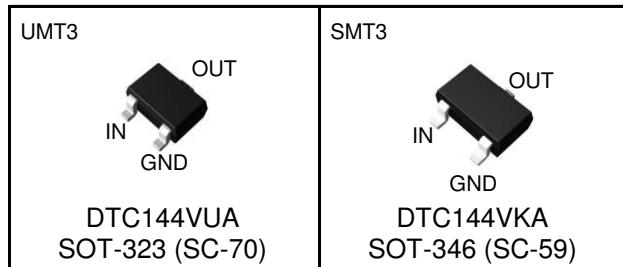


Parameter	Value
V_{CC}	50V
$I_{C(MAX.)}$	100mA
R_1	47k Ω
R_2	10k Ω

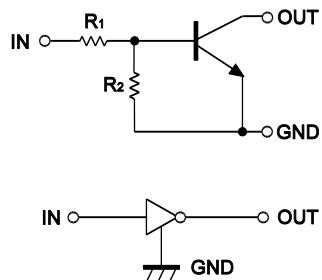
●Outline



●Features

- 1) Built-In Biasing Resistors
- 2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit).
- 3) 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.
- 4) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 5) Complementary PNP Types :DTA144V series
- 6) Lead Free/RoHS Compliant.

●Inner circuit



●Application

Switching circuit, Inverter circuit, Interface circuit, Driver circuit

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
DTC144VUA	UMT3	2021	T106	180	8	3,000	166
DTC144VKA	SMT3	2928	T146	180	8	3,000	E66

● Absolute maximum ratings (Ta = 25 °C)

Parameter	Symbol	Values	Unit
Supply voltage	V _{CC}	50	V
Input voltage	V _{IN}	-10 to +40	V
Output current	I _O	30	mA
Collector current	I _{C(MAX.)} ^{*1}	100	mA
Power dissipation	P _D ^{*2}	200	mW
Junction temperature	T _j	150	°C
Range of storage temperature	T _{stg}	-55 to +150	°C

● Electrical characteristics(Ta = 25 °C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input voltage	V _{I(off)}	V _{CC} = 5V, I _O = 100µA	-	-	1	V
	V _{I(on)}	V _O = 0.3V, I _O = 2mA	6	-	-	
Output voltage	V _{O(on)}	I _O / I _I = 10mA / 0.5mA	-	0.1	0.3	V
Input current	I _I	V _I = 5V	-	-	0.16	mA
Output current	I _{O(off)}	V _{CC} = 50V, V _I = 0V	-	-	0.5	µA
DC current gain	G _I	V _O = 5V, I _O = 5mA	33	-	-	-
Input resistance	R _I	-	32.9	47	61.1	kΩ
Resistance ratio	R ₂ /R ₁	-	0.17	0.21	0.26	-
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

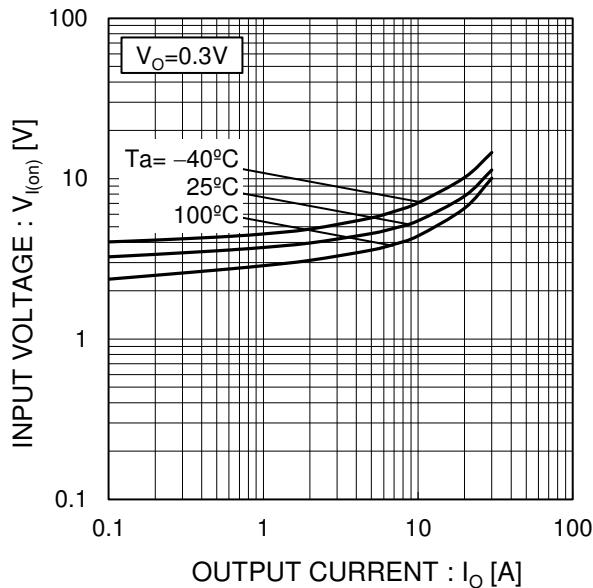
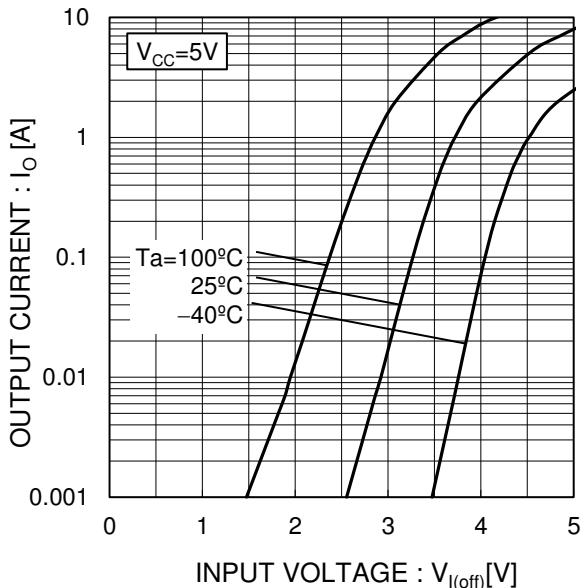
●Electrical characteristic curves($T_a = 25^\circ\text{C}$)Fig.1 Input voltage vs. output current
(ON characteristics)Fig.2 Output current vs. input voltage
(OFF characteristics)

