Datasheet

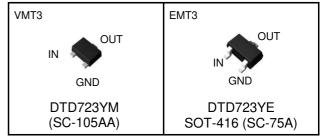


DTD723Y series

NPN 200mA 30V Digital Transistors (Bias Resistor Built-in Transistors)

Parameter	Value
V _{CC}	30V
I _{C(MAX.)}	200mA
R ₁	2.2kΩ
R_2	10kΩ

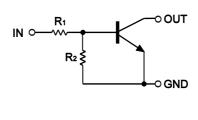
Outline

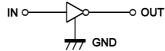


Features

- 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 :DTB723Y 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
DTD723YM	VMT3	1212	T2L	180	8	8,000	M62
DTD723YE	EMT3	1616	TL	180	8	3,000	M62

● **Absolute maximum ratings** (Ta = 25°C)

Parameter	Symbol	Values	Unit
Supply voltage	V _{CC}	30	V
Input voltage	V _{IN}	−5 to +15	V
Collector current	I _{C(MAX.)} *1	200	mA
Power dissipation	P_{D}^{*2}	150	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.	Тур.	Max.	Unit	
Input voltage	$V_{I(off)}$	$V_{CC} = 5V, I_{O} = 100 \mu A$	-	-	0.3	V	
	$V_{I(on)}$	$V_O = 0.3V, I_O = 20mA$	2.5	-	-	V	
Output voltage	$V_{O(on)}$	$I_0 / I_1 = 50 \text{mA} / 2.5 \text{mA}$	-	0.07	0.3	V	
Input current	I _I	$V_1 = 5V$	-	-	3	mA	
Output current	I _{O(off)}	$V_{CC} = 30V, V_I = 0V$	-	-	0.5	μΑ	
DC current gain	G _I	$V_O = 2V, I_O = 100 \text{mA}$	140	-	-	-	
Input resistance	R ₁	-	1.54	2.2	2.86	kΩ	
Resistance ratio	R ₂ /R ₁	-	3.6	4.5	5.5	-	
Transition frequency	f _T *1	$V_{CE} = 10V, I_{E} = -5mA,$ f = 100MHz	1	260	1	MHz	

^{*1} Characteristics of built-in transistor

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

●Electrical characteristic curves(Ta = 25°C)

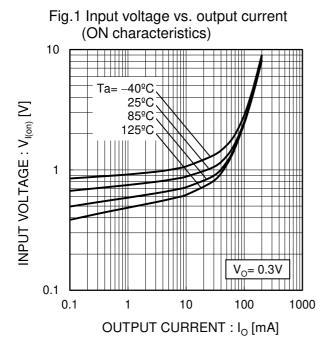


Fig.2 Output current vs. input voltage (OFF characteristics) 100 $V_{CC} = 5V$ OUTPUT CURRENT : I_o [mA] 10 Ta= 125ºC 85ºC 25ºC -40ºC 0.1 0.5 2 INPUT VOLTAGE : $V_{I(off)}[V]$

Fig.3 Output current vs. output voltage

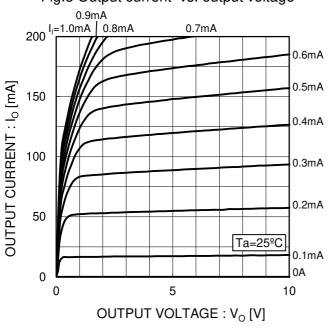
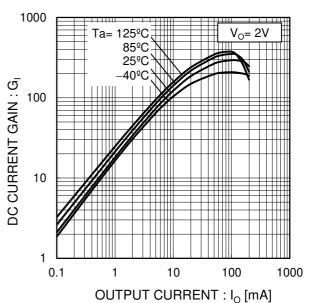
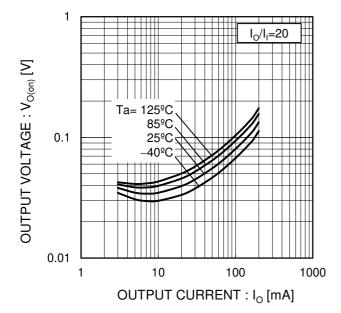


