DTDG23YP

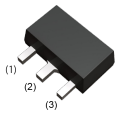
1A/60V Digital Transistor (with built-in resistor and zener diode)

Datasheet

Parameter	Value
V_{CC}	60±10V
I_C	1A
R_1	2.2kΩ
R_2	10kΩ

●Outline

MPT3



DTDG23YP

SOT-89

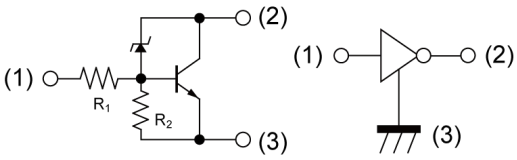
●Features

1)High DC current gain.
(Min.300 at Vo/Io=2V/0.5A)

2)Low Vo($_{ON}$).
(Typ.400mV at Io/I$_I$=500mA/5mA)

3)Built-in zener diode gives strong protection against reverse surge by L-load.
(an inductive load)

●Inner circuit



(1) IN (BASE)
(2) OUT (COLLECTOR)
(3) GND (EMITTER)

●Application

INVERTER, INTERFACE, DRIVER

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
DTDG23YP	MPT3	4540	T100	180	12	1000	E02

●Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Values	Unit
Supply voltage	V_{CC}	60±10	V
Input voltage	V_{IN}	-6 to 40	V
Collector current	I_C	1	A
	I_{CP}*1	2	A
Power dissipation	P_D*2	1.5	W
Junction temperature	T_j	150	℃
Range of storage temperature	T_{stg}	-55 to +150	℃

●Electrical characteristics (T_a = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	V_{CC} = 5V, I_O = 100μA	-	-	0.3	V
	$V_{I(on)}$	V_O = 0.4V, I_O = 100mA	2.0	-	-	
Output voltage	$V_{O(on)}$	I_O / I_I = 500mA / 5mA	-	-	400	mV
Input current	I_I	V_I = 5V	-	-	3.6	mA
Output current	$I_{O(off)}$	V_{CC} = 40V, V_I = 0V	-	-	500	nA
DC current gain	G_I	V_O = 2V, I_O = 500mA	300	-	-	-
Input resistance	R_1	-	1.54	2.2	2.86	kΩ
Emitter-base resistance	R_2	-	7	10	13	kΩ
Transition frequency	f_T*3	V_{CE} = 5V, I_E = -100mA, f = 30MHz	-	80	-	MHz

*1 Pw≦10msec. duty≦1/2

*2 Mounted on a ceramic board.(40×40×0.7mm)

*3 Characteristics of built-in transistor

●Electrical characteristic curves (T_a =25°C)

Fig.1 Input Voltage vs. Output Current (ON Characteristics)

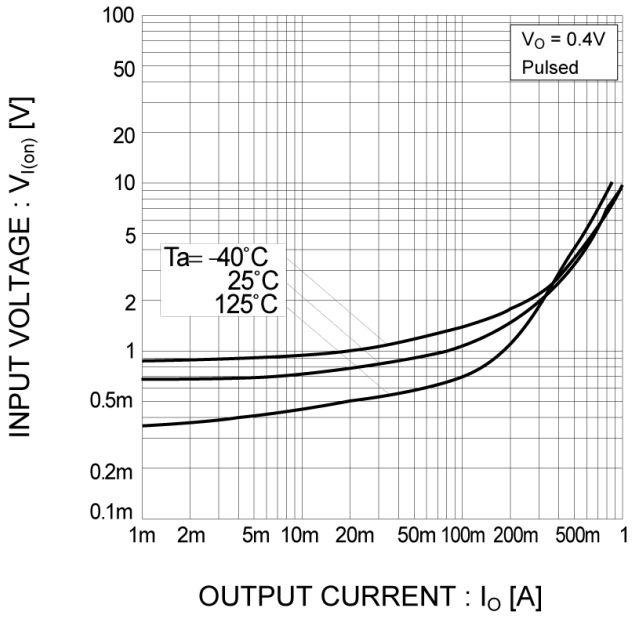


Fig.2 Output Current vs. Input Voltage (OFF Characteristics)