Fig.3 Output current vs. output voltage

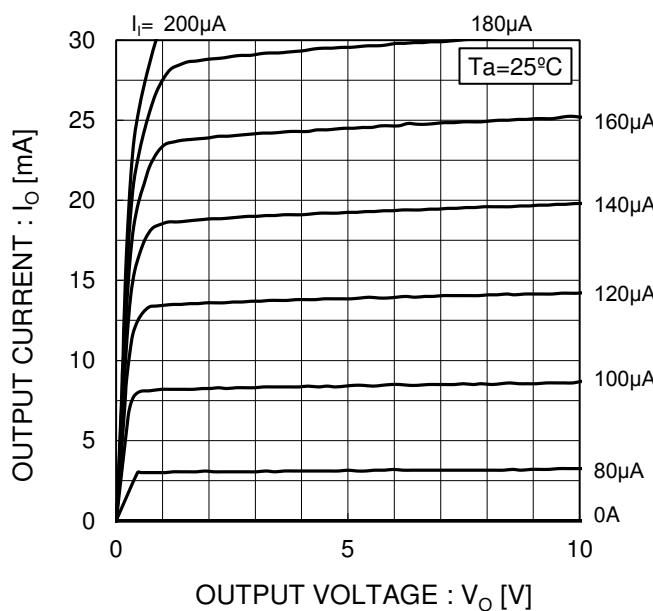
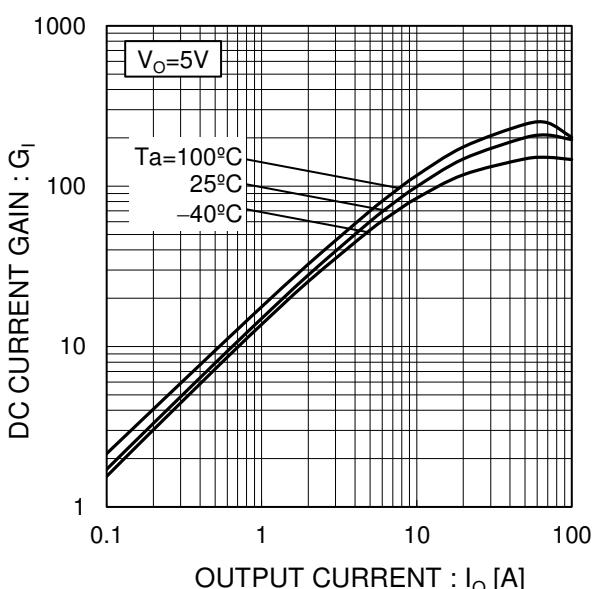
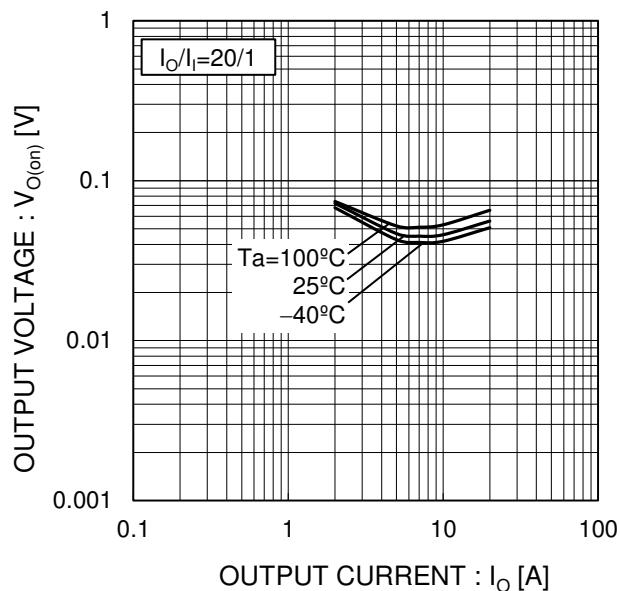


