Digital transistors (built in resistor)

DTA144TE / DTA144TUA / DTA144TKA / DTA144TCA / DTA144TSA

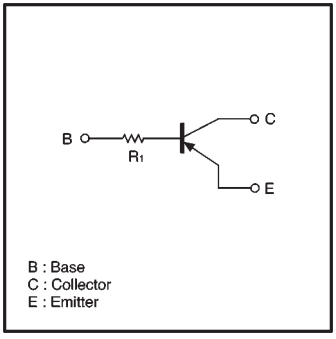
●Features

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 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 device design easy.

●Structure

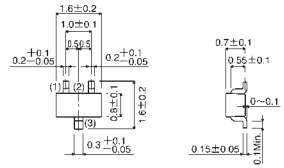
PNP digital transistor
(Built-in resistor type)

●Equivalent circuit



●External dimensions (Units: mm)

DTA144TE

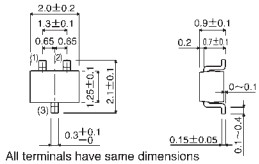


ROHM : EMT3

Addreviated symbol : 96

(1) Emitter
(2) Base
(3) Collector

DTA144TUA



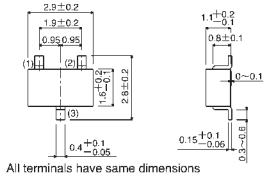
ROHM : UMT3
EIAJ : SC-70

All terminals have same dimensions

Addreviated symbol : 96

(1) Emitter
(2) Base
(3) Collector

DTA144TKA



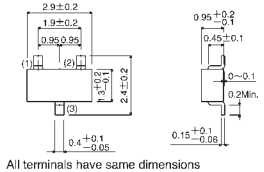
ROHM : SMT3
EIAJ : SC-59

All terminals have same dimensions

Addreviated symbol : 96

(1) Emitter
(2) Base
(3) Collector

DTA144TCA



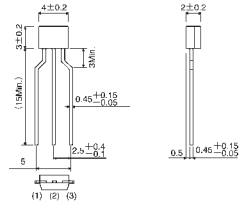
ROHM : SST3

All terminals have same dimensions

Addreviated symbol : 96

(1) Emitter
(2) Base
(3) Collector

DTA144TSA



ROHM : SPT
EIAJ : SC-72

(1) Emitter
(2) Collector
(3) Base

(96-283-A144T)

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits(DTA144T□)					Unit
		E	UA	KA	CA	SA	
Collector-base voltage	V_{CBO}	−50					V
Collector-emitter voltage	V_{CEO}	−50					V
Emitter-base voltage	V_{EBO}	−5					
Collector current	I_C	−100					mA
Collector power dissipation	P_C	150	200		300	300	mW
Junction temperature	Tj	150					℃
Storage temperature	Tstg	−55~+150					℃

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−50	—	—	V	I_C=−50 μA
Collector-emitter breakdown voltage	BV_{CEO}	−50	—	—	V	I_C=−1mA
Emitter-base breakdown voltage	BV_{EBO}	−5	—	—	V	I_E=−50 μA
Collector cutoff current	I_{CBO}	—	—	−0.5	μA	V_{CB}=−50V
Emitter cutoff current	I_{EBO}	—	—	−0.5	μA	V_{EB}=−4V
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	−0.3	V	I_C/I_B=−5mA/−0.5mA
DC current transfer ratio	h_{FE}	100	250	600	—	V_{CE}=−5V, I_C=−1mA
Input resistance	R_1	32.9	47	61.1	kΩ	—
Transition frequency	fT	—	250	—	MHz	V_{CE}=−10V, I_E=5mA, f=100MHz ✻

✻ Transition frequency of the device

●Packaging specifications

Part No.	Package	EMT3	UMT3	SMT3	SST3	SPT
	Packaging type	Taping	Taping	Taping	Taping	Taping
	Code	TL	T106	T146	T116	TP
	Basic ordering unit (pieces)	3000	3000	3000	3000	5000
DTA144TE		○	—	—	—	—
DTA144TUA		—	○	—	—	—
DTA144TKA		—	—	○	—	—
DTA144TCA		—	—	—	○	—
DTA144TSA		—	—	—	—	○

●Electrical characteristic curves

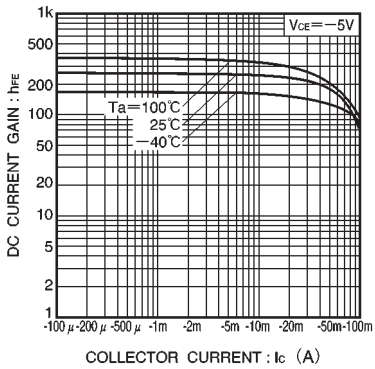


Fig.1 DC current gain vs.collector current

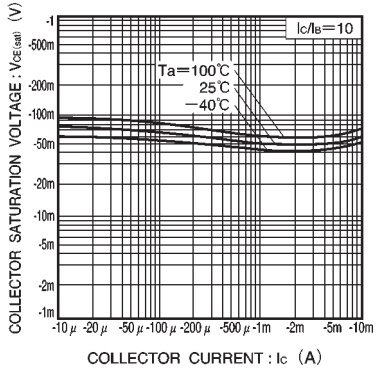


Fig.2 Collector-emitter saturation voltage vs.collector current