

<For DTr1(NPN)>

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

<For DTr2(PNP)>

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

### ●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.

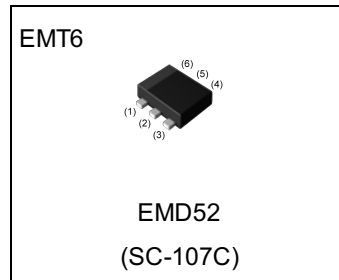
### ●Application

Switching circuit, Inverter circuit, Interface circuit,  
Driver circuit

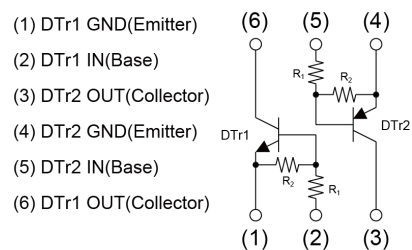
### ●Packaging specifications

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

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

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	$V_{CC} = -5V, I_O = -0.1mA$	-	-	-0.5	V
	$V_{I(on)}$	$V_O = -0.3V, I_O = -5mA$	-3	-	-	
Output voltage	$V_{O(on)}$	$I_O / I_I = -5mA / -0.5mA$	-	-0.07	-0.15	V
Input current	$I_I$	$V_I = -5V$	-	-	-0.36	mA
Output current	$I_{O(off)}$	$V_{CC} = -50V, V_I = 0V$	-	-	-0.5	$\mu\text{A}$
DC current gain	$G_I$	$V_O = -10V, I_O = -5mA$	60	-	-	-
Input resistance	$R_1$	-	15.4	22	28.6	k $\Omega$
Resistance ratio	$R_2/R_1$	-	0.8	1	1.2	-
Transition frequency	$f_T^{*1}$	$V_{CE} = -10V, I_E = 5mA,$ $f = 100MHz$	-	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)

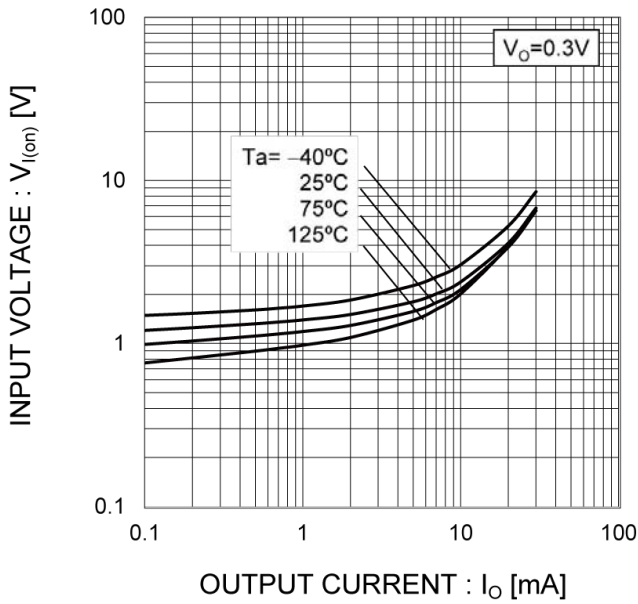


Fig.2 Output current vs. input voltage (OFF characteristics)

