

## Transistors

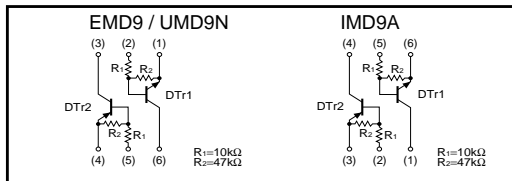
# Digital Transistor (Dual Digital Transistors for Inverter Drive)

## EMD9 / UMD9N / IMD9A

### ●Features

- 1) DTA114Y and DTC114Y transistors are built-in a EMT or UMT or SMT package.

### ●Equivalent circuit



### ●Package, marking, and packaging specifications

Type	EMD9	UMD9N	IMD9A
Package	EMT6	UMT6	SMT6
Marking	D9	D9	D9
Code	T2R	TR	T108
Basic ordering unit (pieces)	8000	3000	3000

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

Parameter	Symbol	Limits	Unit
Supply voltage	V <sub>CC</sub>	50	V
Input voltage	V <sub>IN</sub>	-6 to +40	V
Output current	I <sub>o</sub>	70	mA
Collector current	I <sub>C (Max.)</sub>	100	mA
Power dissipation	EMD9, UMD9N	150(TOTAL)	mW *1
	IMD9A	300(TOTAL)	mW *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. PNP type negative symbols have been omitted.

\*2 200mW per element must not be exceeded. PNP type negative symbols have been omitted.

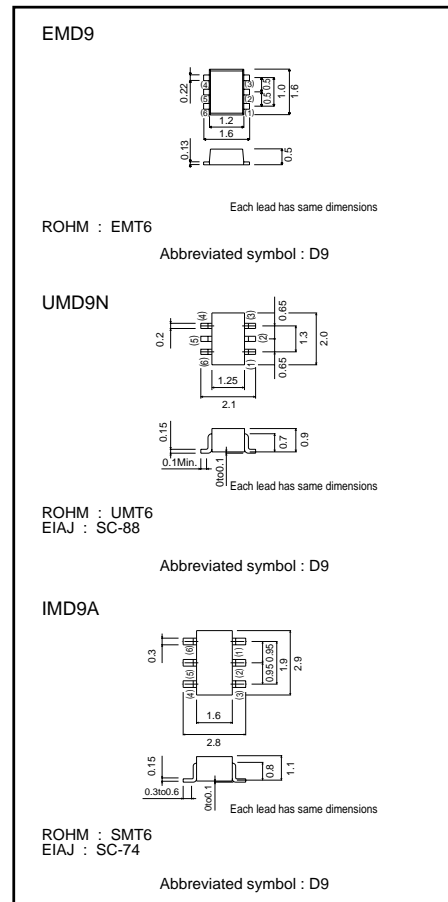
### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V <sub>I(off)</sub>	-	-	0.3	V	V <sub>CC</sub> =5V, I <sub>o</sub> =100mA
	V <sub>I(on)</sub>	1.4	-	-	V	V <sub>o</sub> =0.3V, I <sub>i</sub> =1mA
Output voltage	V <sub>O(on)</sub>	-	0.1	0.3	V	I <sub>o</sub> =5mA, I <sub>i</sub> =0.25mA
Input current	I <sub>i</sub>	-	-	0.88	mA	V <sub>i</sub> =5V
Output current	I <sub>O(off)</sub>	-	-	0.5	mA	V <sub>CC</sub> =50V, V <sub>i</sub> =0V
DC current gain	G <sub>i</sub>	68	-	-	-	I <sub>o</sub> =5mA, V <sub>o</sub> =5V
Transition frequency *	f <sub>t</sub>	-	250	-	MHz	V <sub>CC</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz
Input resistance	R <sub>i</sub>	7	10	13	kΩ	-
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	3.7	4.7	5.7	-	-

PNP type negative symbols have been omitted.

\* Characteristics of built-in transistor.

