EMB6 / UMB6N

PNP -100mA -50V Complex Digital Transistors (Bias Resistor Built-in Transistors) Datasheet

Parameter	Tr1 and Tr2
V _{CC}	-50V
I _{C(MAX.)}	-100mA
R ₁	47kΩ
R_2	47kΩ

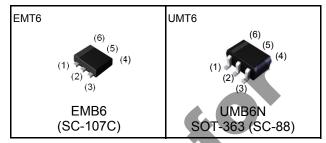
Features

- 1) Built-In Biasing Resistors, $R_1 = R_2 = 47k\Omega$.
- 2) Two DTA144E chips in one package.
- 3) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit).
- 4) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of completely eliminating parasitic effects.
- 5) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 6) Lead Free/RoHS Compliant.

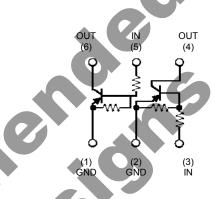
Application

Inverter circuit, Interface circuit, Driver circuit

Outline



•Inner circuit



Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
EMB6	EMT6	1616	T2R	180	8	8,000	B6
UMB6N	UMT6	2021	TN	180	8	3,000	B6

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<For Tr1 and Tr2 in common>

Parameter	Symbol	Values	Unit
Supply voltage	V _{CC}	– 50	V
Input voltage	V _{IN}	-40 to +10	V
Output current	Io	-30	mA
Collector current	I _{C(MAX.)} *1	-100	mA
Power dissipation	P _D *2	150 (Total)*3	mW
Junction temperature	T _j	150	°C
Range of storage temperature	T _{stg}	–55 to +150	°C

●Electrical characteristics(Ta = 25°C)

<For Tr1 and Tr2 in common>

Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit
Input voltage	$V_{I(off)}$	$V_{CC} = -5V$, $I_0 = -100 \mu A$	-	-	-0.5	V
input voitage	$V_{I(on)}$	$V_0 = -0.3V$, $I_0 = -2mA$	-3.0	-	ı	V
Output voltage	$V_{O(on)}$	$I_0/I_1 = -10 \text{mA} / -0.5 \text{mA}$)	-0.1	-0.3	V
Input current	I _I	V₁ = -5V	1	ı	-0.18	mA
Output current	I _{O(off)}	$V_{CC} = -50V, V_1 = 0V$	-	ı	-0.5	μА
DC current gain	Gi	$V_0 = -5V, I_0 = -5mA$	68	ı	I	-
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

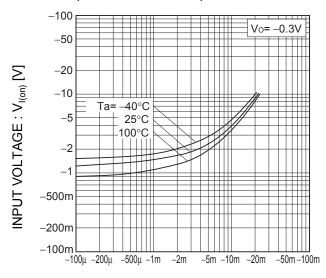


^{*2} Each terminal mounted on a reference footprint

^{*3 120}mW per element must not be exceeded.

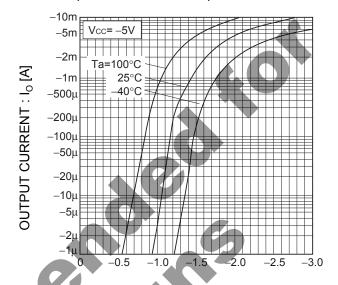
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Fig.1 Input voltage vs. output current (ON characteristics)



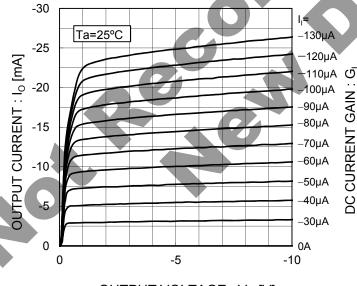
OUTPUT CURRENT : I_O [A]

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



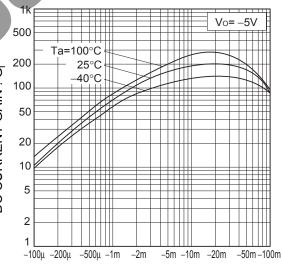
INPUT VOLTAGE: V_{I(off)}[V]

Fig.3 Output current vs. output voltage



OUTPUT VOLTAGE: Vo [V]

