PQ3DF53

3V Output, High Output Current(5A) Type Low Power-loss Voltage Regulator

■ Features

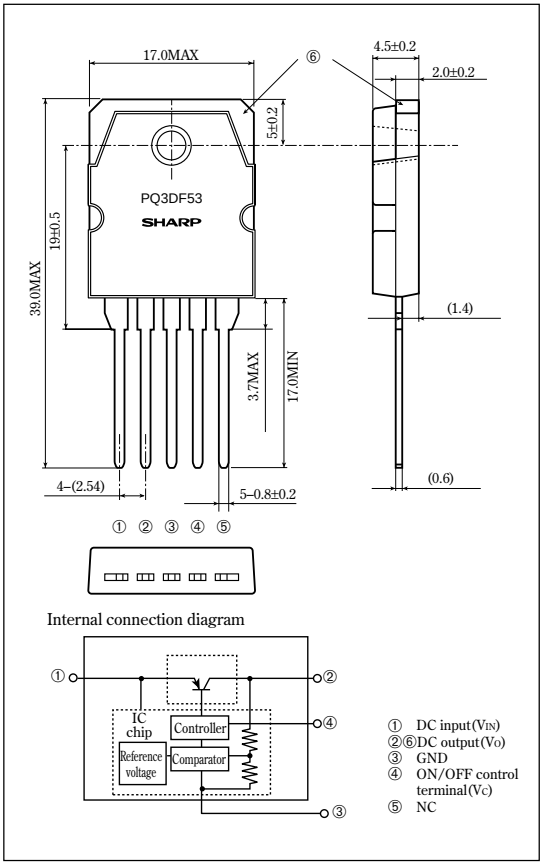
- TO-3P package
- Low power-loss(Dropout voltage: MAX. 0.5V at Io-5A)
- 3.3V output
- High output current(5A)
- High-precision output voltage type (Output voltage precision: ±2.5%)
- Built-in ON/OFF cotrol function
- Built-in overcurrent protection, overheat protection function

■ Applications

- Power supplies for various electronic equipment such as personal computers

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_a=25˚C)

Parameter	Symbol	Rating	Unit
※1 Input voltage	V_{IN}	10	V
※1 ON/OFF control terminal voltage	V_C	10	V
Output current	I_O	5.0	A
Power dissipation(No heat sink)	P_{D1}	2.2	W
Power dissipation(With infinite heat sink)	P_{D2}	60	W
※2 Junction temperature	T_j	150	˚C
Operating temperature	T_{opr}	–20 to + 80	˚C
Storage temperature	T_{stg}	–40 to +150	˚C
Soldering temperature	T_{sol}	260(For 10s)	˚C

※1 All are open except GND and applicable terminals.

※2 Overheat protection may operate at 125<=Tj<=150˚C.

• Please refer to the chapter " Handling Precautions ".

■ Electrical Characteristics

(Unless otherwise specified, conditions shall be V_{IN}=5V, I_O=2.5A T_a=25˚C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	V_O	–	3.218	3.3	3.382	V
Load regulation	$R_{eg}L$	I_O=5mA to 5.0A	–	0.5	2.0	%
Line regulation	$R_{eg}I$	V_{IN}=4 to 10V	–	0.5	2.5	%
Temperature coefficient of output voltage	T_CV_O	T_j=0 to 125˚C	–	±0.02	–	%/˚C
Ripple rejection	RR	Refer to Fig. 2	45	55	–	dB
Dropout voltage	V_{I-O}	※3, I_O=5.0A	–	–	0.5	V
※4 ON-state voltage for control	$V_{C(ON)}$	–	2.0	–	–	V
ON-state current for control	$I_{C(ON)}$	V_C=2.7V	–	–	20	µA
OFF-state voltage for control	$V_{C(OFF)}$	–	–	–	0.8	V
OFF-state current for control	$I_{C(OFF)}$	V_C=0.4V	–	–	–0.4	mA
Quiescent current	I_q	I_O=0A	–	–	17	mA

※3 Input voltage shall be the value when output voltage is 95% in comparison with the initial value.

※4 In case of opening control terminal ④, output voltage turns on.

