

Parameter	DTr1 and DTr2
V_{CC}	50V
$I_{C(MAX.)}$	100mA
R_1	10k Ω
R_2	47k Ω

●Features

- 1)Two DTC114Y chips in a EMT or UMT or SMT package.
- 2)Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
- 3)Transistor elements are independent, eliminating interference.
- 4)Mounting cost and area can be cut in half.

●Application

INVERTER, INTERFACE, DRIVER

●Packaging specifications

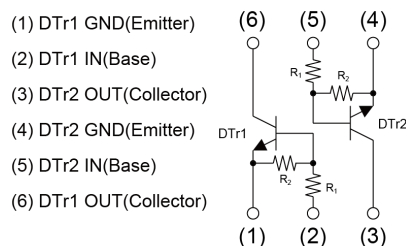
Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
EMH9	SOT-563 (EMT6)	1616	T2R	180	8	8000	H9
UMH9N	SOT-363 (UMT6)	2021	TN	180	8	3000	H9
IMH9A	SOT-457 (SMT6)	2928	T110	180	8	3000	H9

●Outline

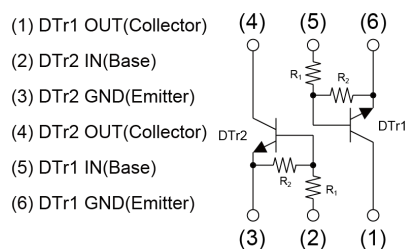
SOT-563 EMH9 (EMT6)	SOT-363 UMH9N (UMT6)
SOT-457 IMH9A (SMT6)	

●Inner circuit

EMH9 / UMH9N



IMH9A



● **Absolute maximum ratings** ($T_a = 25^\circ\text{C}$)

<For DTr1 and DTr2 in common>

Parameter		Symbol	Values	Unit
Supply voltage		V_{CC}	50	V
Input voltage		V_{IN}	-6 to 40	V
Output current		I_O	70	mA
Collector current		$I_{C(MAX)}^{*1}$	100	mA
Power dissipation	EMH9	P_D^{*2*3}	150	mW
	UMH9N	P_D^{*2*3}	150	
	IMH9A	P_D^{*2*4}	300	
Junction temperature		T_j	150	$^\circ\text{C}$
Range of storage temperature		T_{stg}	-55 to +150	$^\circ\text{C}$

● **Electrical characteristics** ($T_a = 25^\circ\text{C}$)

<For DTr1 and DTr2 in common>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	$V_{CC} = 5\text{V}, I_O = 100\mu\text{A}$	-	-	0.3	V
	$V_{I(on)}$	$V_O = 0.3\text{V}, I_O = 1\text{mA}$	1.4	-	-	
Output voltage	$V_{O(on)}$	$I_O = 5\text{mA}, I_I = 0.25\text{mA}$	-	100	300	mV
Input current	I_I	$V_I = 5\text{V}$	-	-	880	μA
Output current	$I_{O(off)}$	$V_{CC} = 50\text{V}, V_I = 0\text{V}$	-	-	500	nA
DC current gain	G_I	$V_O = 5\text{V}, I_O = 5\text{mA}$	68	-	-	-
Input resistance	R_I	-	7	10	13	k Ω
Resistance ratio	R_2/R_1	-	3.7	4.7	5.7	-
Transition frequency	f_T^{*1}	$V_{CE} = 10\text{V}, I_E = -5\text{mA}, f = 100\text{MHz}$	-	250	-	MHz

*1 Characteristics of built-in transistor

*2 Each terminal mounted on a reference land

*3 120mW per element must not be exceeded.

*4 200mW per element must not be exceeded.

● **Electrical characteristic curves** ($T_a = 25^\circ\text{C}$)

<For DTr1 and DTr2 in common>

Fig.1 Input Voltage vs. Output Current
(ON Characteristics)

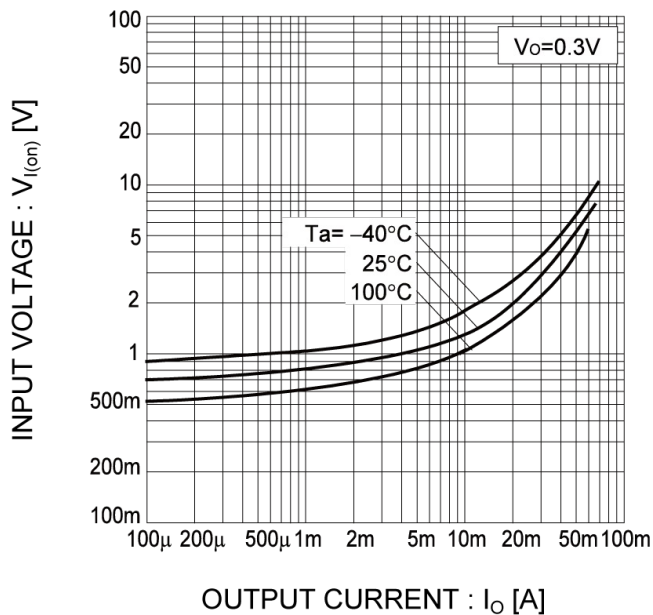


Fig.2 Output Current vs. Input Voltage
(OFF Characteristics)

