PQ3TZ50/PQ3TZ53

3.0V/3.3V Output Surface Mount Type Low Power-Loss Voltage Regulators

■ Features

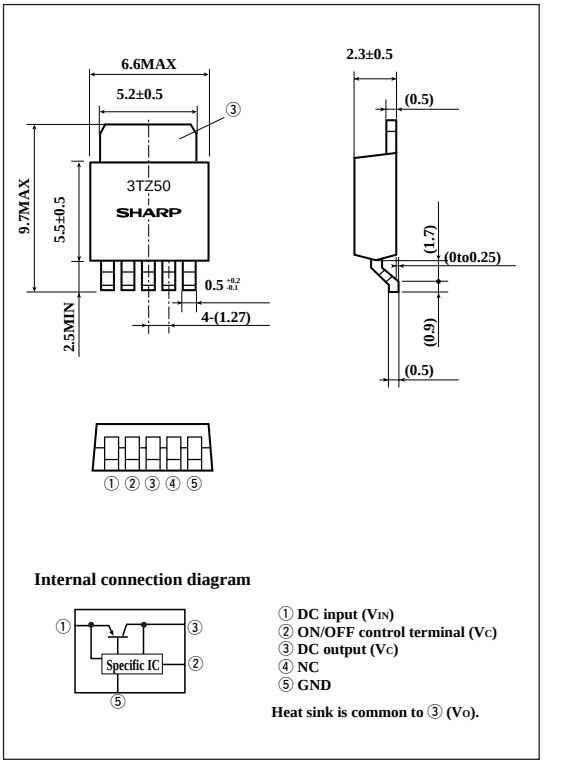
- Low power-loss (Dropout voltage : MAX. 0.5V)
- Surface mount type package (equivalent to EIAJ SC-63)
- Output current : MAX.0.5A
- Low dissipation current at OFF-state (Iqs : MAX.5μA)
- Built-in ON/OFF cotrol function
- Output voltage precision : ±2.5%
- Output voltage : (3.0V : PQ3TZ50)
  (3.3V : PQ3TZ53)
- Tape packaged type is also available. (Reel : 3 000pcs.)

■ Applications

- Personal computers
- Personal information tools (PDA)
- Various OA equipment

■ 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	0.5	A
*2 Power dissipation	P_D	8	W
*3 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 P_D:With infinte heat sink.

*3 Overheat protection may operate at 125=<T_j=<150˚C

· Please refer to the chapter“ Handling Precautions ”.

■ Electrical Characteristics

(V_C=2.7V, T_a=25˚C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	PQ3TZ50	V_{IN}	-	3.4	-	10.0	V
	PQ3TZ53			3.7	-	10.0	
Output voltage	PQ3TZ50	V_O	V_{IN}=5V, I_O=0.3A	2.925	3.0	3.075	V
	PQ3TZ53			3.218	3.3	3.382	
Load regulation		R_{egL}	V_{IN}=5V, I_O=5mA to 0.5A	-	0.2	2.0	%
Line regulation		R_{egI}	V_{IN}=4V to 10V, I_O=5mA	-	0.1	2.5	%
Temperature coefficient of output voltage		T_CV_O	V_{IN}=5V, I_O=5mA, T_j=0 to125˚C	-	±0.01	-	%/˚C
Ripple rejection		RR	Refer to Fig. 2	45	60	-	dB
Dropout voltage		V_{i-O}	*4, I_O=0.3A	-	-	0.5	V
ON-state voltage for control		$V_{C\ (ON)}$	V_{IN}=5V, I_O=0.3A, *5	2.0	-	-	V
ON-state current for control		$I_{C\ (ON)}$	V_{IN}=5V, I_O=0.3A	-	-	200	µA
OFF-state voltage for control		$V_{C\ (OFF)}$	V_{IN}=5V	-	-	0.8	V
OFF-state current for control		$I_{C\ (OFF)}$	V_{IN}=5V, I_O=0.4V	-	-	2	µA
Quiescent current		I_q	V_{IN}=5V, I_O=0A	-	-	10	mA
Output OFF-state consumption current		I_{qs}	V_{IN}=5V, V_C=0.4V, I_O=0.3A,	-	-	5	µA

*4 PQ3TZ50:V_{IN}=3.4V
PQ3TZ53:V_{IN}=3.7V

*5 In case of opening control terminal ②, output voltage turns off.

Fig.1 Test Circuit

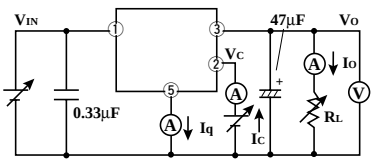
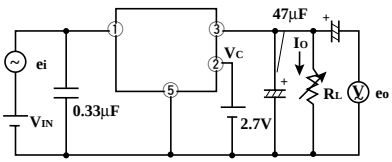
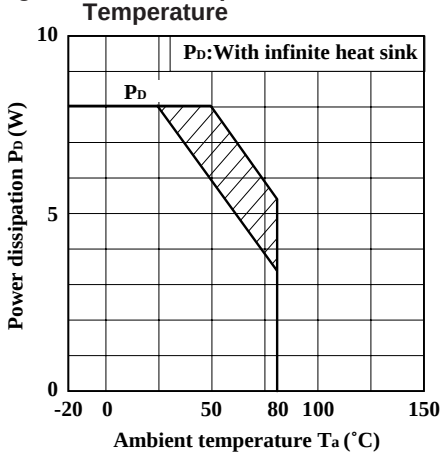


