

<For DTr1(NPN)>

Parameter	Value
V_{CC}	50V
$I_{C(MAX.)}$	100mA
R_1	22k Ω
R_2	22k Ω

<For DTr2(PNP)>

Parameter	Value
V_{CC}	-50V
$I_{C(MAX.)}$	-100mA
R_1	22k Ω
R_2	22k Ω

●Features

- 1) DTA024E and DTC024E chip in a EMT6 package.
- 2) Transistor elements are independent, eliminating interface.
- 3) Mounting cost and area can be cut in half.
- 4) Lead Free/RoHS Compliant.

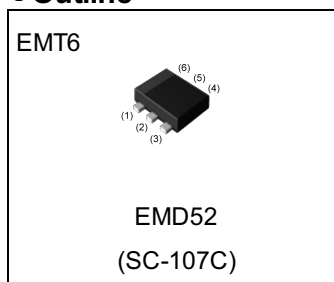
●Application

Switching circuit, Inverter circuit, Interface circuit,
Driver circuit

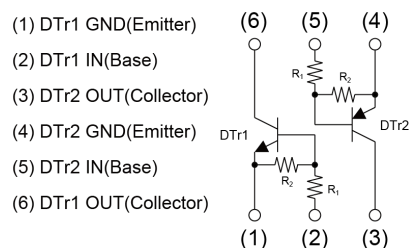
●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
EMD52	EMT6	1616	T2R	180	8	8000	D52

●Outline



●Inner circuit



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

Parameter	Symbol	DTr1(NPN)	DTr2(PNP)	Unit
Supply voltage	V_{CC}	50	-50	V
Input voltage	V_{IN}	40 to -10	-40 to 10	V
Output current	I_O	30	-30	mA
Collector current	$I_{C(MAX)}^{*1}$	100	-100	mA
Power dissipation	P_D^{*2*3}	150(Total)		mW/Total
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(NPN)>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	$V_{CC} = 5\text{V}, I_O = 0.1\text{mA}$	-	-	0.5	V
	$V_{I(on)}$	$V_O = 0.3\text{V}, I_O = 5\text{mA}$	3	-	-	
Output voltage	$V_{O(on)}$	$I_O / I_I = 5\text{mA} / 0.5\text{mA}$	-	0.05	0.15	V
Input current	I_I	$V_I = 5\text{V}$	-	-	0.36	mA
Output current	$I_{O(off)}$	$V_{CC} = 50\text{V}, V_I = 0\text{V}$	-	-	0.5	μA
DC current gain	G_I	$V_O = 10\text{V}, I_O = 5\text{mA}$	60	-	-	-
Input resistance	R_1	-	15.4	22	28.6	k Ω
Resistance ratio	R_2/R_1	-	0.8	1	1.2	-
Transition frequency	f_T^{*1}	$V_{CE} = 10\text{V}, I_E = -5\text{mA},$ $f = 100\text{MHz}$	-	250	-	MHz

● Electrical characteristics ($T_a = 25^\circ\text{C}$) <For DTr2(PNP)>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	$V_{CC} = -5\text{V}, I_O = -0.1\text{mA}$	-	-	-0.5	V
	$V_{I(on)}$	$V_O = -0.3\text{V}, I_O = -5\text{mA}$	-3	-	-	
Output voltage	$V_{O(on)}$	$I_O / I_I = -5\text{mA} / -0.5\text{mA}$	-	-0.07	-0.15	V
Input current	I_I	$V_I = -5\text{V}$	-	-	-0.36	mA
Output current	$I_{O(off)}$	$V_{CC} = -50\text{V}, V_I = 0\text{V}$	-	-	-0.5	μA
DC current gain	G_I	$V_O = -10\text{V}, I_O = -5\text{mA}$	60	-	-	-
Input resistance	R_1	-	15.4	22	28.6	k Ω
Resistance ratio	R_2/R_1	-	0.8	1	1.2	-
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 terminal mounted on a reference footprint.

*3 120mW per element must not be exceeded.

