

# DTD114GS

# Digital transistor, NPN, with 1 resistor

## Features

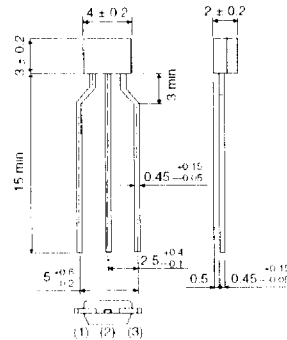
- available in SPT (SC-72) package
- a built-in bias resistor allows inverter circuit configuration without external input resistors
- bias resistor consists of a thin-film resistor which is completely isolated, providing the capability to negative-bias the NPN input, and avoids parasitic effects
- design of circuits is simple because only ON and OFF conditions have to be set

## Applications

- transistor switch

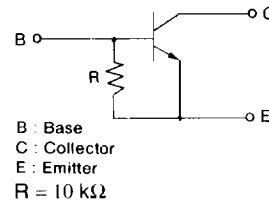
## Dimensions (Units : mm)

DTA114GS (SPT)



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

## Equivalent circuit



## Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Collector-to-base voltage	$V_{CBO}$	50	V
Collector-to-emitter voltage	$V_{CEO}$	50	V
Emitter-to-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	500	mA
Collector dissipation	$P_d$	300	mW
Junction temperature	$T_J$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

**Electrical characteristics (unless otherwise noted,  $T_a = 25^\circ\text{C}$ )**

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Collector-to-base breakdown voltage	$BV_{CBO}$	50			V	$I_C = 50 \mu\text{A}$
Collector-to-emitter breakdown voltage	$BV_{CEO}$	50			V	$I_C = 1 \text{ mA}$
Emitter-to-base breakdown voltage	$BV_{EBO}$	5			V	$I_E = 720 \mu\text{A}$
Collector cutoff current	$I_{CBO}$			0.5	$\mu\text{A}$	$V_{CB} = 30 \text{ V}$
Emitter cutoff current	$I_{EBO}$	300		580	$\mu\text{A}$	$V_{EB} = 4 \text{ V}$
DC current gain	$h_{FE}$	56				$I_C = 100 \text{ mA}$ , $V_{CE} = 5 \text{ V}$
Collector-to-emitter saturation voltage	$V_{CE(sat)}$			0.3	V	$I_C/I_B = 50 \text{ mA}/2.5 \text{ mA}$
Emitter-to-base resistance	R	7	10	13	$k\Omega$	
Transition frequency	$f_T$		200		MHz	$V_{CE} = 10 \text{ V}$ , $I_E = -50 \text{ mA}$ , $f = 100 \text{ MHz}$ , characteristics of built-in transistor

**Electrical characteristic curves**

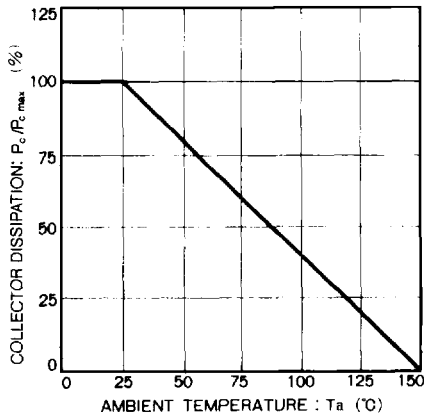


Figure 1

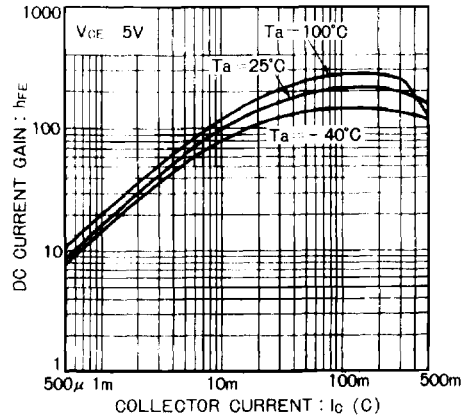
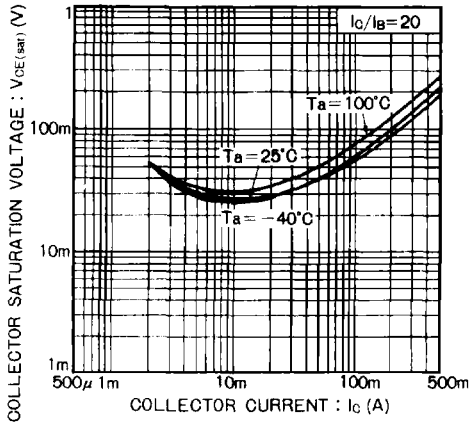


Figure 2



**Figure 3**

**Ordering information**

Package	Tape
Code	TP
Basic order quantity	5 000
DTD114GS	★
★ = Standard, ☆ = Semi-standard, * = Special order	