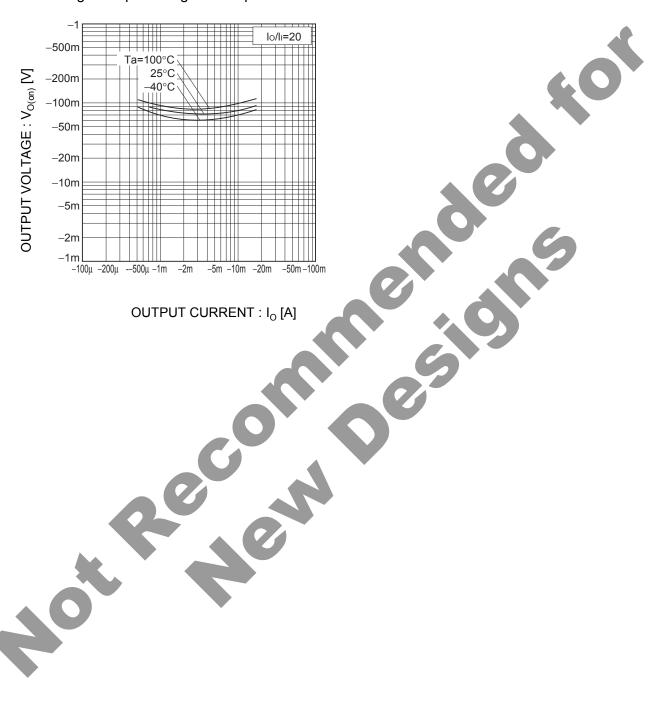
Fig.4 DC current gain vs. output current



OUTPUT CURRENT : Io [A]

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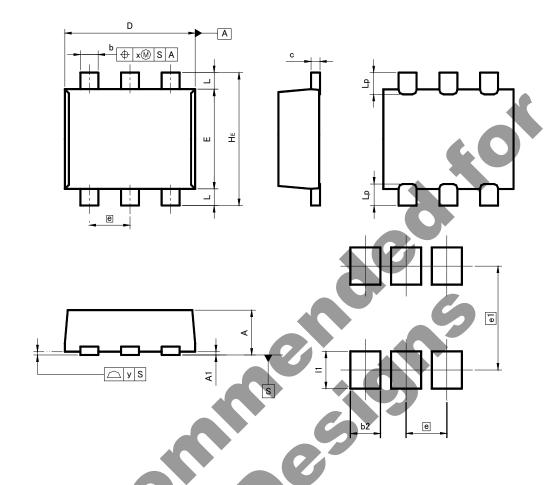
Fig.5 Output voltage vs. output current



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EMT6



Patterm of terminal position areas

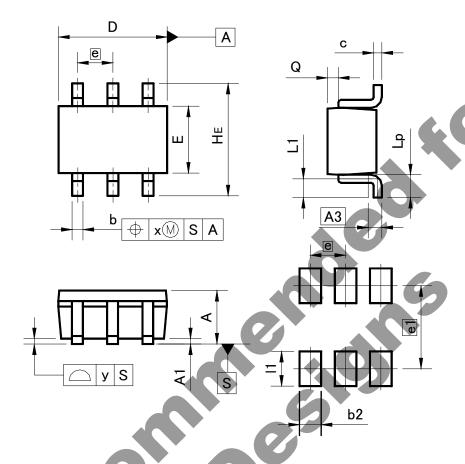
DIM	MILIMETERS		INCHES	
DIW	MIN	MAX	MIN	MAX
_A1	0.00	0.10	0	0.004
A	0.45	0.55	0.018	0.022
b	0.17	0.27	0.007	0.011
С	0.08	0.18	0.003	0.007
D	1.50	1.70	0.059	0.067
E	1.10	1.30	0.043	0.051
е	0.	50	0.02	
HE	1.50	1.70	0.059	0.067
L	0.10	0.30	0.004	0.012
Lp	_	0.35	_	0.014
х	_	0.10	_	0.004
У	_	0.10	_	0.004

DIM	MILIMETERS		INCHES	
DIM	MIN MAX		MIN	MAX
e1	1.25		0.049	
b2	-	0.37	ı	0.015
l1	_	0.45	_	0.018

Dimension in mm/inches

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UMT6



Patterm of terminal position areas

DIM	MILIMETERS		INC	HES
DIM	MIN	MAX	MIN	MAX
Α	0.80	1.00	ı	0.039
A1	0.00	0.10	0	0.004
A3	0.2	25	0.0	01
b	0.15	0.30	0.006	0.012
С	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
е	0.65		0.03	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.02
Lp	0.25	0.55	0.01	0.022
Q	0.10	0.30	0.004	0.012
х	_	0.10	_	0.004
у	_	0.10	-	0.004

DIM	MILIMETERS		INCHES	
DIM MIN		MAX	MIN	MAX
e1	1.55		0.06	
b2	- 0.40		ı	0.016
11	- 0.65		-	0.026

Dimension in mm/inches

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