

## Transistors

# –100mA / –50V Complex digital transistors (with built-in resistors)

## UMA1N/FMA1A

### ●Applications

Inverter, Interface, Driver

### ●Features

- 1) Two DTA124E chips in a UMT or SMT package.
- 2) Mounting cost and area can be cut in half.
- 3) Emitter-common type.

### ●Structure

PNP epitaxial planar silicon transistor  
(dual chips ; each with two built-in resistors)

### ●Packaging specifications

Part No.	Package	UMT5	SMT5
	Packaging type	Taping	Taping
	Code	TR	T148
	Basic ordering unit (pieces)	3000	3000
UMA1N		○	—
FMA1A		—	○

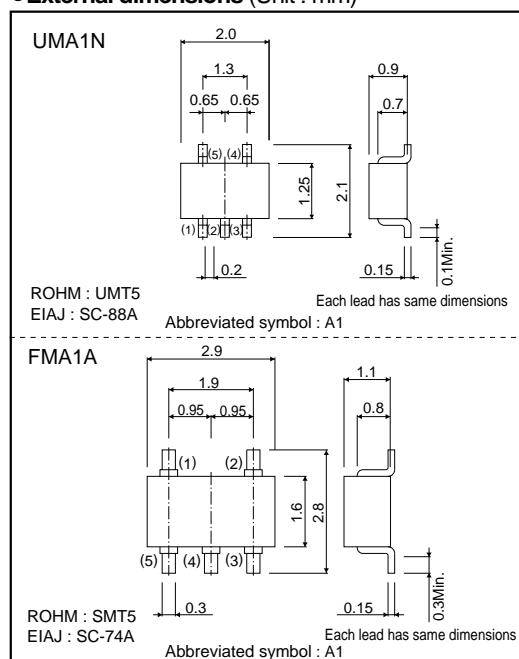
### ●Absolute maximum ratings (Ta=25°C)

<For Tr1 and Tr2 in common>

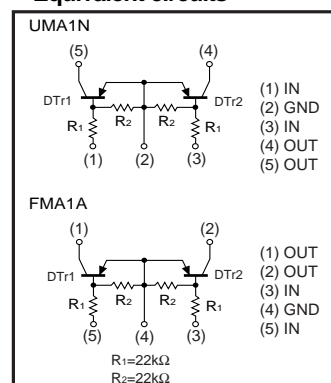
Parameter	Symbol	Limits	Unit
Supply voltage	V <sub>CC</sub>	–50	V
Input voltage	V <sub>IN</sub>	–40 to +10	V
Output current	I <sub>O</sub>	–30	mA
Collector current	I <sub>C(MAX)</sub>	–100	mA
Power dissipation	P <sub>d</sub>	150(TOTAL) *1	mW
		300(TOTAL) *2	
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	–55 to +150	°C

\*1 120mW per element must not be exceeded.  
\*2 200mW per element must not be exceeded.

### ●External dimensions (Unit : mm)



### ●Equivalent circuits



## Transistors

## ●Electrical characteristics (Ta=25°C)

&lt;For Tr1 and Tr2 in common&gt;

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	$V_{o(on)}$	—	-0.1	-0.3	V	$I_o=-10mA$ , $I_i=-0.5mA$
Input current	$I_i$	—	—	-0.36	mA	$V_i=-5V$
Output current	$I_{o(off)}$	—	—	-0.5	$\mu A$	$V_{CC}=-50V$ , $V_i=0V$
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	$R_1$	15.4	22	28.6	$k\Omega$	—
Resistance ratio	$R_2/R_1$	0.8	1	1.2	—	—

\* Characteristics of built-in transistor.

## ●Electrical characteristics curves

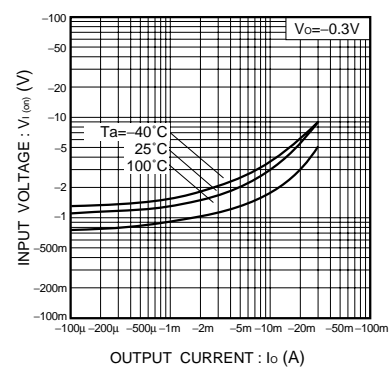


Fig.1 Input voltage vs. output current (ON characteristics)

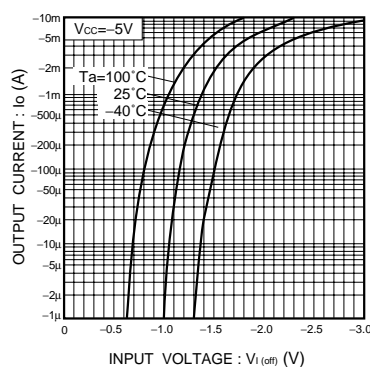


Fig.2 Output current vs. input voltage (OFF characteristics)

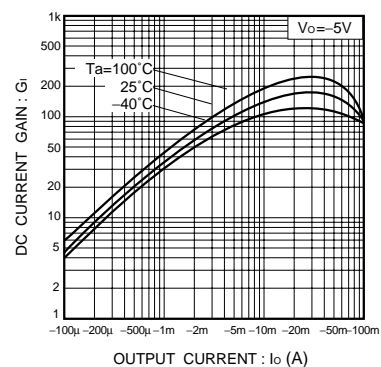


Fig.3 DC current gain vs. output current

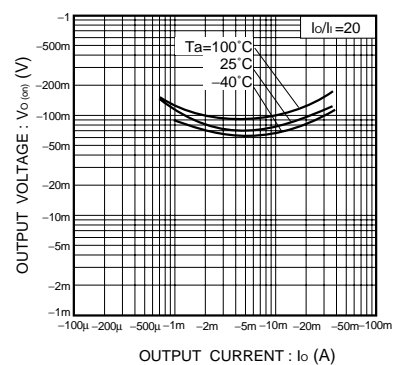


Fig.4 Output voltage vs. output current

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