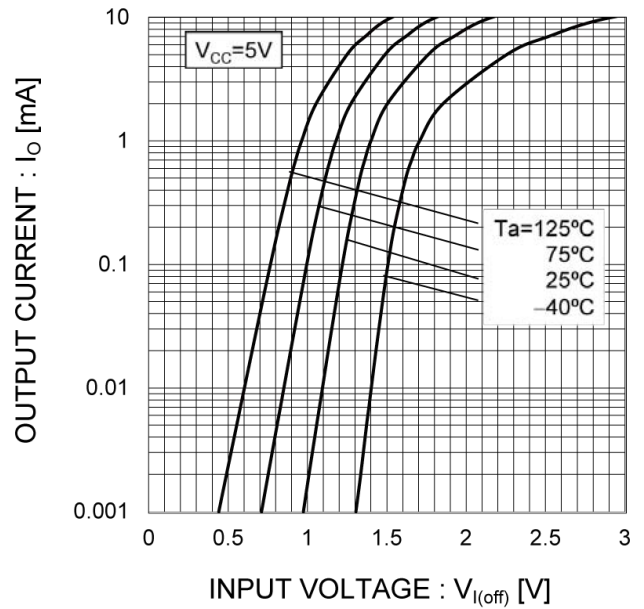


Fig.3 Output current vs. output voltage

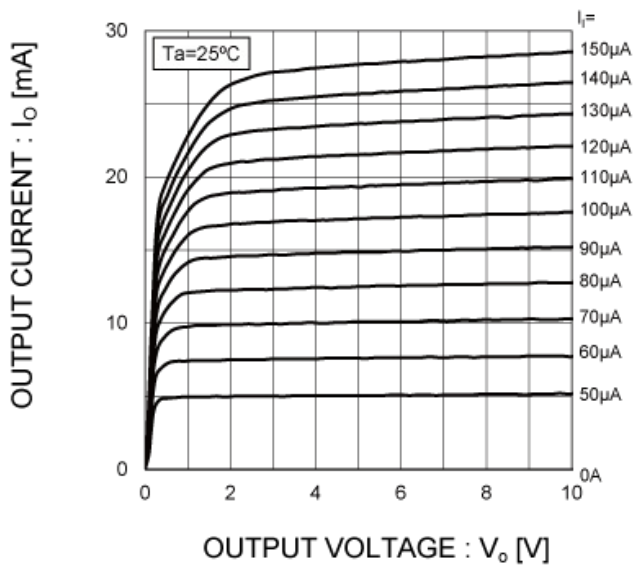
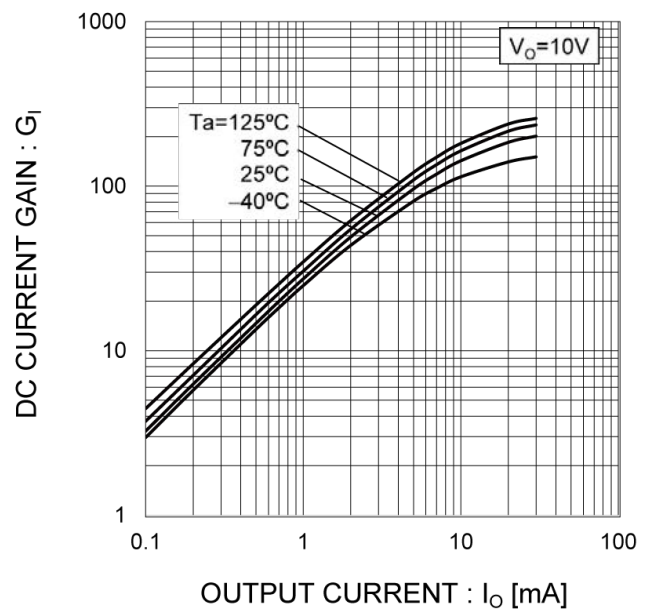
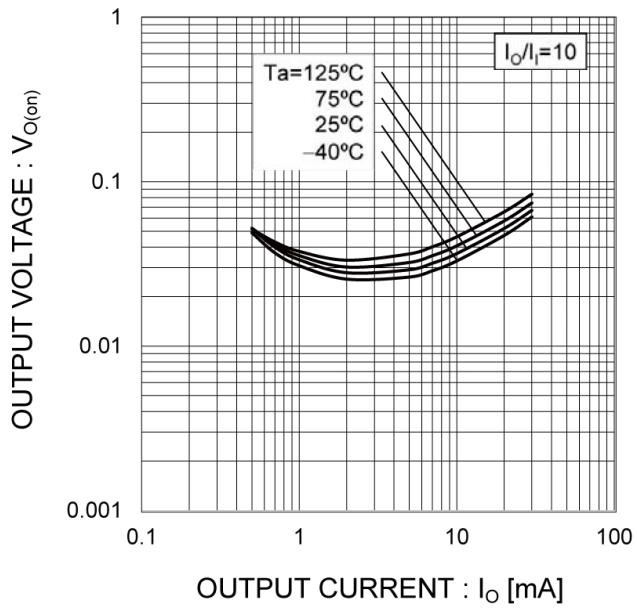


Fig.4 DC current gain vs. output current



**●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)

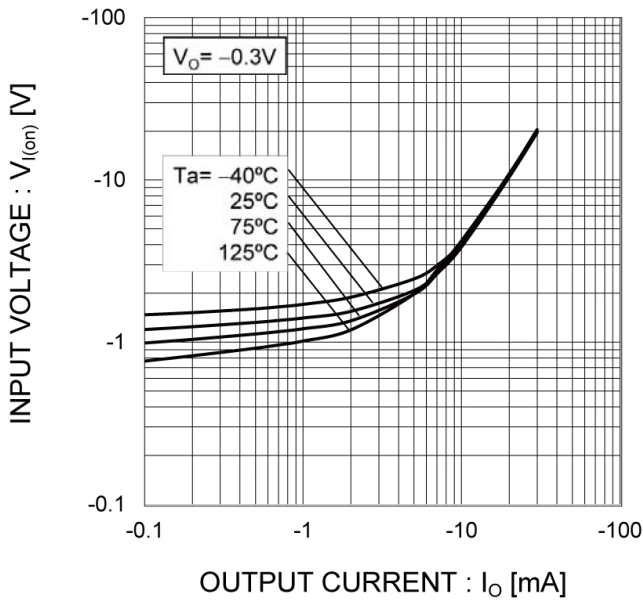


Fig.2 Output current vs. input voltage (OFF characteristics)