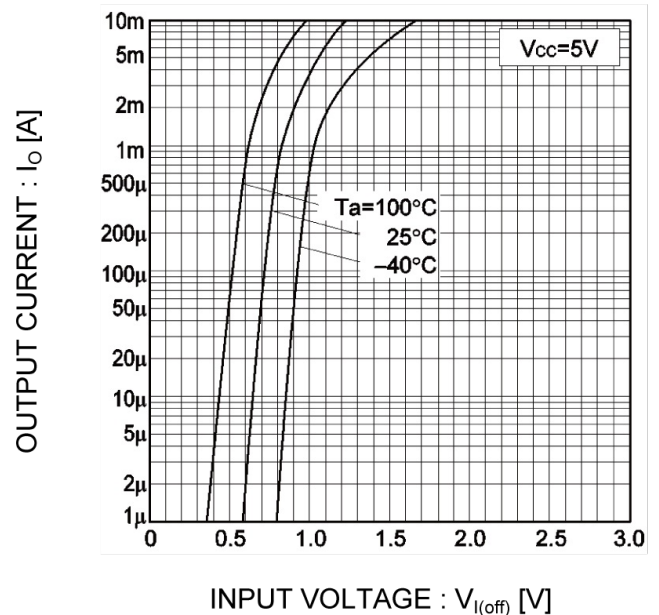


Fig.3 Output Current vs. Output Voltage

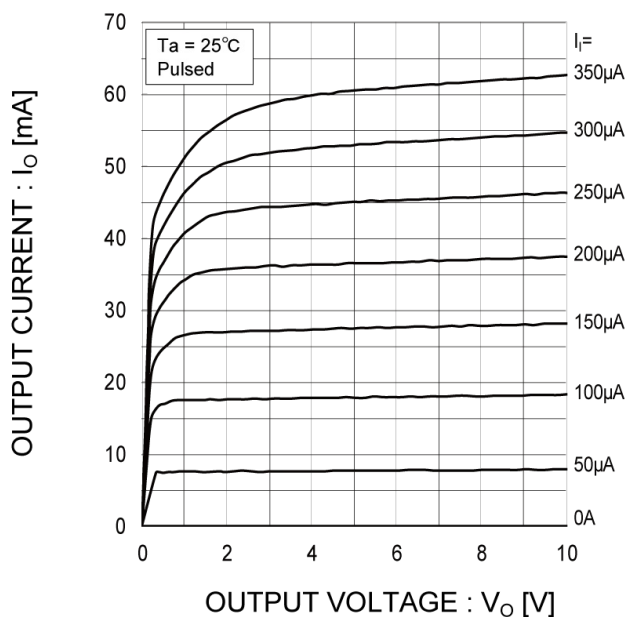
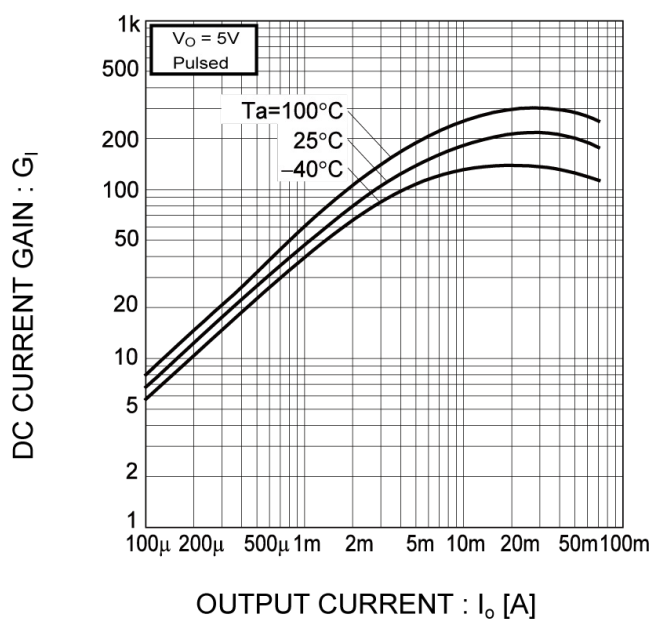