Fig.4 DC current gain vs. output current

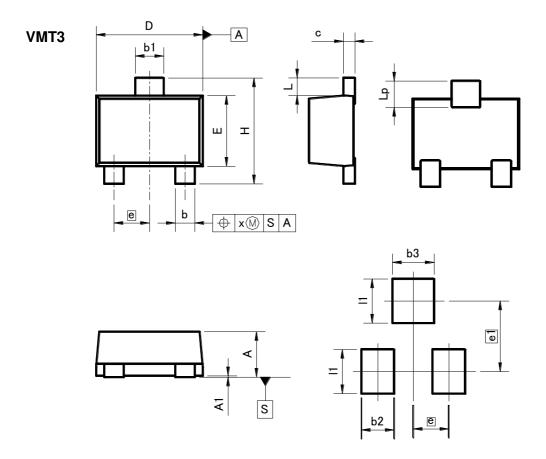


●Electrical characteristic curves(Ta = 25°C)

Fig.5 Output voltage vs. output current



●Dimensions (Unit:mm)



Patterm of terminal position areas

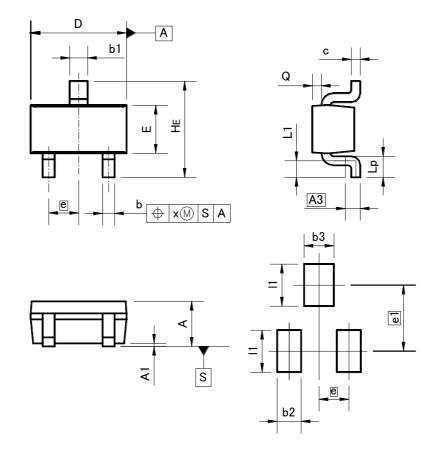
DIM	MILIM	ETERS	INCHES		
DIM	MIN	MAX	MIN	MAX	
Α	0.45	0.55	0.018	0.022	
A1	0.00	0.10	0	0.004	
b	0.17	0.27	0.007	0.011	
b1	0.27	0.37	0.011	0.015	
С	0.08	0.18	0.003	0.007	
D	1.10	1.30	0.043	0.051	
Е	0.70	0.90	0.028	0.035	
е	0.4	40	0.0	02	
HE	1.10	1.30	0.043	0.051	
L	0.10	0.30	0.004		
Lp	0.20	0.40	0.008	-	
x	_	0.10	_	0.004	

DIM	MILIMETERS		INCHES		
DIM	MIN	MAX	MIN	MAX	
e1	0.80		0.03		
b2	- 0.37		ı	0.015	
b3	_	0.47	-	0.019	
11	_	0.50	-	0.02	

Dimension in mm/inches

●Dimensions (Unit:mm)





Patterm of terminal position areas

DIM	MILIMETERS		INCHES		
DIM	MIN	MAX	MIN	MAX	
Α	0.60	0.80	0.024	0.031	
A1	0.00	0.10	0	0.004	
A3	0.3	25	0.0	01	
b	0.15	0.30	0.006	0.012	
b1	0.25	0.40	0.01	0.016	
С	0.10	0.20	0.004	0.008	
D	1.50	1.70	0.059	0.067	
E	0.70	0.90	0.028	0.035	
е	0.50		0.0	02	
HE	1.40	1.80	0.055	0.071	
L1	0.10	ı	0.004	-	
Lp	0.15		0.006		
Q	0.05	0.25	0.002	0.01	
Х	_	0.10	_	0.004	

DIM -	MILIMETERS		INCHES		
	MIN	MAX	MIN	MAX	
e1	1.10		0.04		
b2	-	0.40	-	0.016	
b3	-	0.50	-	0.02	
11	_	0.70	_	0.028	

Dimension in mm/inches

Notes

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