EMD62

Complex Digital Transistors (Bias Resistor Built-in Transistors) Datasheet

<For DTr1(NPN)>

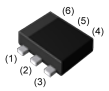
Parameter	Value
V_{CC}	50V
$I_{C(MAX.)}$	100mA
R_1	47kΩ
R_2	47kΩ

<For DTr2(PNP)>

Parameter	Value
V_{CC}	-50V
$I_{C(MAX.)}$	-100mA
R_1	47kΩ
R_2	47kΩ

●Outline

EMT6



EMD62

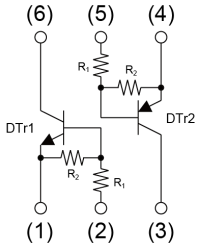
(SC-107C)

●Features

1) DTA044E and DTC044E chip in a EMT6 package.
2) Transister elements are independent, eliminating interface.
3) Mounting cost and area can be cut in half.
4) Lead Free/RoHS Compliant.

●Inner circuit

(1) DTr1 GND(Emitter)
(2) DTr1 IN(Base)
(3) DTr2 OUT(Collector)
(4) DTr2 GND(Emitter)
(5) DTr2 IN(Base)
(6) DTr1 OUT(Collector)



●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
EMD62	EMT6	1616	T2R	180	8	8000	D62

●Absolute maximum ratings (T_a = 25°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		℃
Range of storage temperature	T_{stg}	-55 to +150		℃

●Electrical characteristics (T_a = 25°C) <For DTr1(NPN)>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	V_{CC} = 5V, I_O = 0.1mA	-	-	0.8	V
	$V_{I(on)}$	V_O = 0.3V, I_O = 2mA	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	-	-	0.18	mA
Output current	$I_{O(off)}$	V_{CC} = 50V, V_I = 0V	-	-	0.5	μA
DC current gain	G_I	V_O = 10V, I_O = 5mA	80	-	-	-
Input resistance	R_1	-	32.9	47	61.1	kΩ
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°C) <For DTr2(PNP)>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	V_{CC} = -5V, I_O = -0.1mA	-	-	-0.8	V
	$V_{I(on)}$	V_O = -0.3V, I_O = -2mA	-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	-	-	-0.18	mA
Output current	$I_{O(off)}$	V_{CC} = -50V, V_I = 0V	-	-	-0.5	μA
DC current gain	G_I	V_O = -10V, I_O = -5mA	80	-	-	-
Input resistance	R_1	-	32.9	47	61.1	kΩ
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°C) <For DTr1(NPN)>

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

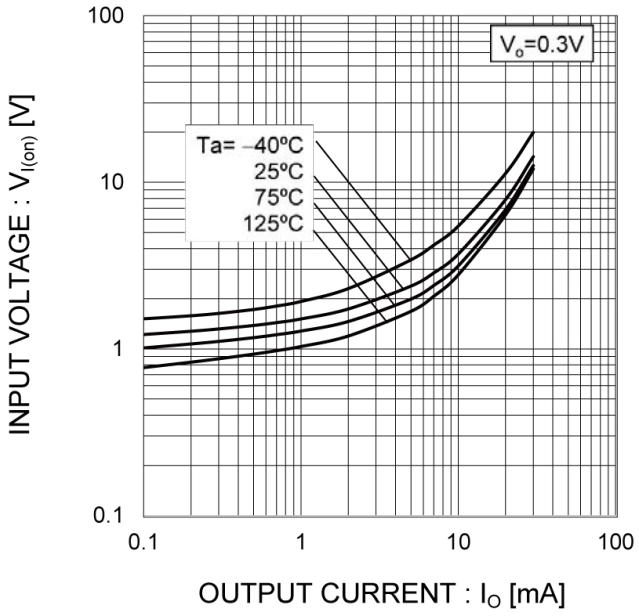


Fig.2 Output current vs. input voltage (OFF characteristics)