●Electrical characteristic curves($T_a=25^\circ\text{C}$) <For DTr1(NPN)>

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

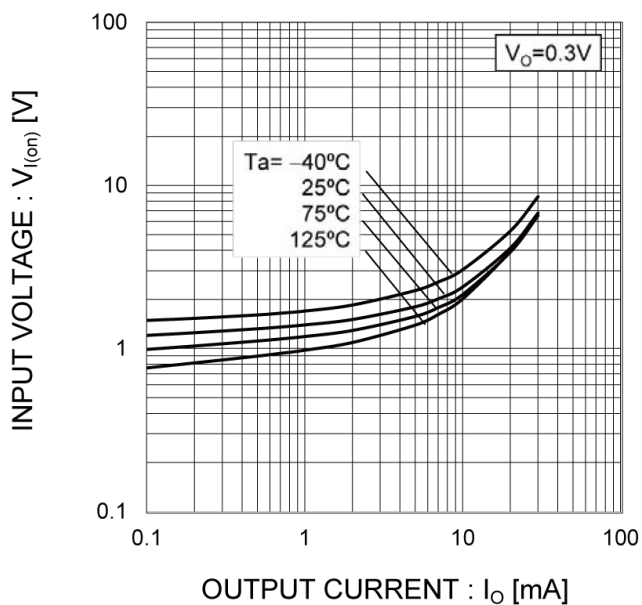


Fig.2 Output current vs. input voltage
(OFF characteristics)

