

-100mA / -50V Digital transistors (with built-in resistors)

DTA143TEB

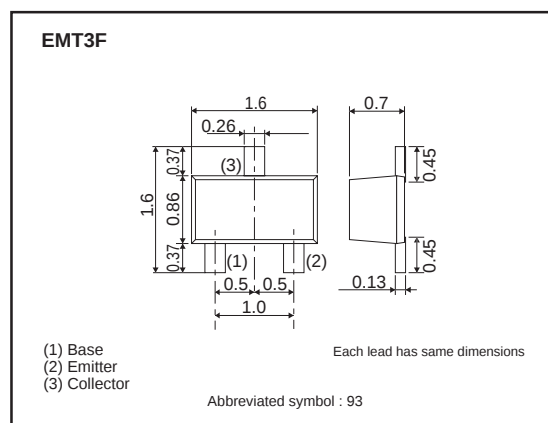
●Applications

Inverter, Interface, Driver

●Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- 3) Only the on/off conditions need to be set for operation, making the device design easy.

●Dimensions (Unit : mm)



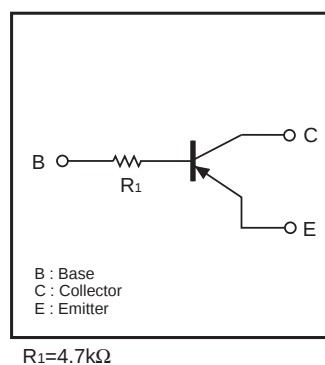
●Structure

PNP silicon epitaxial planar transistor type
(Resistor built-in)

●Packaging specifications

Part No.	Package	EMT3F
	Packaging type	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
DTA143TEB		○

●Equivalent circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base voltage	V_{CBO}	-50	V
Collector-Emitter voltage	V_{CEO}	-50	V
Emitter-Base voltage	V_{EBO}	-5	V
Collector current	I_C	-100	mA
Power dissipation	P_D *1	150	mW
Junction temperature	T_j	150	°C
Range of Storage temperature	T_{stg}	-55 to +150	°C

*1 Each terminal mounted on a recommended land

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	-50	-	-	V	$I_C = -1\text{mA}$
Collector-base breakdown voltage	BV_{CBO}	-50	-	-	V	$I_C = -50\mu\text{A}$
Emitter-base breakdown voltage	BV_{EBO}	-5	-	-	V	$I_E = -50\mu\text{A}$
Collector cut-off current	I_{CBO}	-	-	-500	nA	$V_{CB} = -50\text{V}$
Emitter cut-off current	I_{EBO}	-	-	-500	nA	$V_{EB} = -4\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	-0.3	V	$I_C/I_B = -5\text{mA}/-0.25\text{mA}$
DC current transfer ratio	h_{FE}	100	250	600	-	$I_C = -1\text{mA}$, $V_{CE} = -5\text{V}$
Transition frequency	f_T *	-	250	-	MHz	$V_{CE} = -10\text{V}$, $I_E = 5\text{mA}$, $f = 100\text{MHz}$
Input resistance	R	3.29	4.7	6.11	k Ω	-

* Characteristics of built-in transistor

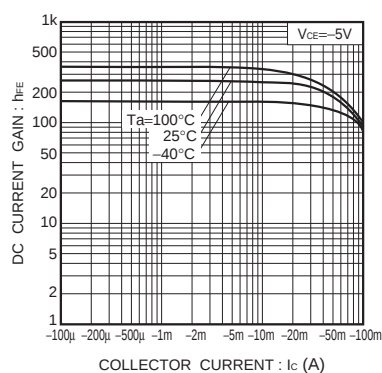
●Electrical characteristic curves


Fig.1 DC current gain vs. collector current

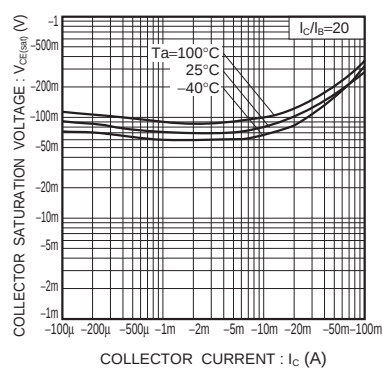


Fig.2 Collector-emitter saturation voltage vs. collector current

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