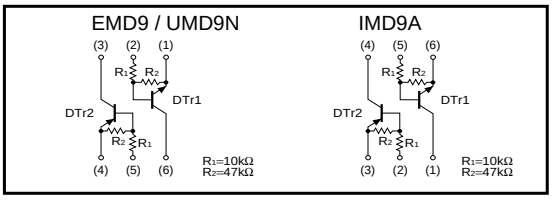
Digital Transistor
(Dual Digital Transistors for Inverter Drive)

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

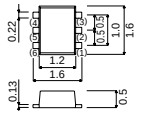
●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit	
Supply voltage		V_{CC}	50	V	
Input voltage		V_{IN}	−6 to +40	V	
Output current		I_O	70	mA	
Collector current		$I_{C\ (Max.)}$	100	mA	
Power dissipation	EMD9, UMD9N	Pd	150(TOTAL)	mW	∗1
	IMD9A		300(TOTAL)	mW	∗2
Junction temperature		Tj	150	°C	
Storage temperature		Tstg	−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.

●External dimensions (Unit : mm)

EMD9

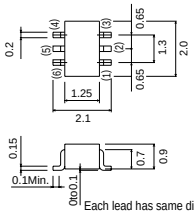


Each lead has same dimensions

ROHM : EMT6

Abbreviated symbol : D9

UMD9N

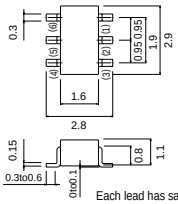


Each lead has same dimensions

ROHM : UMT6
EIAJ : SC-88

Abbreviated symbol : D9

IMD9A



Each lead has same dimensions

ROHM : SMT6
EIAJ : SC-74

Abbreviated symbol : D9

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	0.3	V	V_{CC}=5V , I_O=100mA
	$V_{I(on)}$	1.4	–	–		V_O=0.3V , I_I=1mA
Output voltage	$V_{O(on)}$	–	0.1	0.3	V	I_O=5mA , I_I=0.25mA
Input current	I_I	–	–	0.88	mA	V_I=5V
Output current	$I_{O(off)}$	–	–	0.5	mA	V_{CC}=50V , V_I=0V
DC current gain	G_I	68	–	–	–	I_O=5mA , V_O=5V
Transition frequency ∗	f_T	–	250	–	MHz	V_{CE}=10V , I_E= −5mA , f=100MHz
Input resistance	R_1	7	10	13	kW	–
Resistance ratio	R_2/R_1	3.7	4.7	5.7	–	–

PNP type negative symbols have been omitted.
∗ Characteristics of built-in transistor.

●**Electrical characteristics curves DTr1 (DTC114Y)**

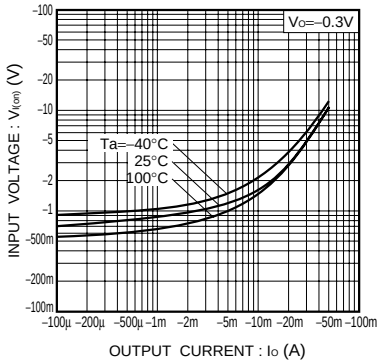


Fig.1 Input voltage vs. output current (ON characteristics)

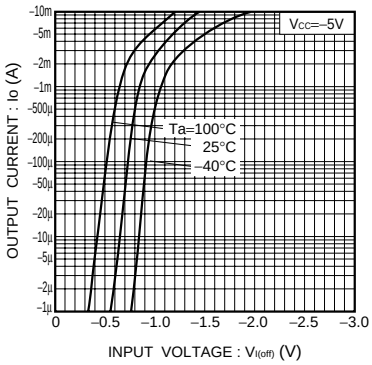


Fig.2 Output current vs. input voltage (OFF characteristics)

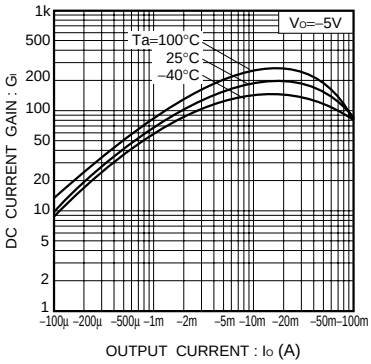


Fig.3 DC current gain vs. output current

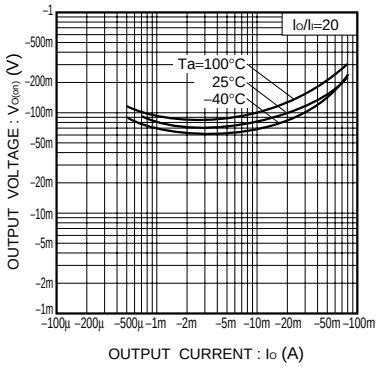


Fig.4 Output voltage vs. output current

●Electrical characteristics curves DTr2 (DTA114Y)

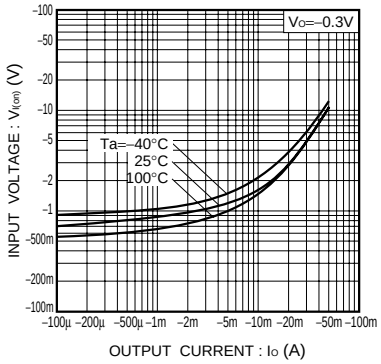


Fig.1 Input voltage vs. output current (ON characteristics)

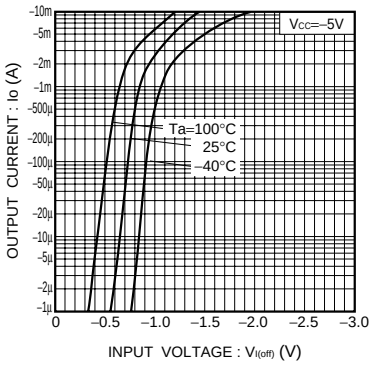


Fig.2 Output current vs. input voltage (OFF characteristics)

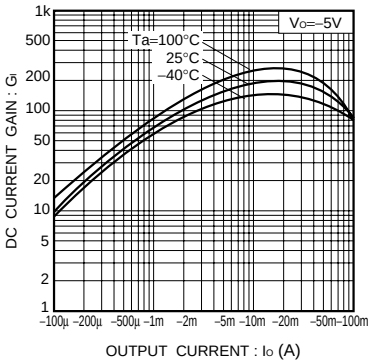


Fig.3 DC current gain vs. output current

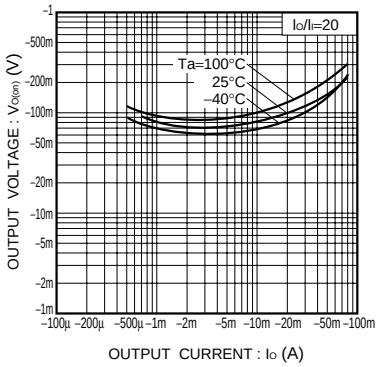


Fig.4 Output voltage vs. output current

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