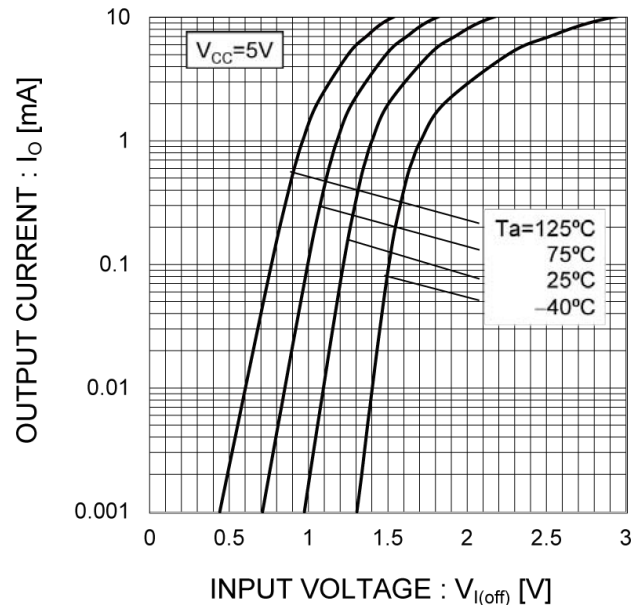


Fig.3 Output current vs. output voltage

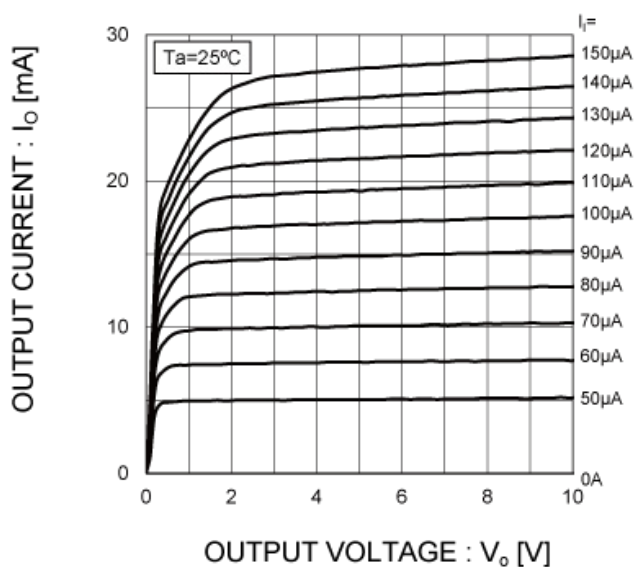
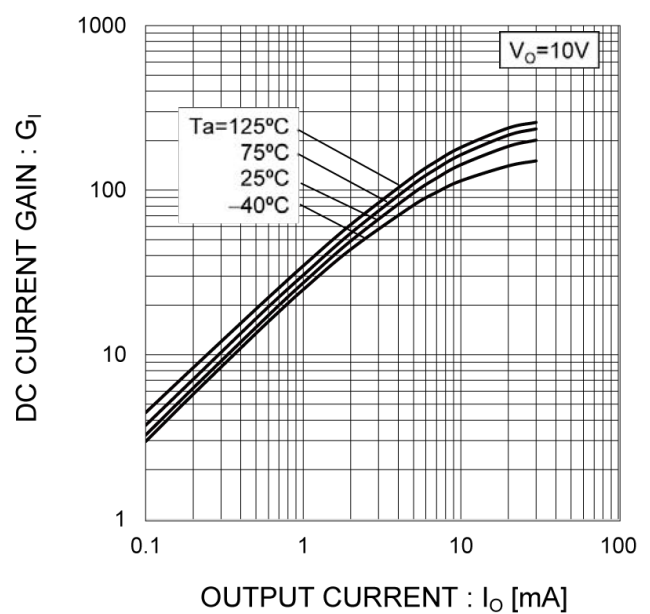
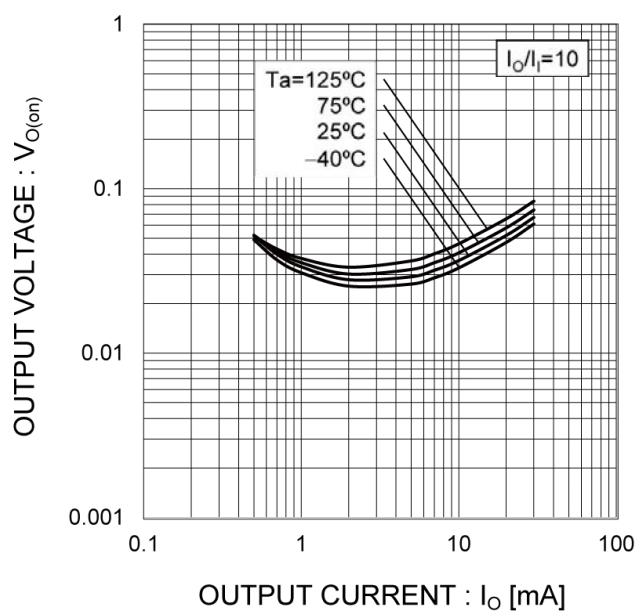


Fig.4 DC current gain vs. output current



●Electrical characteristic curves($T_a=25^{\circ}\text{C}$) <For DTr1(NPN)>

Fig.5 Output voltage vs. output current



●Electrical characteristic curves($T_a=25^\circ\text{C}$) <For DTr2(PNP)>

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

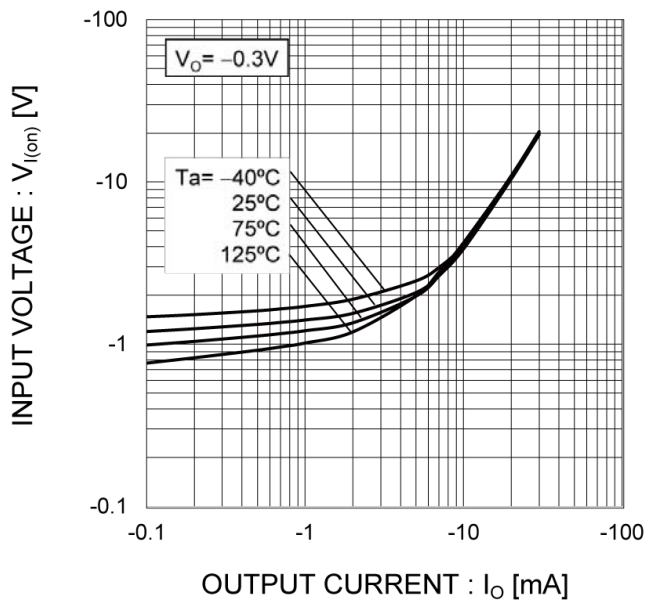


Fig.2 Output current vs. input voltage
(OFF characteristics)

