Digital transistor (built in resistors and zener diode), driver (60V, 1A)

DTDG23YP

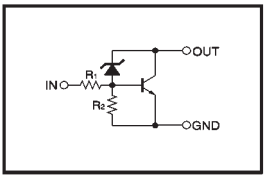
●Features

1) High DC current gain. (Min. 300 at Vo/Io=2V/0.5A)
2) Low output voltage. (Typ. 0.4V at Io/Ii=500/50mA)
3) Built-in zener diode gives strong protection against reverse

●Structure

NPN digital transistor
(with built in resistors and zener diode)

●Circuit schematic



●Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit	
Supply voltage	V_{CC}	60±10	V	
Input voltage	V_{IN}	−6～+40	V	
Collector current	I_O	1	A	
	$I_{C(Max.)}$	2	A (Pulse)	∗1
Power dissipation	Pd	1.5	W	∗2
Junction temperature	Tj	150	℃	
Storage temperature	Tstg	−55～+150	℃	

∗1 Pw≦10ms、Duty cycle≦2%　∗2 On 40×40×0.7mm ceramic board.

●Package, marking, and packaging specifications

Part No.	DTDG23YP
Package	MPT3
Marking	E02
Packaging code	T100
Basic ordering unit (pieces)	1000

●Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Input voltage	$V_{I(off)}$	—	—	0.3	V	V_{CC}=5V , I_O=100μA	
	$V_{I(on)}$	2	—	—		V_O=0.4V , I_O=100mA	
Output voltage	$V_{O(on)}$	—	—	0.4	V	I_O/I_I=500mA/5mA	
Input current	I_I	—	—	3.6	mA	V_I=5V	
Output current	$I_{O(off)}$	—	—	0.5	μA	V_{CC}=40V , V_I=0V	
DC current gain	G_I	300	—	—	—	V_O=2V , I_O=500mA	
Transition frequency	f_T	—	80	—	MHz	V_{CE}=5V , I_E=−0.1A , f=30MHz	∗
Input resistance	R_1	1.54	2.2	2.86	kΩ	—	
Emitter-base resistance	R_2	7	10	13	kΩ	—	