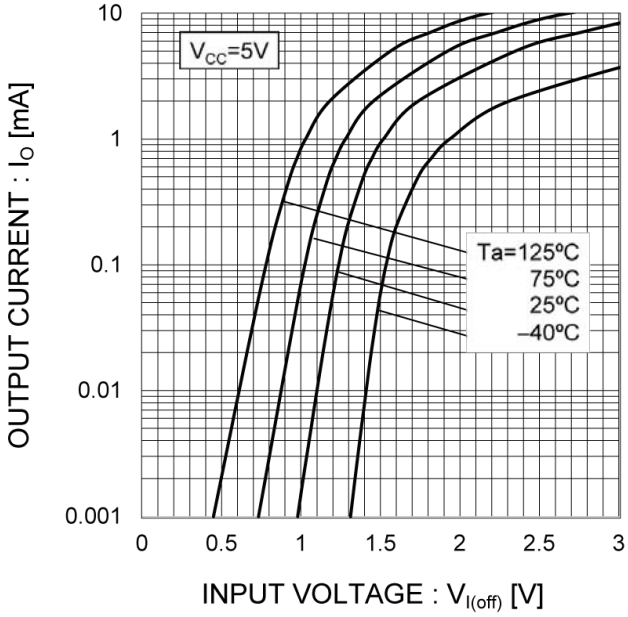


Fig.3 Output current vs. output voltage

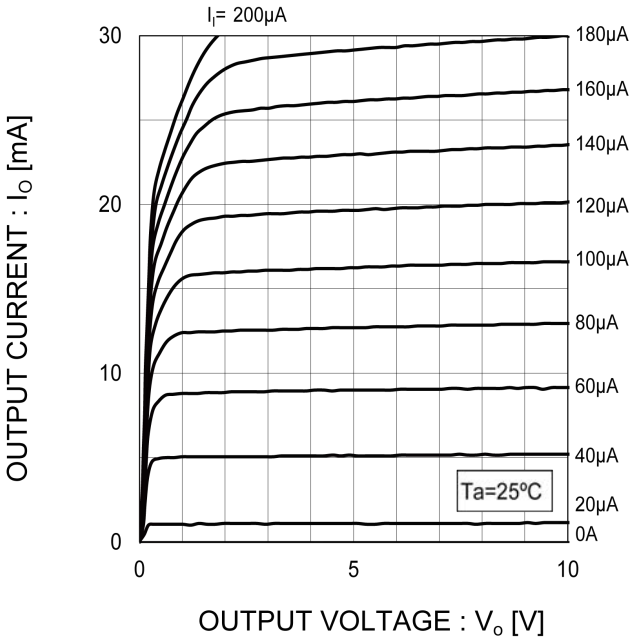
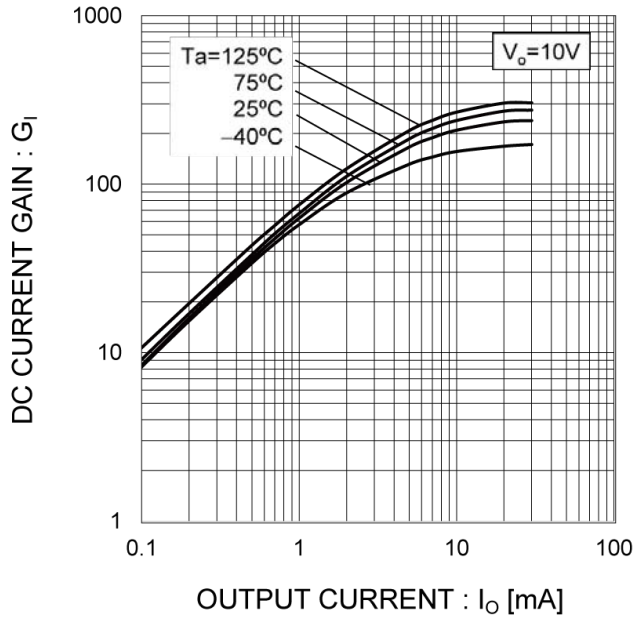
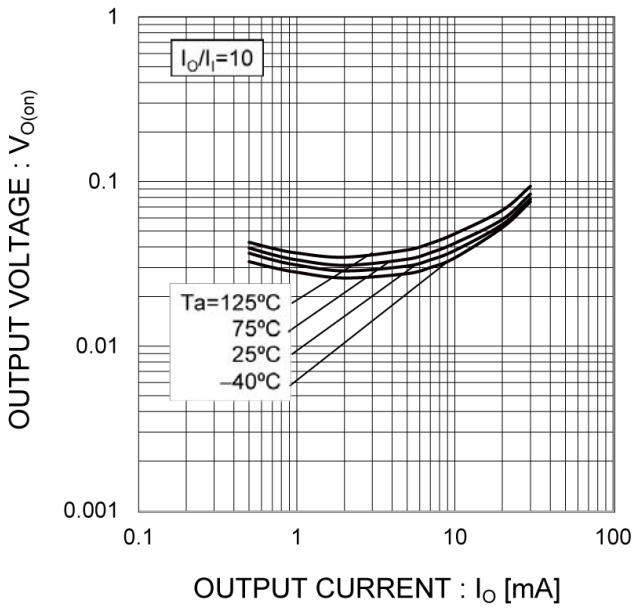