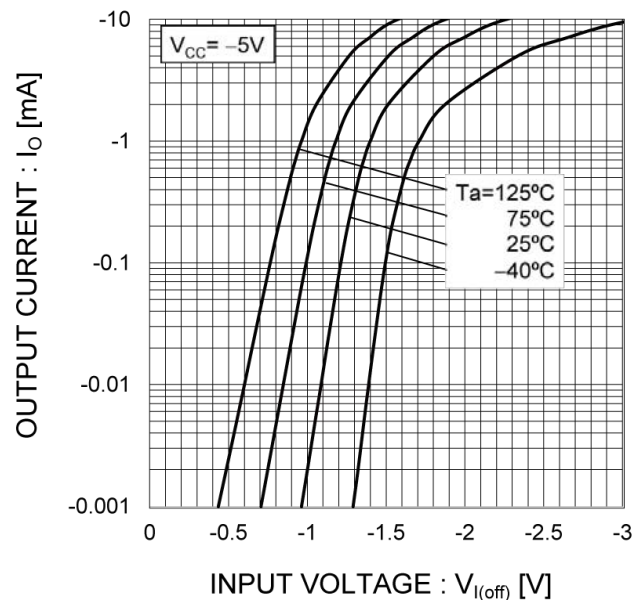


Fig.3 Output current vs. output voltage

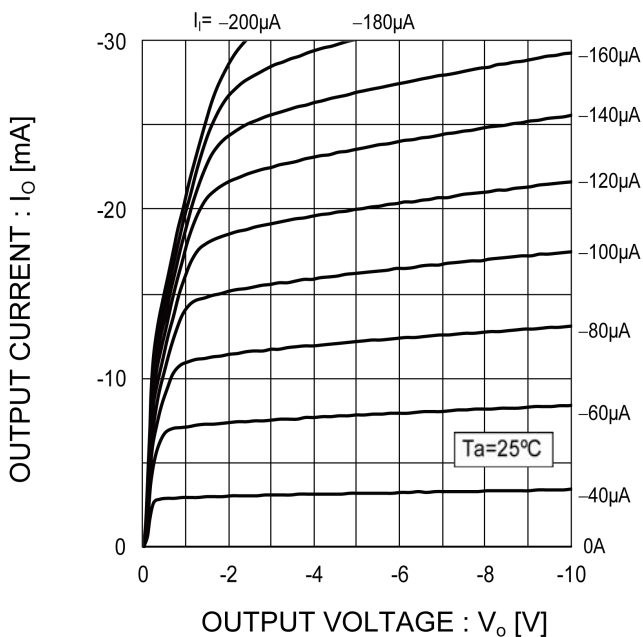
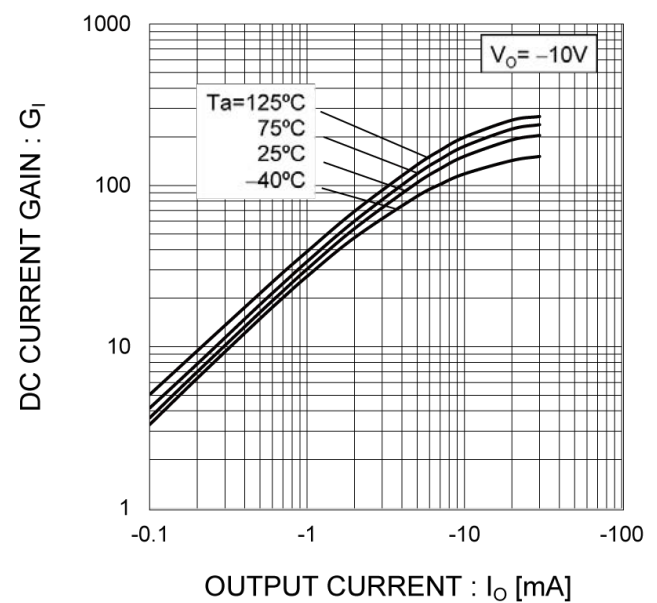
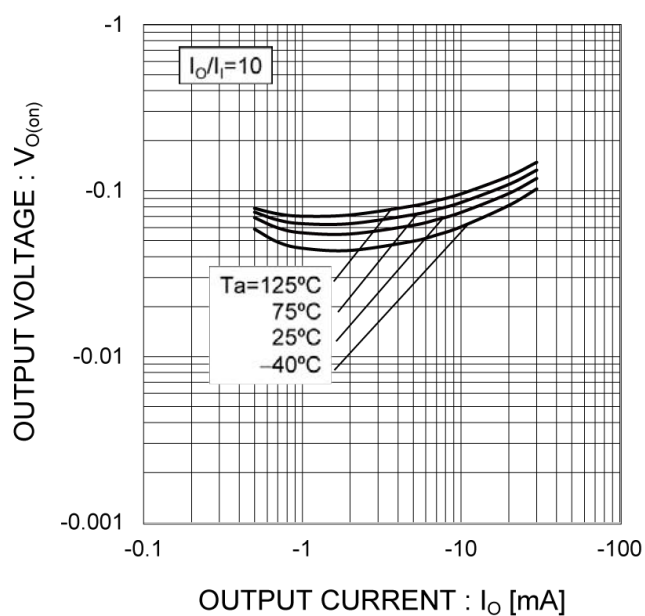


