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

UMA1N / FMA1A

●Applications
Inverter, Interface, Driver

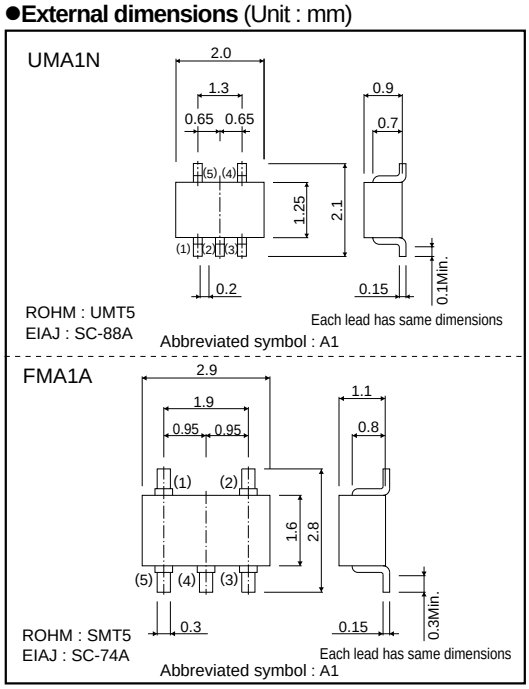
●Features
1) Two DTA124E chips in a UMT or SMT package.
2) Mounting cost and area can be cut in half.
3) Emitter-common type.

●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		–	○

●External dimensions (Unit : mm)

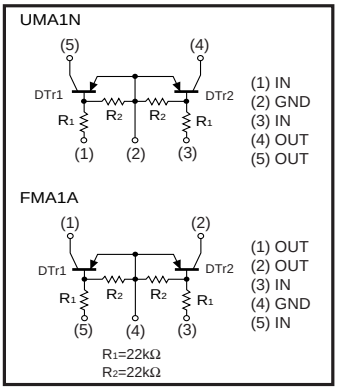


●Absolute maximum ratings (Ta=25°C)
<For Tr1 and Tr2 in common>

Parameter		Symbol	Limits	Unit
Supply voltage		V_{CC}	–50	V
Input voltage		V_{IN}	–40 to +10	V
Output current		I_O	–30	mA
Collector current		$I_{C(MAX)}$	–100	mA
Power dissipation	UMA1N	Pd	150(TOTAL) ∗1	mW
	FMA1A		300(TOTAL) ∗2	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 to +150	°C

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

●Equivalent circuits



●Electrical characteristics (Ta=25°C)

<For Tr1 and Tr2 in common>

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=–0.2V , 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	µA	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	kΩ	–
Resistance ratio	R_2/R_1	0.8	1	1.2	–	–

*Characteristics of built-in transistor.

●Electrical characteristics curves

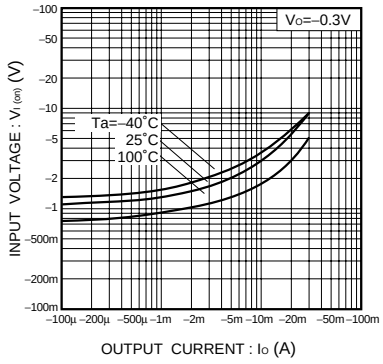


Fig.1 Input voltage vs. output current (ON characteristics)

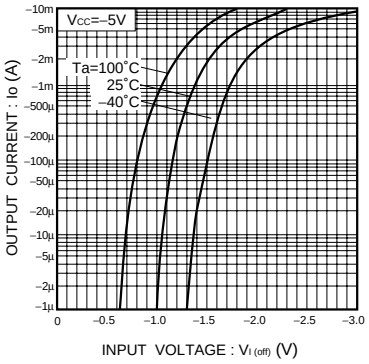


Fig.2 Output current vs. input voltage (OFF characteristics)

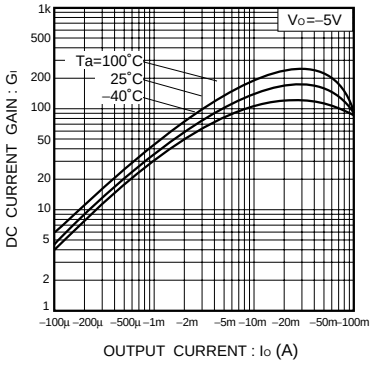


Fig.3 DC current gain vs. output current

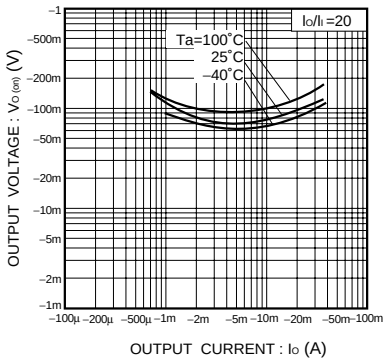


Fig.4 Output voltage vs. output current

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