### ●External dimensions (Unit : mm)



Transistors

●Electrical characteristics curves DTr1 (DTC114Y)

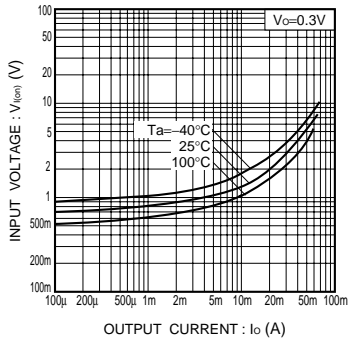


Fig.1 Input voltage vs. output current (ON characteristics)

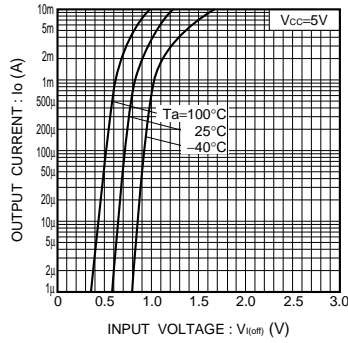


Fig.2 Output current vs. input voltage (OFF characteristics)

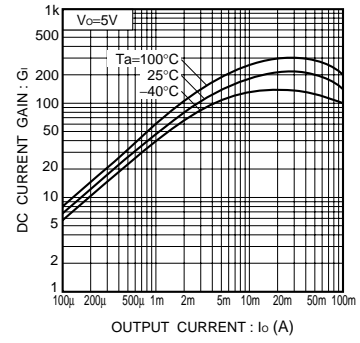


Fig.3 DC current gain vs. output current

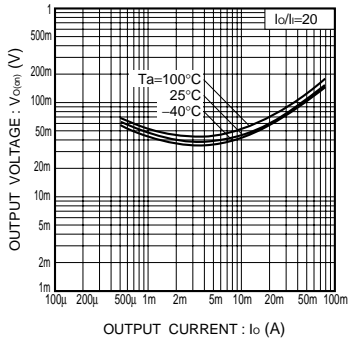


Fig.4 Output voltage vs. output current

Transistors

●Electrical characteristics curves DTr2 (DTA114Y)

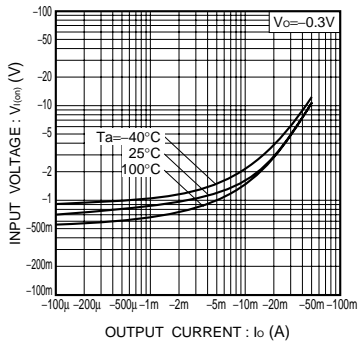


Fig.1 Input voltage vs. output current (ON characteristics)

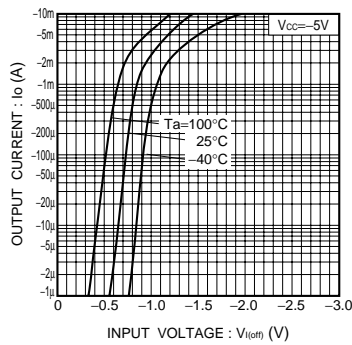


Fig.2 Output current vs. input voltage (OFF characteristics)

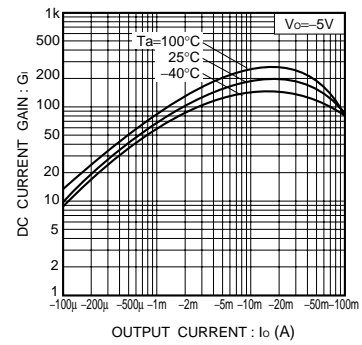


Fig.3 DC current gain vs. output current

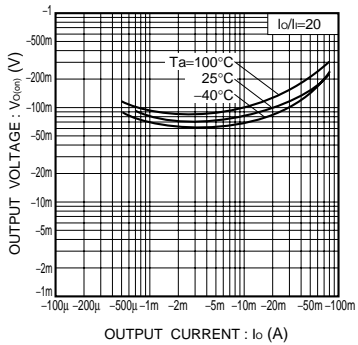


Fig.4 Output voltage vs. output current

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