Fig.4 DC current gain vs. output current

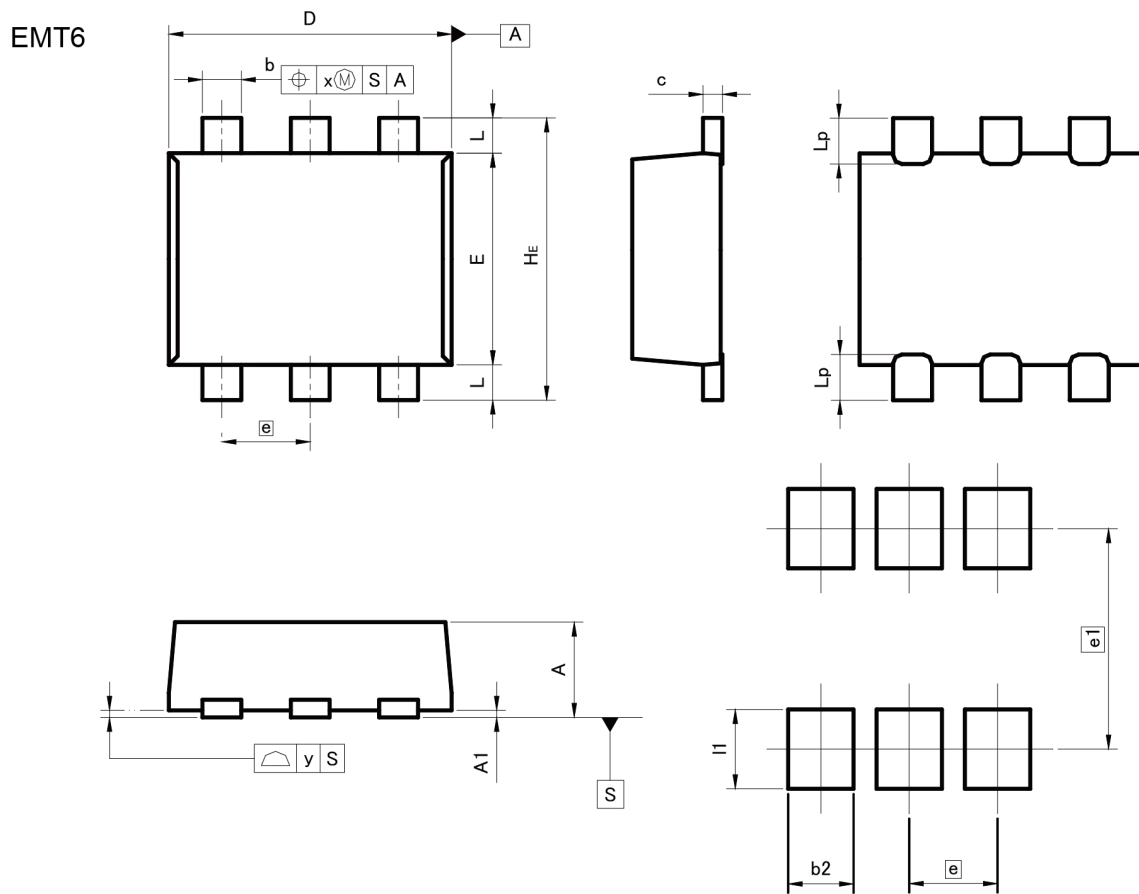


●Electrical characteristic curves($T_a=25^\circ\text{C}$) <For DTr2(PNP)>

Fig.5 Output voltage vs. output current



●Dimensions



Pattern of terminal position areas
[Not a recommended 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

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