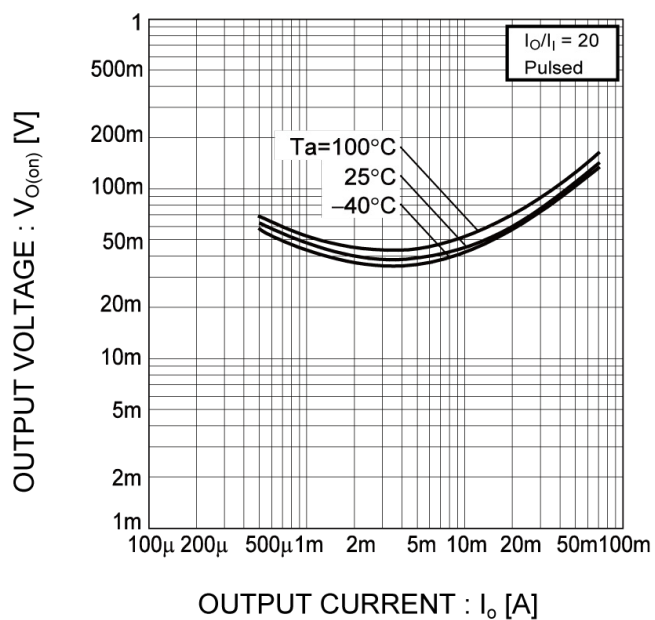
Fig.4 DC Current Gain vs. Output Current



● **Electrical characteristic curves** ($T_a = 25^\circ\text{C}$)

<For DTr1 and DTr2 in common>

Fig.5 Output Voltage vs. Output Current



●Dimensions



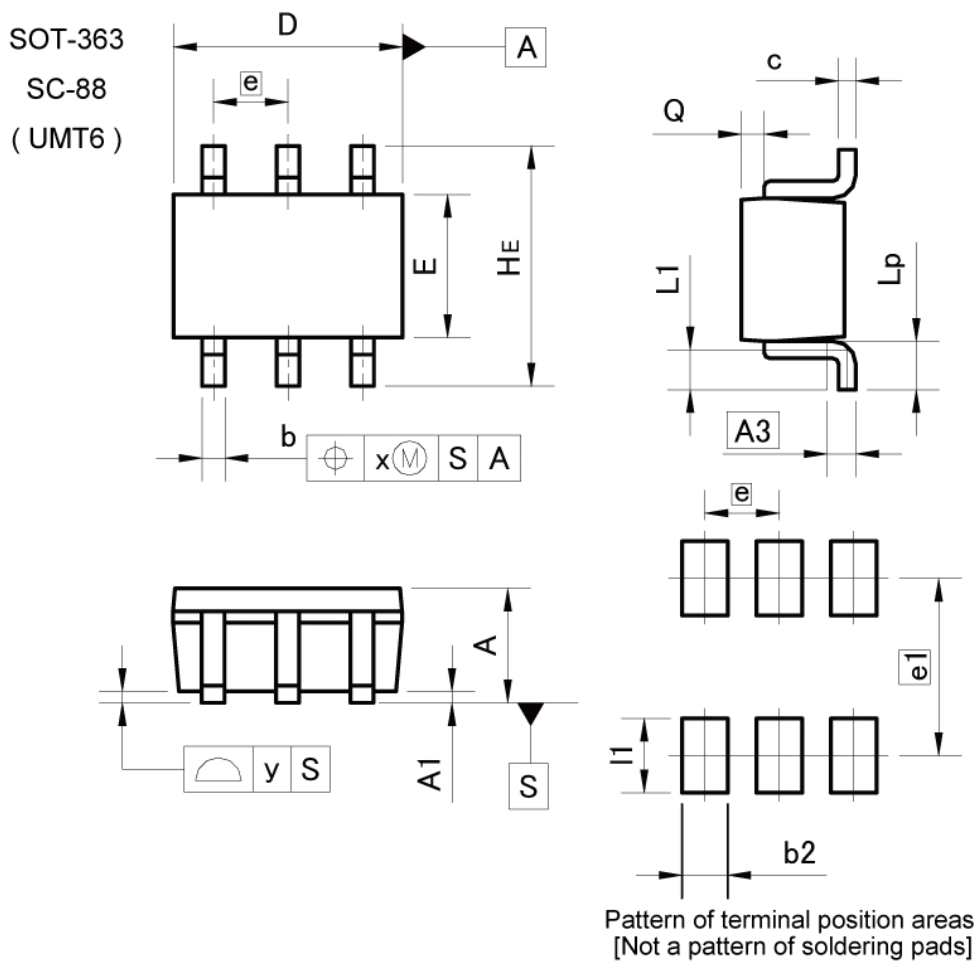
Pattern of terminal position areas
[Not a pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
b	0.17	0.27	0.007	0.011
c	0.08	0.18	0.003	0.007
D	1.50	1.70	0.059	0.067
E	1.10	1.30	0.043	0.051
e	0.50		0.020	
HE	1.50	1.70	0.059	0.067
L	0.10	0.30	0.004	0.012
Lp	—	0.35	—	0.014
x	—	0.10	—	0.004
y	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.37	—	0.015
e1	1.25		0.049	
l1	—	0.45	—	0.018

