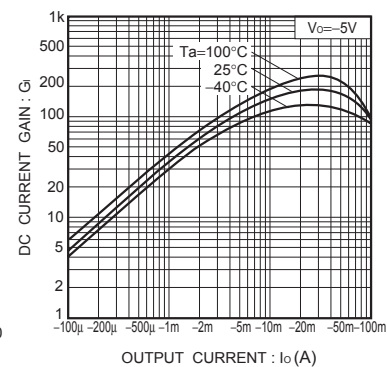


Fig.3 DC current gain vs. output current

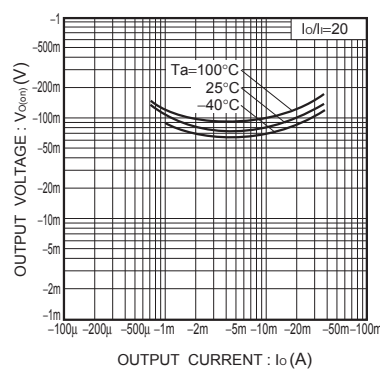


Fig.4 Output voltage vs. output current

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