Fig.4 DC current gain vs. output current



●Electrical characteristic curves(T_a=25°C) <For DTr1(NPN)>

Fig.5 Output voltage vs. output current



●Electrical characteristic curves(T_a=25°C) <For DTr2(PNP)>

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

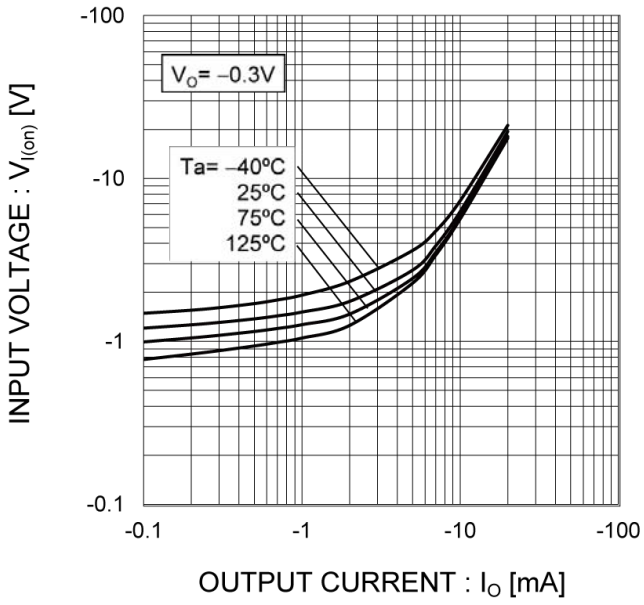


Fig.2 Output current vs. input voltage (OFF characteristics)

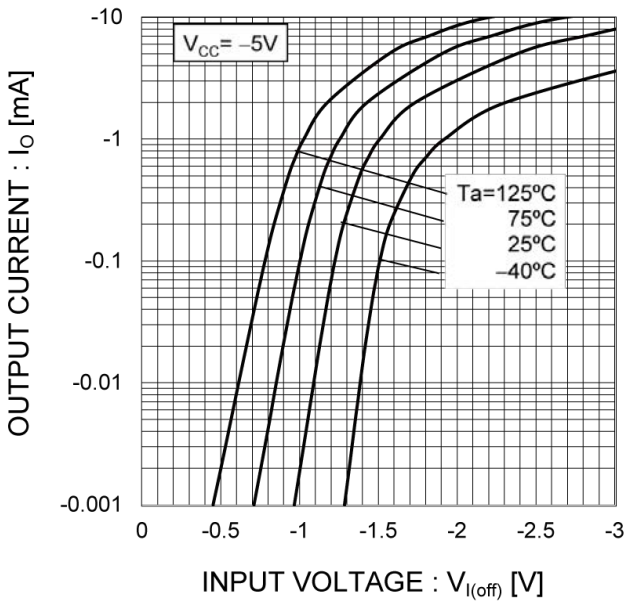


Fig.3 Output current vs. output voltage

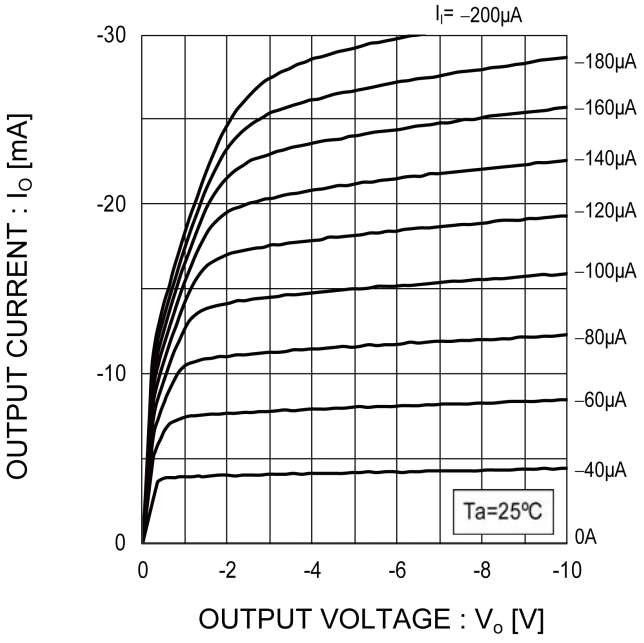
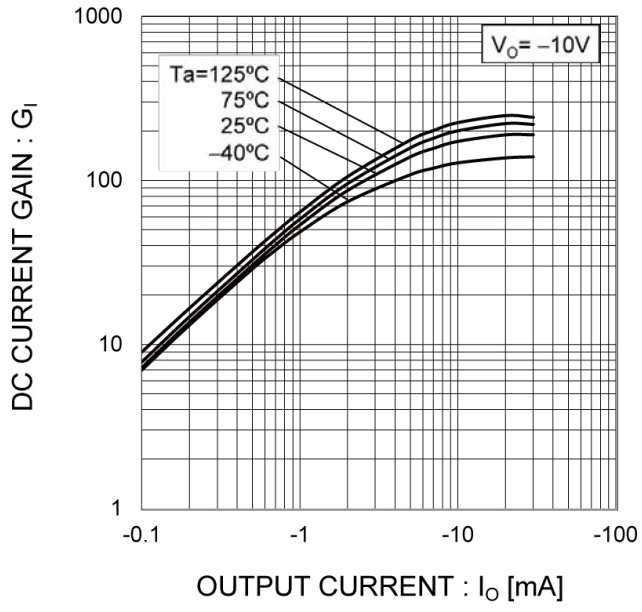
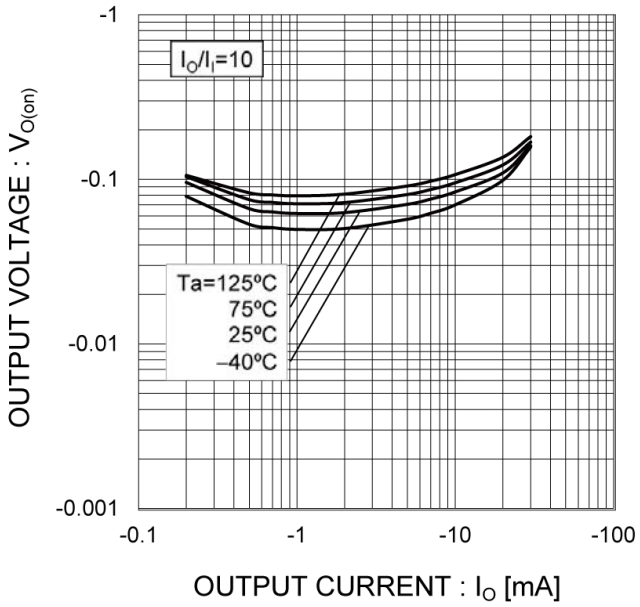