Dimension in mm/inches

●Dimensions

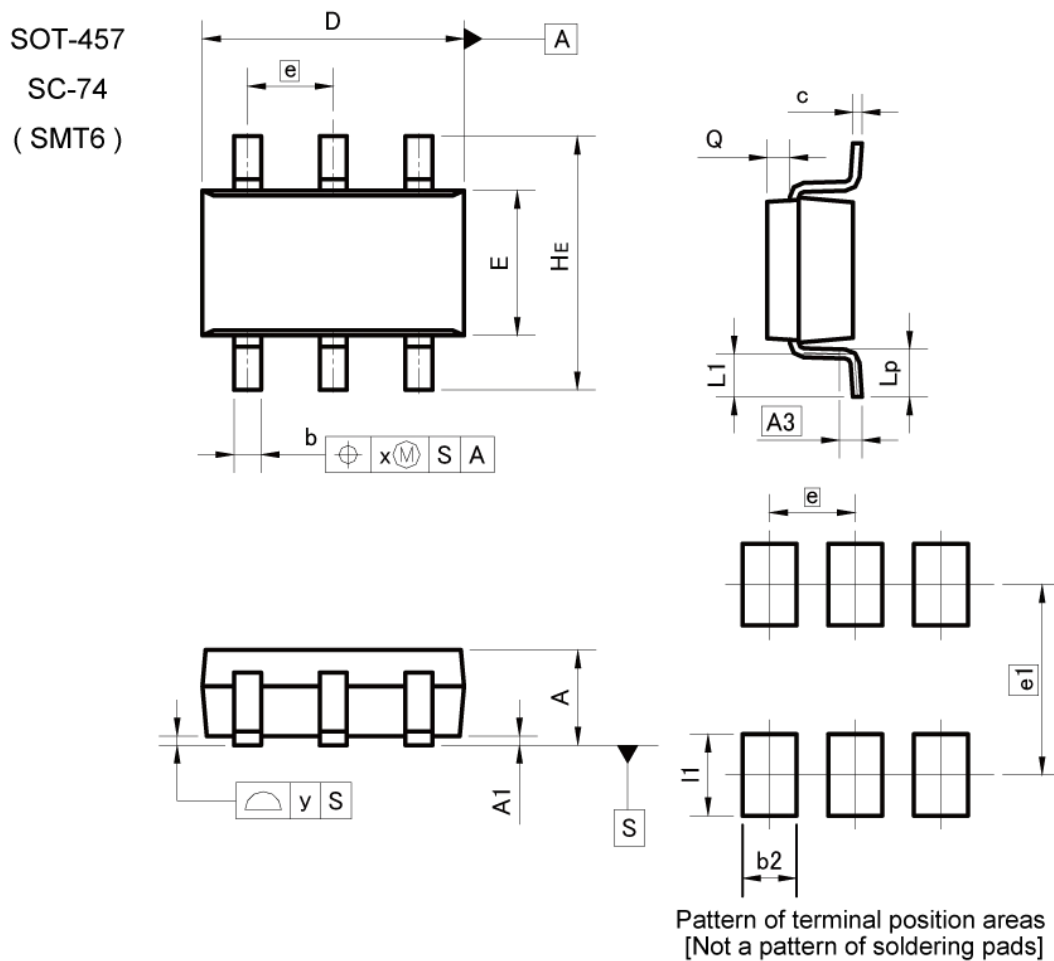


DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
c	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.026	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.020
Lp	0.25	0.55	0.010	0.022
Q	0.10	0.30	0.004	0.012
x	—	0.10	—	0.004
y	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.40	—	0.016
e1	1.55		0.061	
l1	—	0.65	—	0.026

Dimension in mm/inches

●Dimensions



DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.30	0.039	0.051
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.25	0.40	0.010	0.016
c	0.09	0.25	0.004	0.010
D	2.80	3.00	0.110	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.037	
HE	2.60	3.00	0.102	0.118
L1	0.30	0.60	0.012	0.024
Lp	0.40	0.70	0.016	0.028
Q	0.20	0.30	0.008	0.012
x	—	0.20	—	0.008
y	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.60	—	0.024
e1	2.10		0.083	
l1	—	0.90	—	0.035

Dimension in mm/inches

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