General purpose (dual digital transistors)

EMD2 / UMD2N / IMD2A

●Features

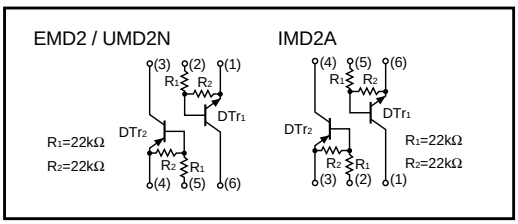
1) Both the DTA124E chip and DTC124E chip in a EMT or UMT or SMT package.
2) Mounting possible with EMT6 or UMT6 or SMT6 automatic mounting machines.
3) Transistor elements are independent, eliminating interference.
4) Mounting cost and area can be cut in half.

●Structure

Epitaxial planar type
NPN / PNP silicon transistor (Built-in resistor type)

The following characteristics apply to both the DTr_1 and DTr_2, however, the "–" sign on DTr_2 values for the PNP type have been omitted.

●Equivalent circuit



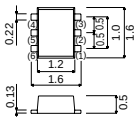
●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Supply voltage		V_{CC}	50	V
Input voltage		V_{IN}	40	V
			–10	
Output current		I_O	30	mA
		$I_{C\ (Max.)}$	100	
Power dissipation	EMD2, UMD2N	Pd	150 (TOTAL)	mW ∗1
	IMD2A		300 (TOTAL)	mW ∗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.

●External dimensions (Unit : mm)

EMD2

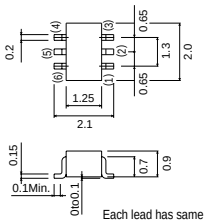


Each lead has same dimensions

ROHM : EMT6

Abbreviated symbol : D2

UMD2N

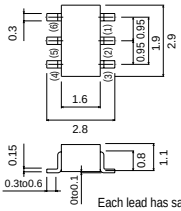


Each lead has same dimensions

ROHM : UMT6
EIAJ : SC-88

Abbreviated symbol : D2

IMD2A



Each lead has same dimensions

ROHM : SMT6
EIAJ : SC-74

Abbreviated symbol : D2

●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=100μA
	$V_{I\,(on)}$	3	–	–		V_O=0.2V, I_O=10mA
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}=10mA, 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	–	–

* Transition frequency of the device

●Packaging specifications

Type	Package	Taping		
	Code	T2R	TR	T148
	Basic ordering unit (pieces)	8000	3000	3000
EMD2		○	—	—
UMD2N		—	○	—
IMD2A		—	—	○

●Electrical characteristic curves

DTr1 (NPN)

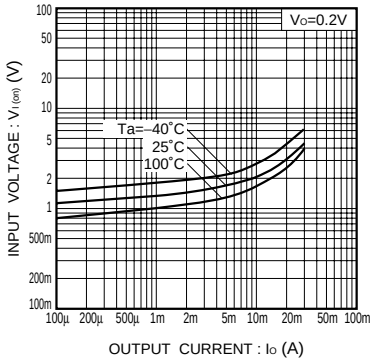


Fig.1 Input voltage vs. output current (ON characteristics)

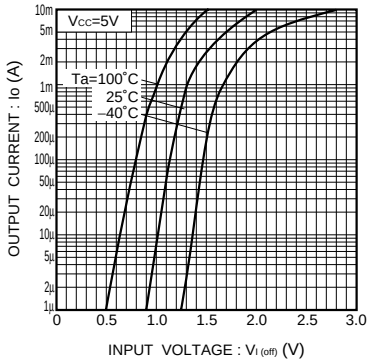


Fig.2 Output current vs. input voltage (OFF characteristics)

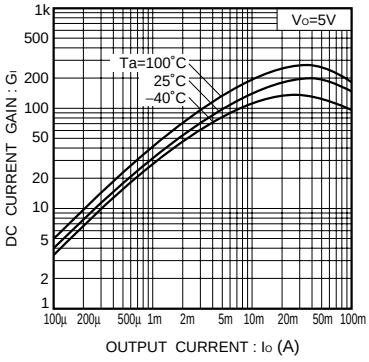


Fig.3 DC current gain vs. output current

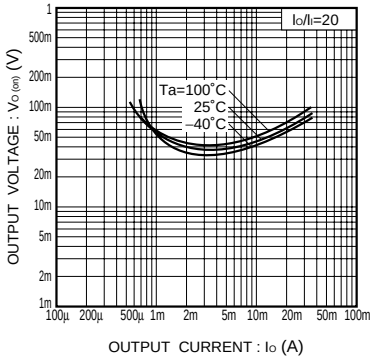


Fig.4 Output voltage vs. output current

DTr2 (PNP)

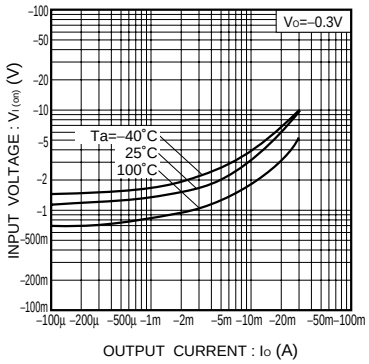


Fig.5 Input voltage vs. output current (ON characteristics)

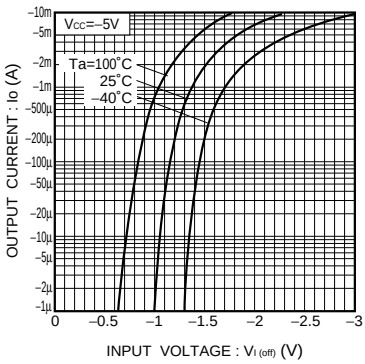


Fig.6 Output current vs. input voltage (OFF characteristics)

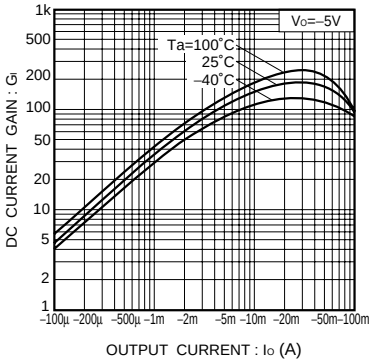


Fig.7 DC current gain vs. output current

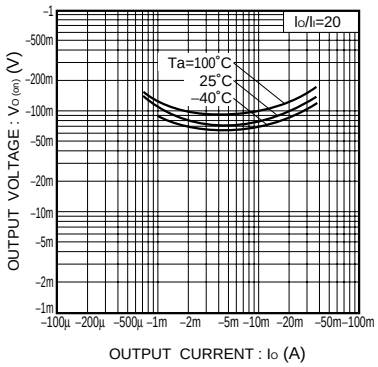


Fig.8 Output voltage vs. output current