Data Sheet

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

DTB743EE / DTB743EM

●Applications
Inverter, Interface, Driver

●Feature
1. $V_{CE\ (sat)}$ is lower than the 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.

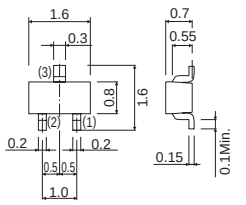
●Structure
PNP epitaxial plannar silicon transistor
(Resistor built-in type)

●Packaging specifications

Part No.	Package	EMT3	VMT3
	Packaging type	Taping	Taping
	Code	TL	T2L
	Basic ordering unit (pieces)	3000	8000
DTB743EE		○	–
DTB743EM		–	○

●Dimensions (Unit : mm)

DTB743EE



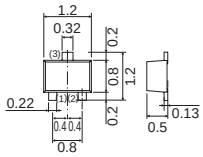
EMT3
JEITA No. (SC-75A)
JEDEC No. <SOT-416>

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

Each lead has same dimensions

Abbreviated symbol : M13

DTB743EM



VMT3

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

Each lead has same dimensions

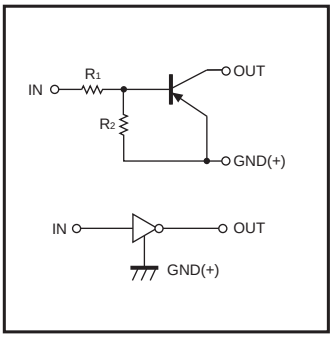
Abbreviated symbol : M13

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits		Unit
		DTB743EE	DTB743EM	
Supply voltage	V_{CC}	−30		V
Input voltage	V_{IN}	−20 to +10		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=4.7kΩ / R_2=4.7kΩ

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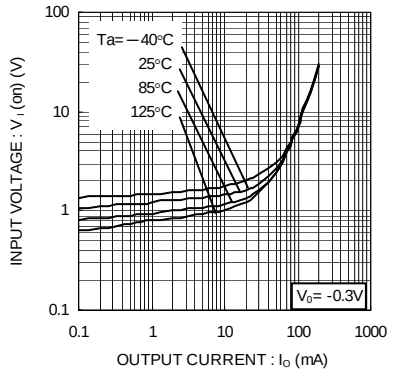
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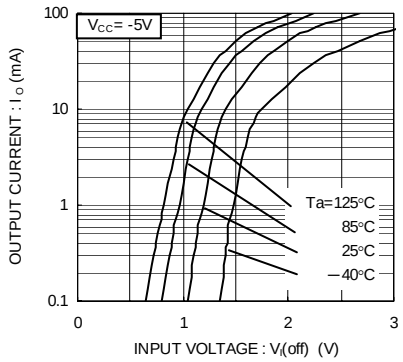
●Electrical characteristics (Ta=25°C)

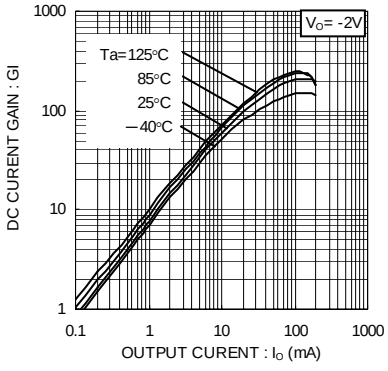
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	–0.5	V	V_{CC}= –5V, I_O= –100μA
	$V_{I(on)}$	–2.5	–	–		V_O= –0.3V, I_O= –20mA
Output voltage	$V_{O(on)}$	–	–70	–300	mV	I_O/I_I= –50mA / –2.5mA
Input current	I_I	–	–	–1.4	mA	V_I= –5V
Output current	$I_{O(off)}$	–	–	–500	nA	V_{CC}= –30V, V_I=0V
DC current gain	G_I	115	–	–	–	V_O= –2V, I_O= –100mA
Transition frequency *	f_T	–	260	–	MHz	V_{CE}= –10V, I_E=5mA, f=100MHz
Input resistance	R_1	3.29	4.7	6.11	kΩ	–
Resistance ratio	R_2/R_1	0.8	1.0	1.2	–	–

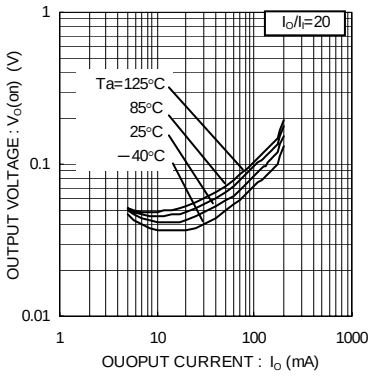
* Characteristics of built-in transistor.

●Electrical characteristics curves









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