

Digital transistor (built in resistor and zener diode) Driver (60V, 1A)

DTDG14GP

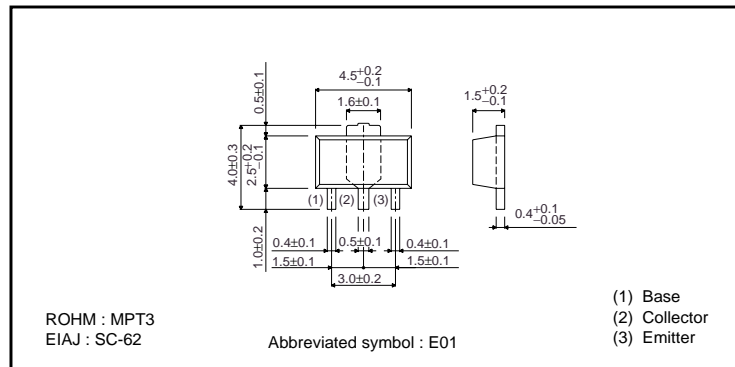
●Features

- 1) High h_{FE} .
(typ. $h_{FE}=750$ $V_{CE}/I_C=2V/0.5A$)
- 2) Low saturation voltage,
 $V_{CE(sat)}=0.4V$
($I_C/I_B=500mA/5mA$)
- 3) Built-in zener diode to protect the transistor against reverse voltages when connected to a low load.

●Structure

NPN digital transistor
(with single built resistor and zener diode)

●External dimensions (Units : mm)



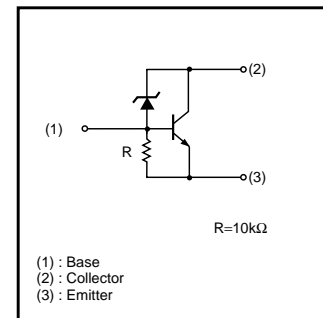
●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	60±10	V
Collector-emitter voltage	V_{CEO}	60±10	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	1	A
	I_{CP}	2	A(Pulse) *1
Collector power dissipation	P_C	0.5	W *2
		2	
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55~+150	°C

*1 $P_w \leq 10ms$, Duty cycle $\leq 1/2$

*2 When mounted on a 40×40×0.7 mm ceramic board.

●Equivalent circuit



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

Transistors

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	50	–	70	V	I _C =50μA
Collector-emitter breakdown voltage	BV _{CEO}	50	–	70	V	I _C =1mA
Emitter-base breakdown voltage	BV _{EB0}	5	–	–	V	I _E =720μA
Collector cutoff current	I _{CB0}	–	–	0.5	μA	V _{CB} =40V
Emitter cutoff current	I _{EB0}	300	–	580	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	–	–	0.4	V	I _C /I _B =500mA/5mA
DC current transfer ratio	h _{FE}	300	–	–	–	V _{CE} =2V, I _C =500mA
Emitter-base resistance	R	7	10	13	kΩ	–
Transition frequency	f _T	–	80	–	MHz	V _{CE} =5V, I _E =–0.1A, f=30MHz *

*Transition frequency of the device

●Packaging specifications

	Package	MPT3
	Packaging type	Taping
	Code	T100
Part No.	Basic ordering unit (pieces)	1000
DTDG14GP		○

●Electrical characteristic curves

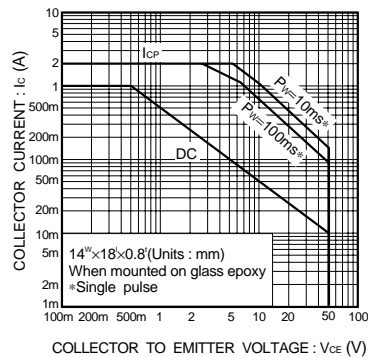


Fig.1 Safe operating area

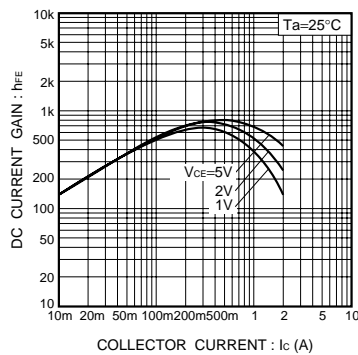


Fig.2 DC current gain vs. collector current

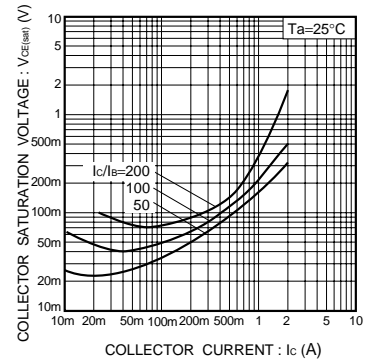


Fig.3 Collector-emitter saturation voltage vs. collector current