Fig.4 DC current gain vs. output current



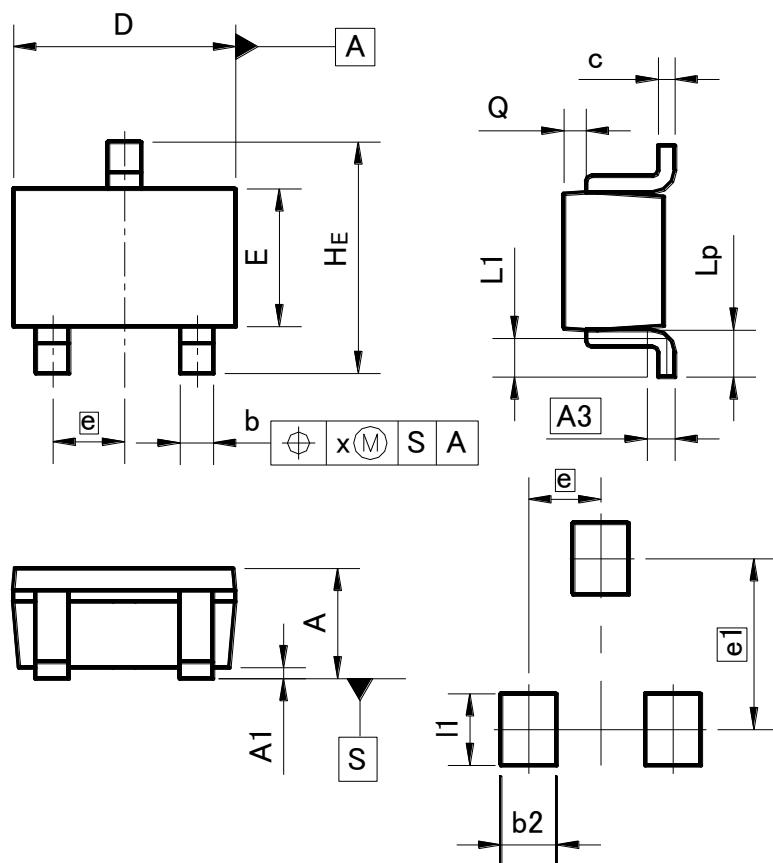
●Electrical characteristic curves(Ta = 25 °C)

Fig.5 Output voltage vs. output current



●Dimensions (Unit : mm)

UMT3

Pattern of terminal position areas

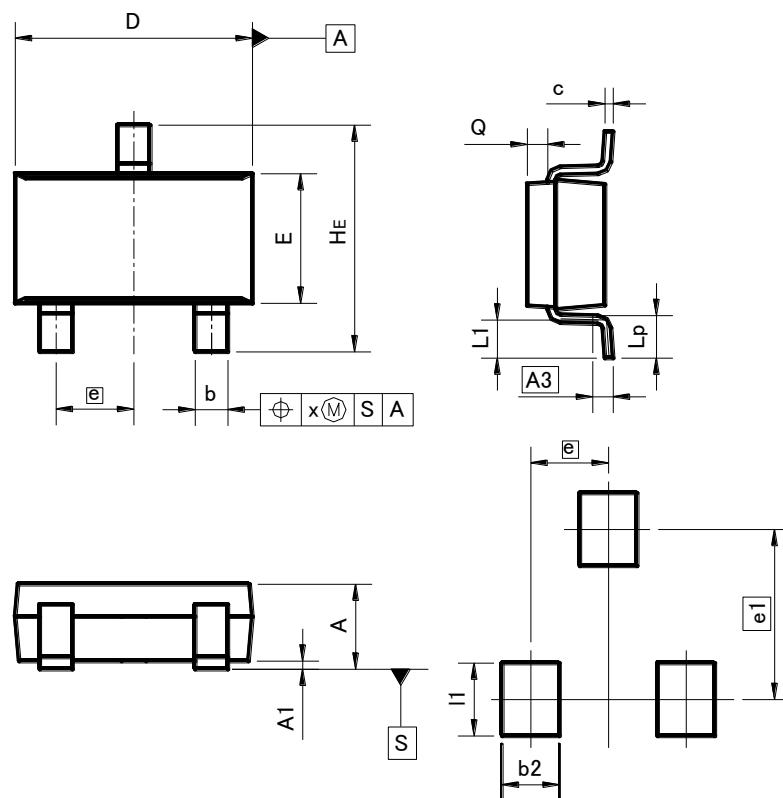
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0	0.004
A3	0.25		0.01	
b	0.15	0.30	0.006	0.012
c	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.03	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.02
Lp	0.25	0.55	0.01	0.022
Q	0.10	0.30	0.004	0.012
x	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
e1	1.55		0.06	
b2	—	0.50	—	0.02
I1	—	0.65	—	0.026

Dimension in mm/inches

●Dimensions (Unit : mm)

SMT3



Pattern of terminal position areas

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.30	—	0.051
A1	0.00	0.10	0	0.004
A3	0.25		0.01	
b	0.35	0.50	0.014	0.02
c	0.09	0.25	0.004	0.01
D	2.80	3.00	0.11	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.04	
H_E	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	—	0.10	—	0.004
y	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
e1	2.10		0.08	
b2	0.60		—	0.024
l1	—	0.90	—	0.035

Dimension in mm/inches

Notes

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