-200mA / -30V Low V_{CE} (sat) Digital transistors (with built-in resistors)

DTB723YE / DTB723YM

●Applications
Inverter, Interface, Driver

●Feature
1) V_{CE} (sat) is lower than conventional products.
2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
3) The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
4) Only the on / off conditions need to be set for operation, making the device design easy.

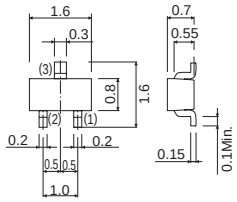
●Structure
PNP epitaxial plannar silicon transistor
(Resistor built-in type)

●Packaging specifications

Part No.	Package	EMT3	VMT3
	Packaging type	Taping	Taping
	Code	TL	T2L
	Basic ordering unit (pieces)	3000	8000
DTB723YE		○	–
DTB723YM		–	○

●Dimensions (Unit : mm)

DTB723YE



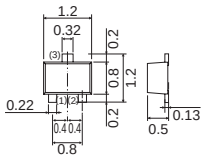
(1) GND
(2) IN
(3) OUT

EMT3
JEITA No. (SC-75A)
JEDEC No. <SOT-416>

Each lead has same dimensions

Abbreviated symbol : M52

DTB723YM



(1) IN
(2) GND
(3) OUT

VMT3

Each lead has same dimensions

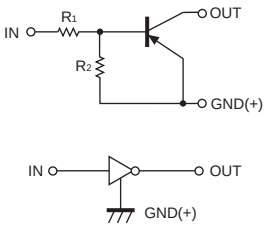
Abbreviated symbol : M52

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits		Unit
		DTB723YE	DTB723YM	
Supply voltage	V_{CC}	−30		V
Input voltage	V_{IN}	−15 to +5		V
Collector current ※1	$I_{C\ (max)}$	−200		mA
Power dissipation ※2	P_D	150		mW
Junction temperature	Tj	150		℃
Storage temperature	Tstg	−55 to +150		℃

※1 Characteristics of built-in transistor.
※2 Each terminal mounted on a recommended land.

●Inner circuit



R_1=2.2kΩ / R_2=10kΩ

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	–0.3	V	V_{CC}= –5V, I_O= –100μA
	$V_{I(on)}$	–2.5	–	–		V_O= –0.3V, I_O= –20mA
Output voltage	$V_{O(on)}$	–	–70	–300	mV	I_O/I_I= –50mA / –2.5mA
Input current	I_I	–	–	–3.0	mA	V_I= –5V
Output current	$I_{O(off)}$	–	–	–500	nA	V_{CC}= –30V, V_I=0V
DC current gain	G_I	140	–	–	–	V_O= –2V, I_O= –100mA
Transition frequency *	f_T	–	260	–	MHz	V_{CE}= –10V, I_E=5mA, f=100MHz
Input resistance	R_1	1.54	2.2	2.86	kΩ	–
Resistance ratio	R_2/R_1	3.6	4.5	5.5	–	–

* Characteristics of built-in transistor.

●Electrical characteristic curves

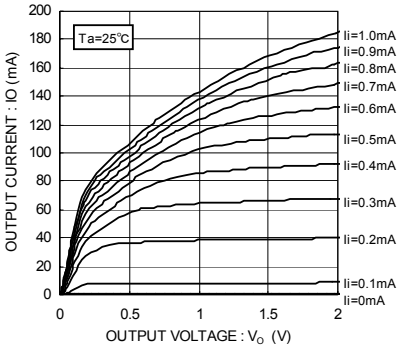


Fig.1 Output Current vs. Output Voltage

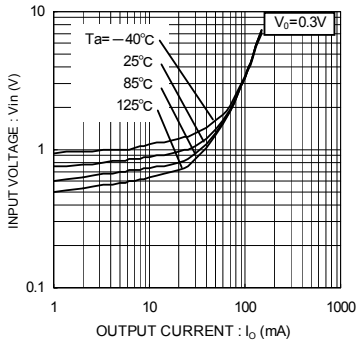


Fig.2 Input Voltage vs. Output Current

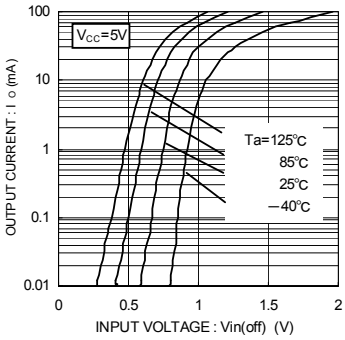


Fig.3 Output Current vs. Input Voltage

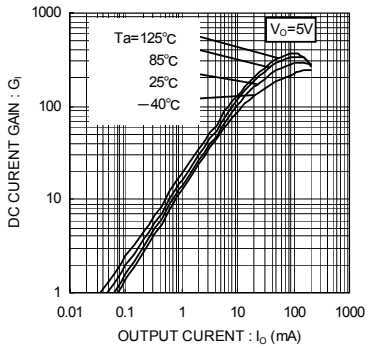


Fig.4 DC Current Gain vs. Output Current

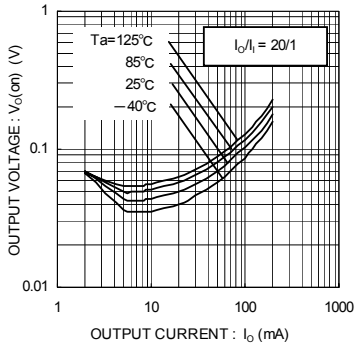


Fig.5 Output Voltage vs. Output Current

Notes

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