Fig. 1 Test Circuit

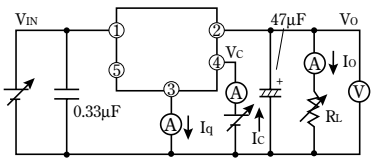
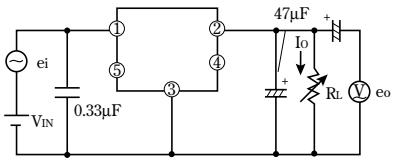


Fig. 2 Test Circuit for Ripple Rejection



f=120Hz(sine wave)
$e_{i(rms)}$=0.5V
V_{IN}=5V
I_O=0.5A
RR=20 log($e_{i(rms)}/e_{o(rms)}$)

Fig. 3 Power Dissipation vs. Ambient Temperature

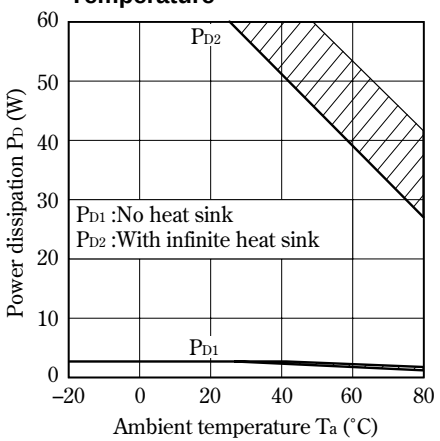
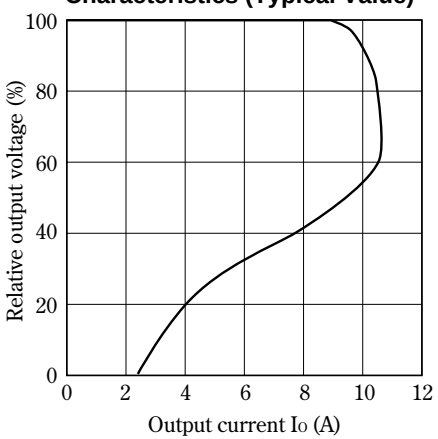


Fig. 4 Overcurrent Protection Characteristics (Typical Value)



Note) Oblique line portion : Overheat protection may operate in this area.