Fig.4 DC current gain vs. output current



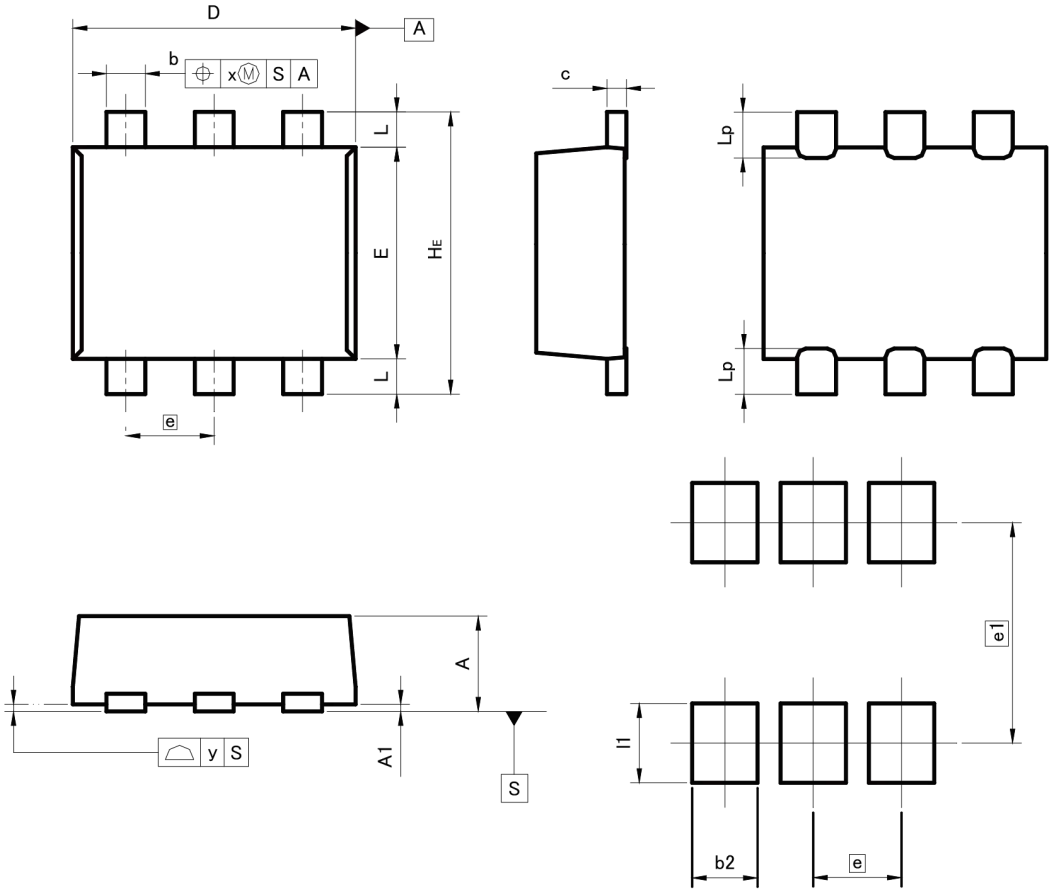
●Electrical characteristic curves(T_a=25°C) <For DTr2(PNP)>

Fig.5 Output voltage vs. output current



●Dimensions

EMT6



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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