# 1A / 60V Digital transistor (with built-in resistors and zener diode) DTDG23YP

## Applications

Inverter, Interface, Driver

#### Features

- 1) High DC current gain. (Min. 300 at  $V_O/I_O=2V/$ 0.5A)
- 2) Low Vo(on). (Typ. 0.4V at  $I_O/I_I=500$ mA / 5mA)
- 3) Built-in zener diode gives strong protection against reverse surge by L-load (an inductive load).

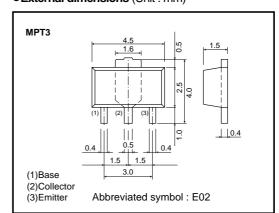
#### Structure

NPN epitaxial planar silicon transistor (with built-in resistors and zener diode)

#### Packaging specifications

	Package	MPT3
	Packaging type	Taping
	Code	T100
Part No.	Basic ordering unit (pieces)	1000
DTDG23YP		0

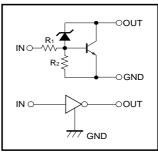
# ●External dimensions (Unit : mm)



# ● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	60±10	V
Input voltage	Vin	−6 to +40	]
Collector ourrent	Ic	1	Α
Collector current	Іср	2 *1	Α
Power dissipation	Pd	1.5 *2	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	ဗ

# ●Equivalent circuit



 $R_1=2.2k\Omega$   $R_2=10k\Omega$ 

# ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
la a coto calta a a	VI(off)	_	_	0.3	V	Vcc=5V , Io=100μA
Input voltage	VI(on)	2	_	_		Vo=0.4V , Io=100mA
Output voltage	VO(on)	_	_	0.4	V	lo/l⊫500mA/5mA
Input current	lı	_	_	3.6	mA	Vi=5V
Output current	IO(off)	_	_	0.5	μΑ	Vcc=40V , V⊫0V
DC current gain	Gı	300	_	_	_	Vo=2V , Io=500mA
Transition frequency	f⊤ *	_	80	_	MHz	Vce=5V , Ie= -0.1A , f=30MHz
Input resistance	R <sub>1</sub>	1.54	2.2	2.86	kΩ	-
Emitter-base resistance	R <sub>2</sub>	7	10	13	kΩ	_

<sup>\*</sup> Characteristics of built-in transistor



<sup>\*1</sup> Pw≤10ms, Duty cycle ≤ 2% \*2 When mounted on 40×40×0.7mm ceramic board.

## •Electrical characteristics curves

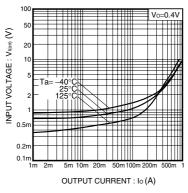


Fig.1 Input voltage vs. output current (ON characteristics)

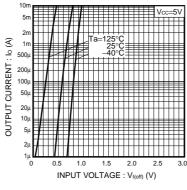


Fig.2 Output current vs. Input voltage (OFF characteristics)

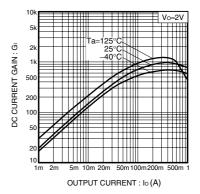


Fig.3 DC current gain vs. Output current

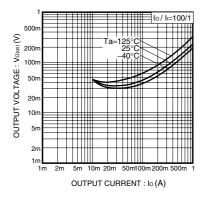


Fig.4 Output voltage vs. Output current

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