Fig. 5 Output Voltage Deviation vs. Junction Temperature

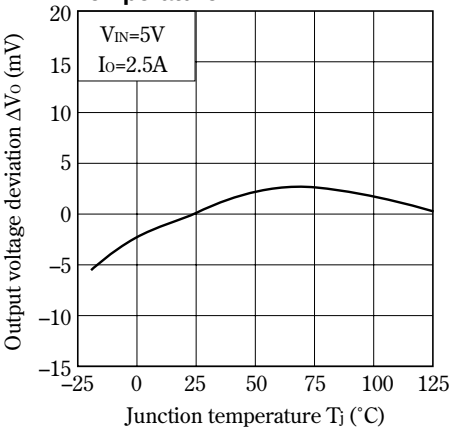


Fig. 6 Output Voltage vs. Input Voltage

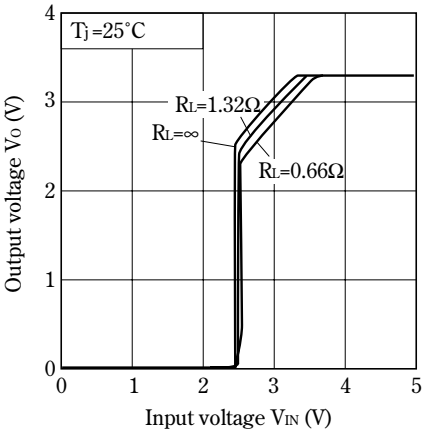


Fig. 7 Circuit Operating Current vs. Input Voltage

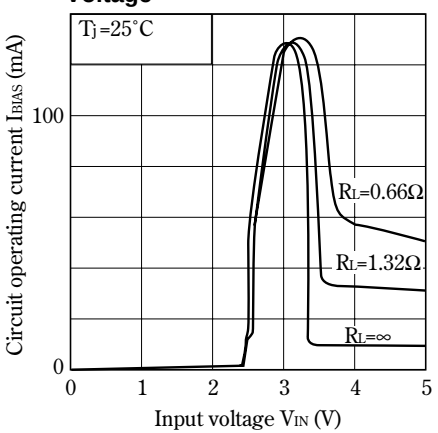


Fig. 8 Dropout Voltage vs. Junction Temperature

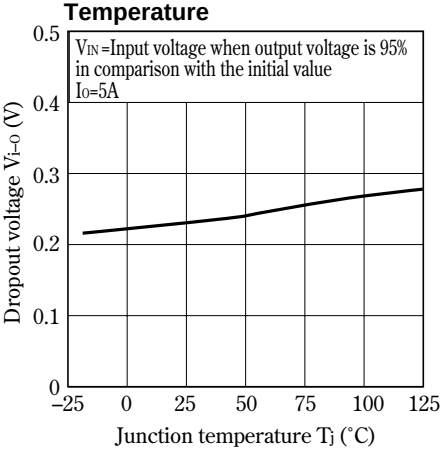


Fig. 9 Quiescent Current vs. Junction Temperature

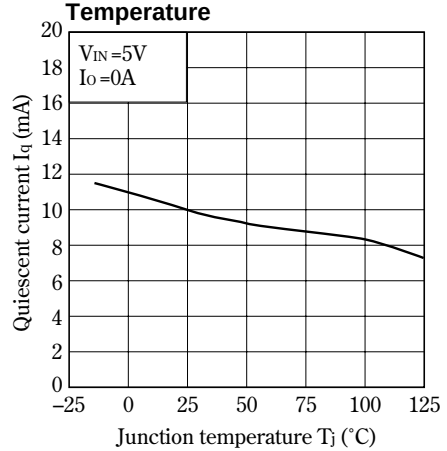


Fig.10 Ripple Rejection vs. Input Ripple Frequency

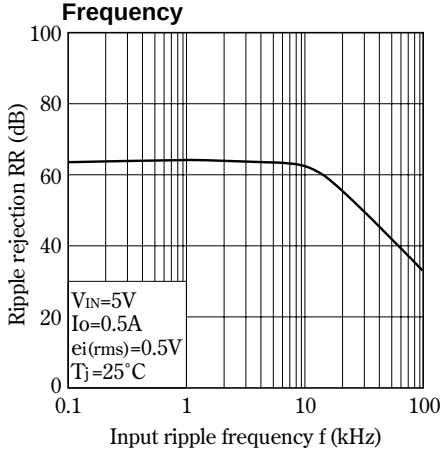
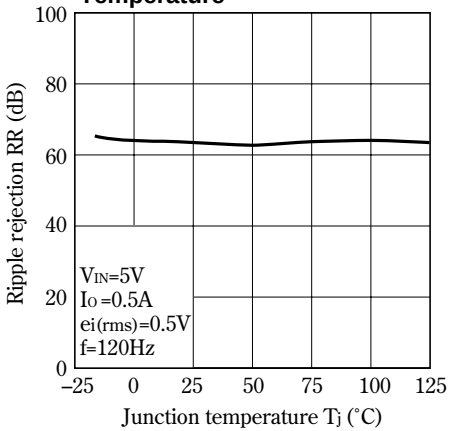
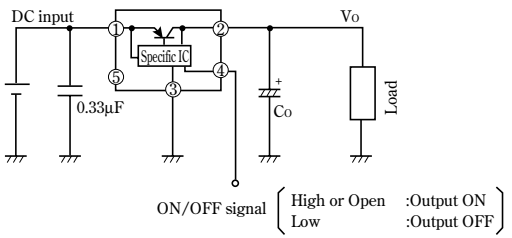


Fig.11 Ripple Rejection vs. Junction Temperature



■ Typical Applications



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  --- Office automation equipment
  --- Telecommunication equipment [terminal]
  --- Test and measurement equipment
  --- Industrial control
  --- Audio visual equipment
  --- Consumer electronics

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  --- Traffic signals
  --- Gas leakage sensor breakers
  --- Alarm equipment
  --- Various safety devices, etc.

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