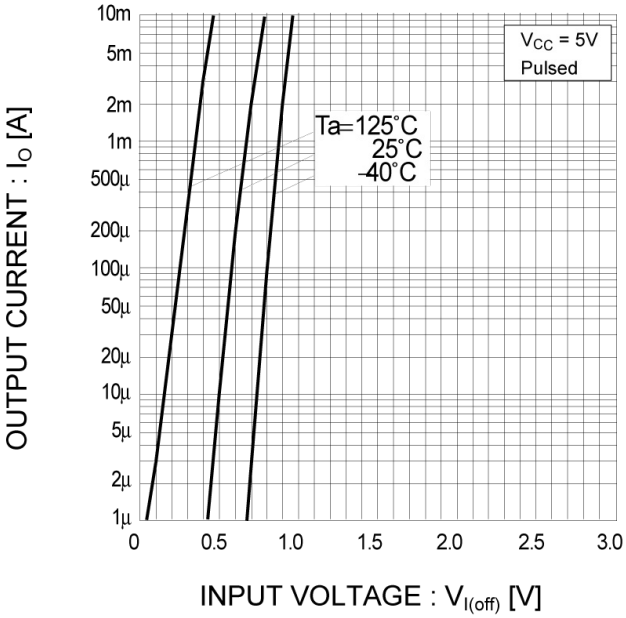


Fig.4 DC Current Gain vs. Output Current

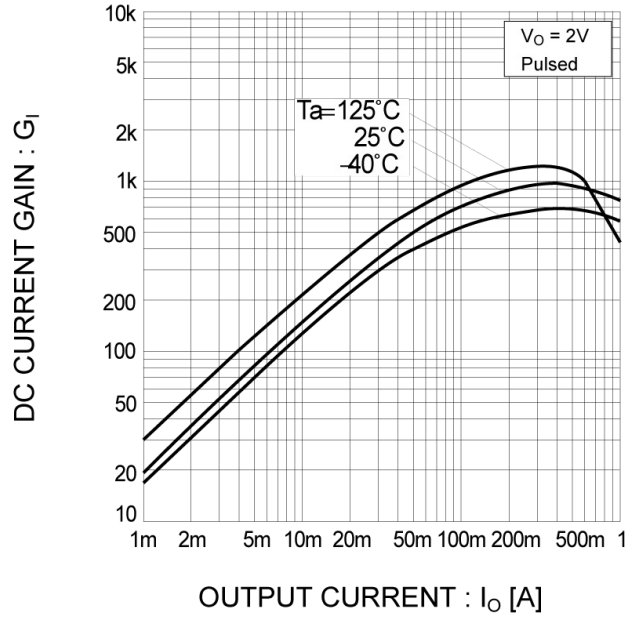
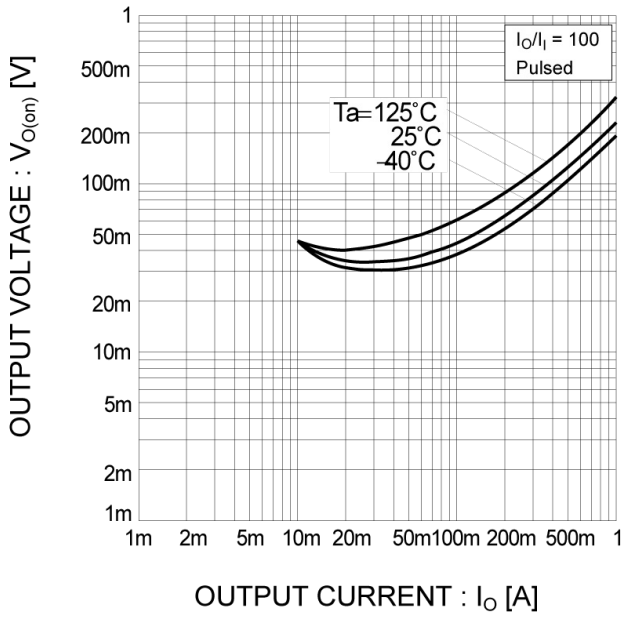
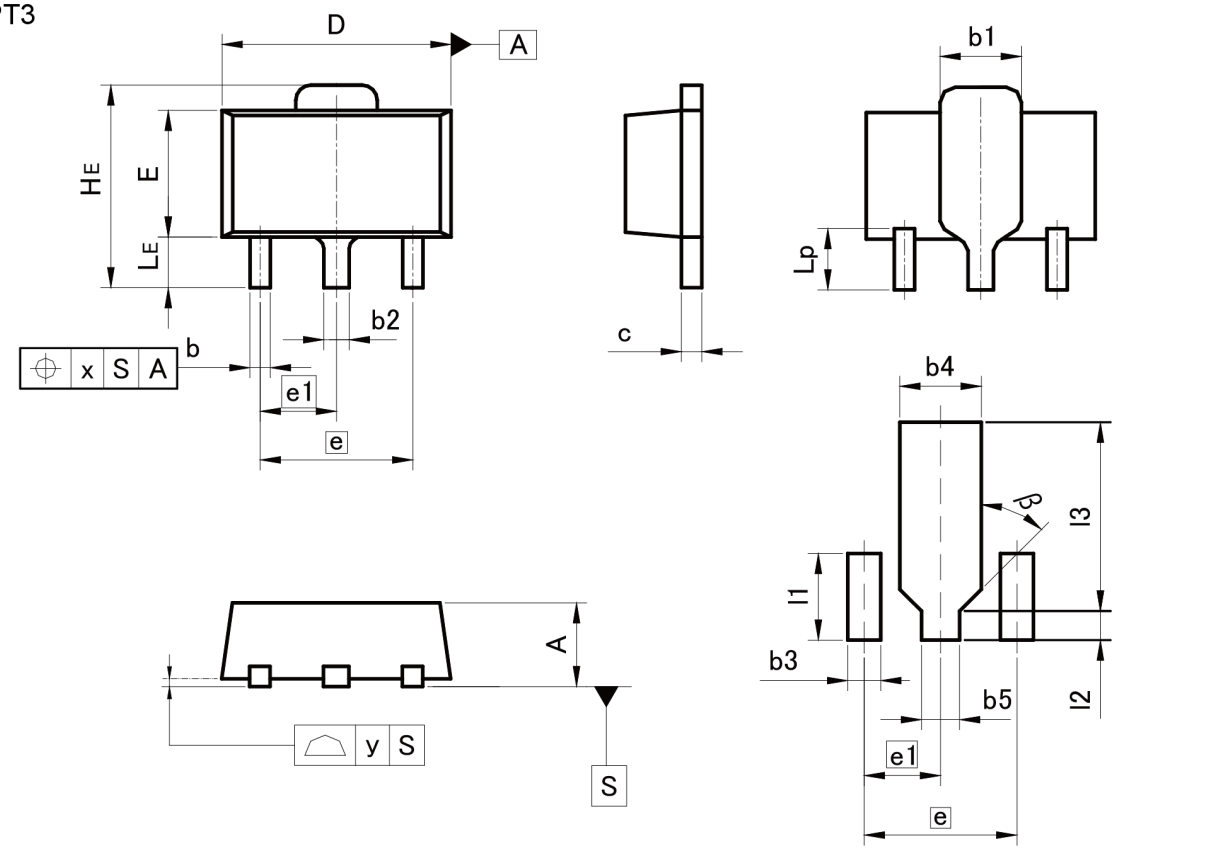


Fig.5 Output Voltage vs. Output Current



●Dimensions

MPT3



Pattern of terminal position areas
[Not a recommended pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.40	1.50	0.055	0.059
b	0.30	0.50	0.012	0.020
b1	1.50	1.70	0.059	0.067
b2	0.40	0.60	0.016	0.024
c	0.35	0.50	0.014	0.020
D	4.40	4.70	0.173	0.185
E	2.40	2.70	0.094	0.106
e	3.00		0.118	
e1	1.50		0.059	
HE	3.70	4.30	0.146	0.169
LE	0.80	1.20	0.031	0.047
Lp	1.01	1.41	0.040	0.056
x	–	0.15	–	0.006
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b3	–	0.65	–	0.026
b4	–	1.70	–	0.067
b5	–	0.75	–	0.030
l1	–	1.71	–	0.067
l2	–	0.58	–	0.023
l3	–	3.72	–	0.146
β	45°		45°	

Dimension in mm/inches

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