

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

DTA044TM / DTA044TEB / DTA044TUB

●Features

- 1) Built-in input resistor enables the direct control of base terminal by input voltage without external resistor.
(See Inner circuit)
- 2) 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.
- 3) Only the on/off conditions need to be set for operation, making the device design easy.

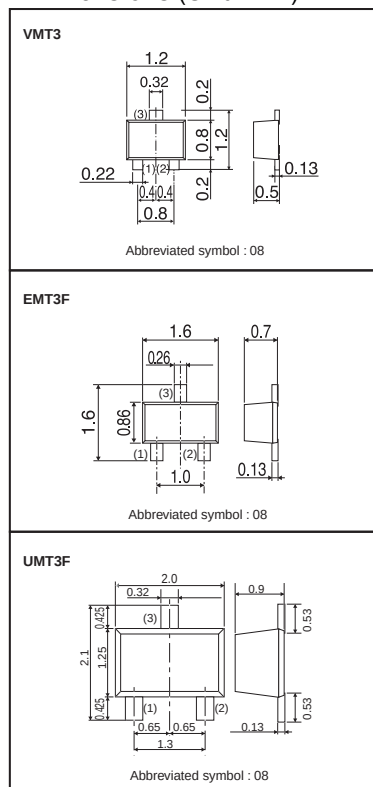
●Structure

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

●Applications

Inverter, Interface, Driver

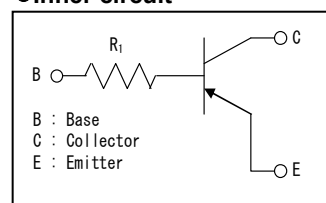
●Dimensions (Unit : mm)



●Packaging specifications

Type	Package	VMT3	EMT3F	UMT3F
	Packaging Type	Taping	Taping	Taping
	Code	T2L	TL	TL
	Basic ordering unit (pieces)	8000	3000	3000
DTA044TM		○	-	-
DTA044TEB		-	○	-
DTA044TUB		-	-	○

●Inner circuit



$$R_1 = 47k\Omega$$

●Absolute maximum (Ta=25°C)

Parameter	Symbol	Limits(DTA044T□)			Unit
		M	EB	UB	
Collector-base voltage	V_{CBO}	-50			V
Collector-emitter voltage	V_{CEO}	-50			V
Emitter-base voltage	V_{EBO}	-5			mV
Collector current	$I_{C(max)}$	-60			mA
Power dissipation *1	P_D	150		200	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	Test Conditions
Collector-base breakdown voltage	BV_{CBO}	-50	-	-	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	-50	-	-	V	$I_C=1mA$
Emitter-base breakdown voltage	BV_{EBO}	-5	-	-	V	$I_E=50\mu A$
Collector cutoff current	I_{CBO}	-	-	-500	nA	$V_{CB}=-50V$
Emitter cutoff current	I_{EBO}	-	-	-500	nA	$V_{EB}=-4V$
DC current transfer ratio	h_{FE}	-	-0.07	-0.15	V	$I_C=-5mA / I_B=-0.5mA$
Collector-emitter saturation voltage	$V_{CE(sat)}$	100	-	600	-	$V_{CE}=-10V / I_C=-5mA$
Transition frequency	f_r	-	250	-	MHz	$V_{CE}=-10V / I_E=5mA$ $f=100MHz$
Output capacitance	C_{ob}	32.9	47	61.1	k Ω	

●Electrical characteristics curves

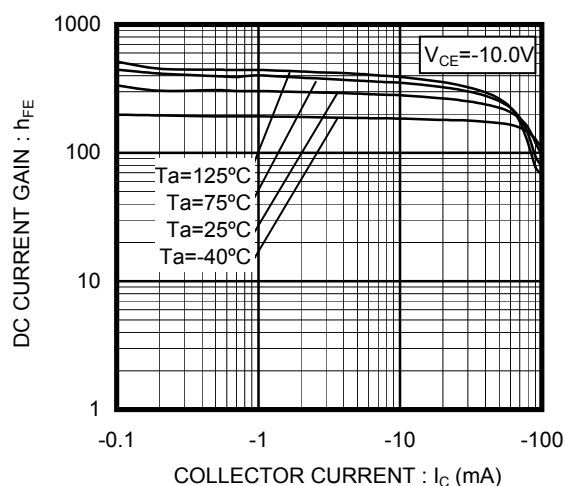


Fig.1 DC Current Gain vs. Collector Current

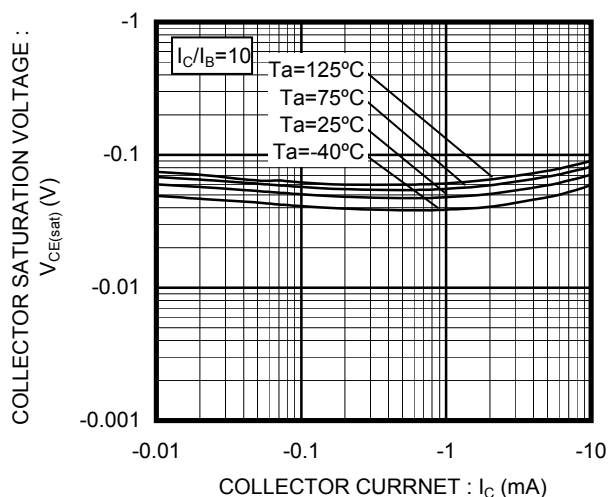


Fig.2 Collector Saturation Voltage vs. Collector Current

Notes

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