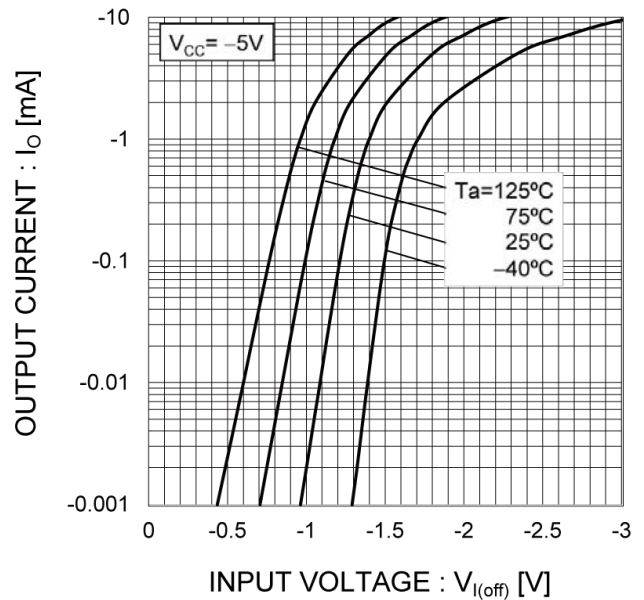


Fig.3 Output current vs. output voltage

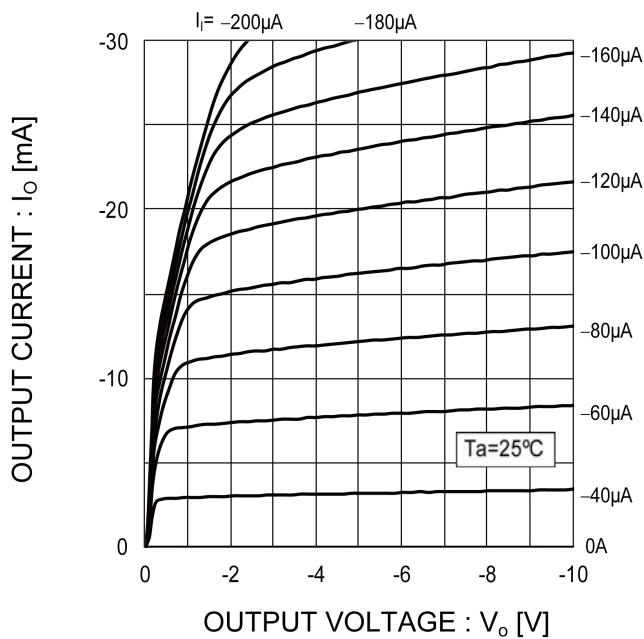
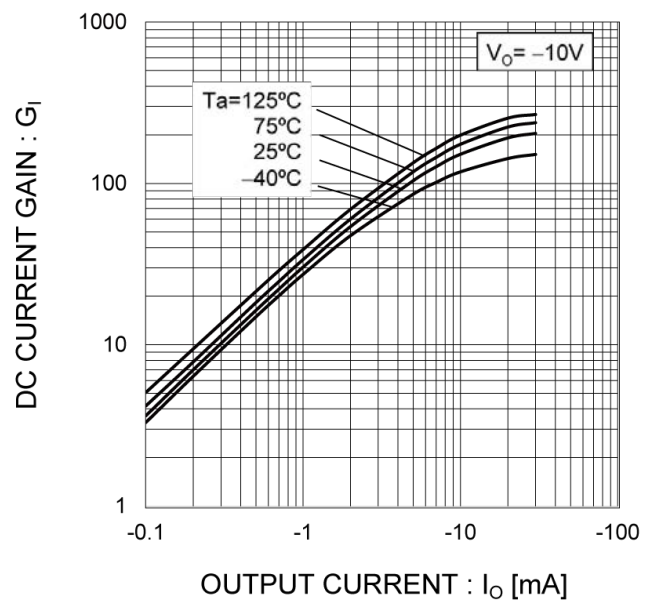
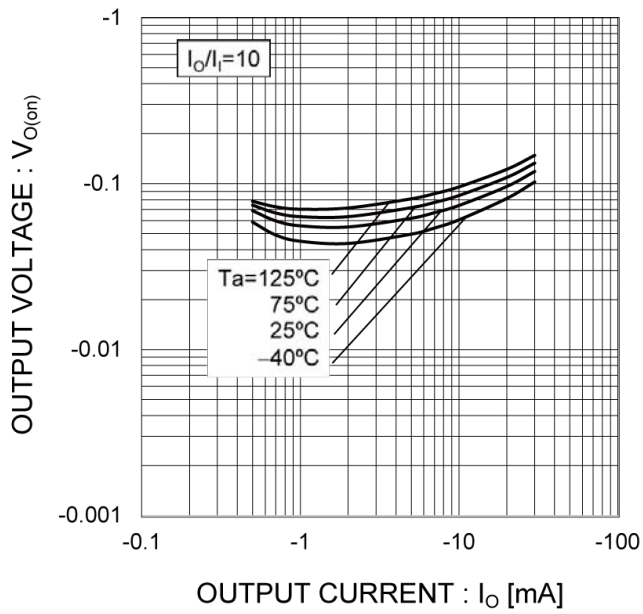


