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

DTDG14GP

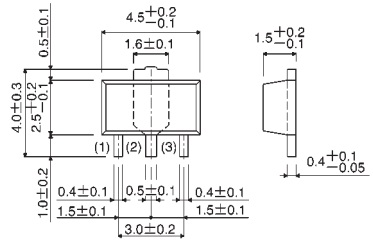
●Features

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

●Structure

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

●External dimensions (Units: mm)



ROHM : MPT3
EIAJ : SC-62

Abbreviated symbol: E01

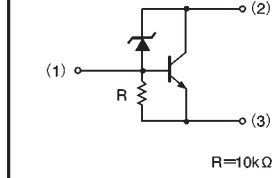
(1) Base
(2) Collector
(3) Emitter

●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	W ✻2
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55～+150	℃

✻1 Pw≦10ms, Duty cycle≦1/2
✻2 When mounted on a 40×40×0.7 mm ceramic board.

●Equivalent circuit



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

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	—	70	V	I_C=50 μA
Collector-emitter breakdown voltage	BV_{CEO}	50	—	70	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	I_E=720 μA
Collector cutoff current	I_{CBO}	—	—	0.5	μA	V_{CB}=40V
Emitter cutoff current	I_{EBO}	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

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

●Electrical characteristic curves

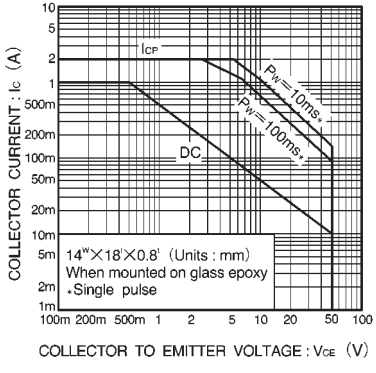


Fig.1 Safe operating area

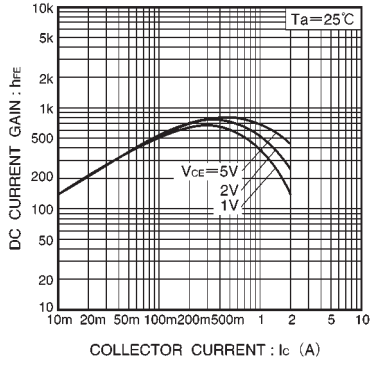


Fig.2 DC current gain vs. collector current

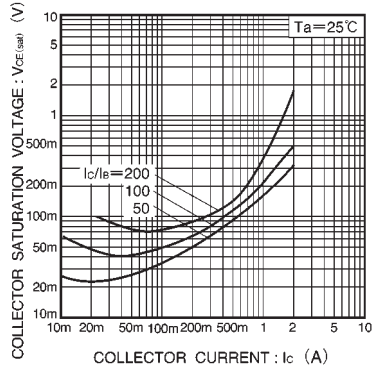


Fig.3 Collector-emitter saturation voltage vs. collector current