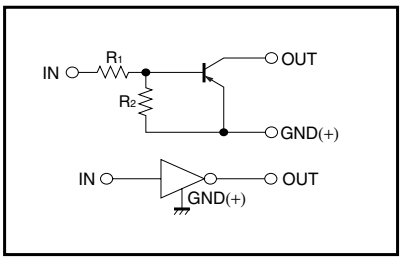
Digital transistors (built-in resistors)

DTA114WE / DTA114WUA / DTA114WKA / DTA114WSA

●Features

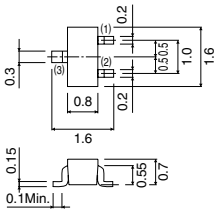
1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
2) The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
3) Only the on / off conditions need to be set for operation, making device design easy.
4) Higher mounting densities can be achieved.

●Circuit schematic



●External dimensions (Unit : mm)

EMT3
(SC-75A)
<SOT-416>

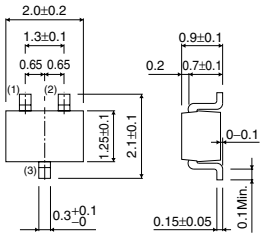


(1) GND
(2) IN
(3) OUT

Each lead has same dimensions

Abbreviated symbol : 74

UMT3
<SC-70>

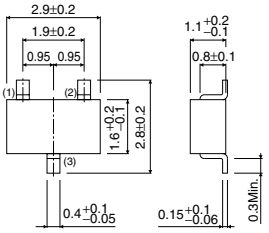


(1) GND
(2) IN
(3) OUT

Each lead has same dimensions

Abbreviated symbol : 74

SMT3
<SC-59>

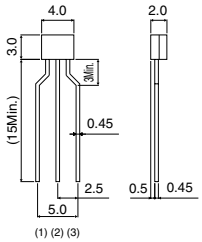


(1) GND
(2) IN
(3) OUT

Each lead has same dimensions

Abbreviated symbol : 74

SPT
(SC-72)



(1) GND
(2) OUT
(3) IN

Taping specifications

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

Parameter		Symbol	Limits	Unit
Supply voltage		V_{CC}	–50	V
Input voltage		V_I	–30 to +10	V
Output current		I_O	–100	mA
		$I_{C(Max.)}$	–100	
Power dissipation	DTA114WE	Pd	150	mW
	DTA114WUA / DTA114WKA		200	
	DTA114WSA		300	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 to +150	°C

●**Package, marking, and packaging specifications**

Part No.	DTA114WE	DTA114WUA	DTA114WKA	DTA114WSA
Package	EMT3	UMT3	SMT3	SPT
Marking	74	74	74	A114WS
Packaging code	TL	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	3000	5000

●**External characteristics** (Unit: mm)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	–0.8	V	V_{CC}= –5V , I_O= –100μA
	$V_{I(on)}$	–3	–	–		V_O= –0.3V , I_O= –2mA
Output voltage	$V_{O(on)}$	–	–0.1	–0.3	V	I_O= –10mA , I_I= –0.5mA
Input current	I_I	–	–	–0.88	mA	V_I= –5V
Output current	$I_{O(off)}$	–	–	–0.5	μA	V_{CC}= –50V , V_I=0V
DC current gain	G_I	24	–	–	–	I_O= –10mA , V_O= –5V
Input resistance	R_1	7	10	13	kΩ	–
Resistance ratio	R_2/R_1	0.37	0.47	0.57	–	–
Transition frequency	f_T	–	250	–	MHz	V_{CE}= –10V , I_E=5mA , f=100MHz *

*Transition frequency of the device.

●**Electrical characteristics curves**

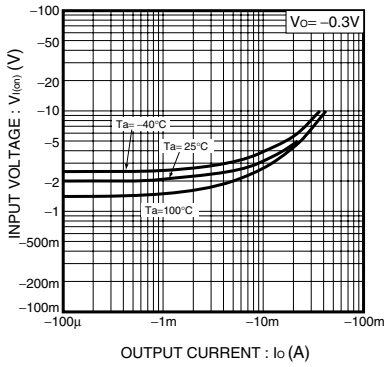


Fig.1 Input voltage vs. Output current (ON characteristics)

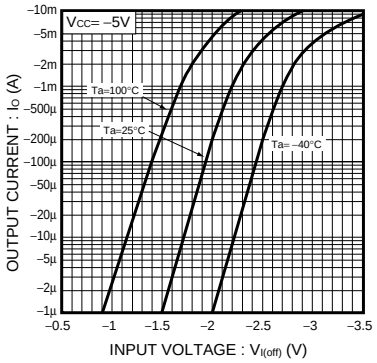


Fig.2 Output current vs. Input voltage (OFF characteristics)

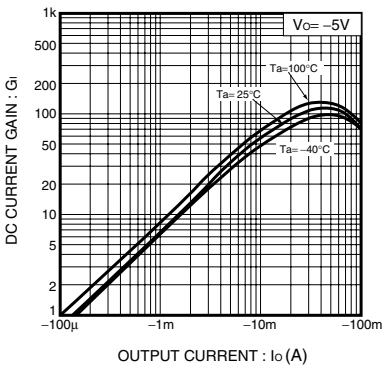


Fig.3 DC current gain vs. Output current

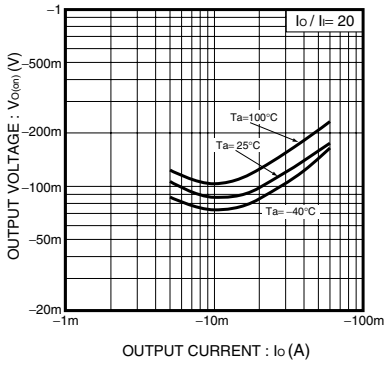


Fig.4 Output voltage vs. Output current

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