Fig.4 DC current gain vs. output current

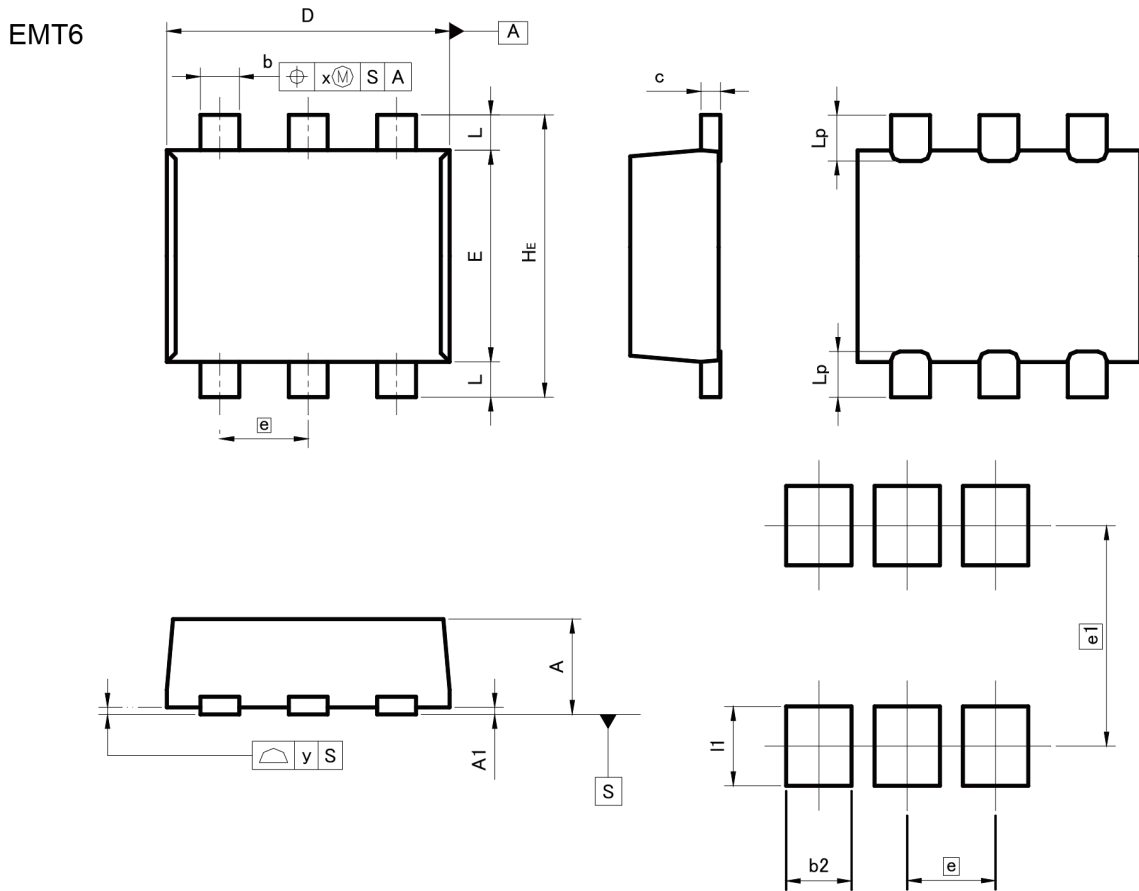


**●Electrical characteristic curves( $T_a=25^\circ\text{C}$ ) <For DTr2(PNP)>**

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	
I1	-	0.45	-	0.018

Dimension in mm/inches

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