Fig.2 Test Circuit for Ripple Rejection



f=120Hz (sine wave)
ei=0.5Vrms
V_{IN}=5V
I_O=0.3A
RR=20 log (ei/eo)

Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics(Typical Value)

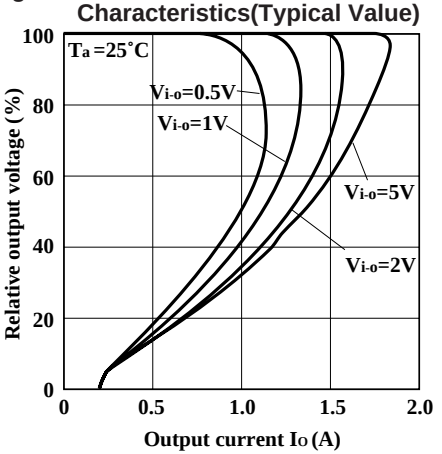


Fig.5 Output Voltage Deviation vs. Junction Temperature (PQ3TZ50/PQ3TZ53)

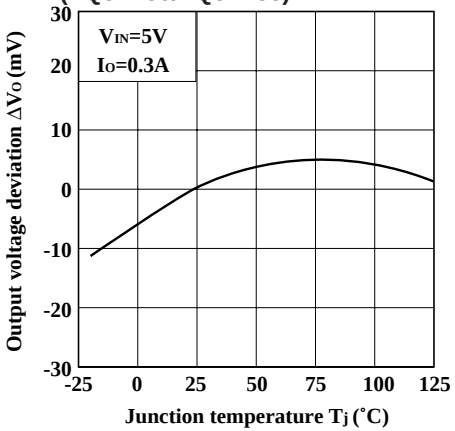


Fig.6 Output Voltage vs. Input Voltage (PQ3TZ50)

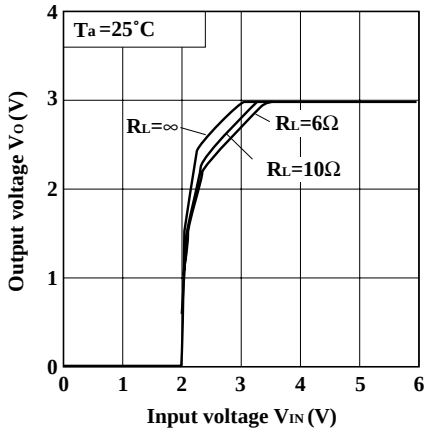


Fig.7 Output Voltage vs. Input Voltage (PQ3TZ53)

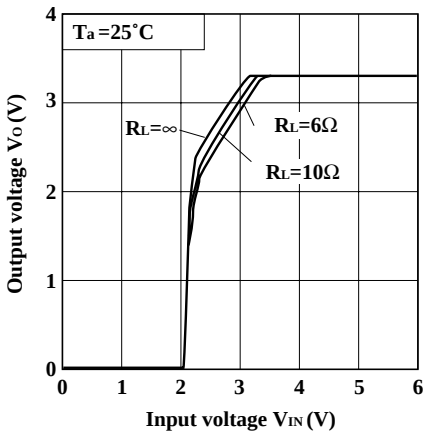


Fig.8 Circuit Operating Current vs. Input Voltage (PQ3TZ50)

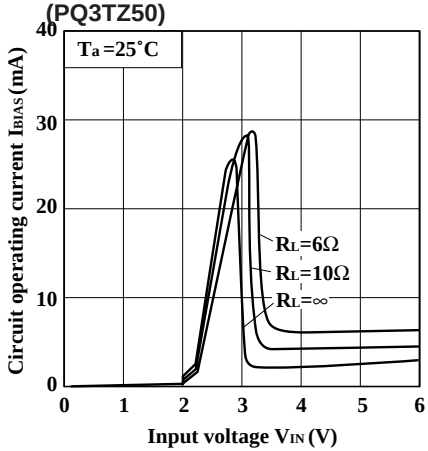


Fig.9 Circuit Operating Current vs. Input Voltage (PQ3TZ53)

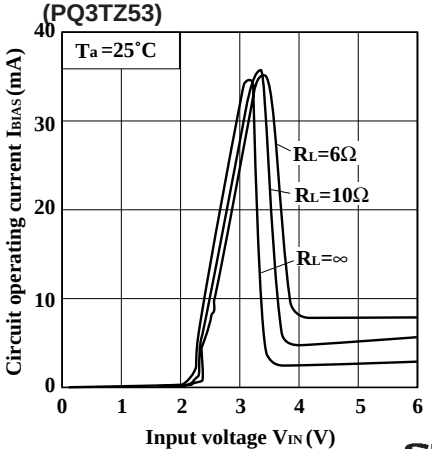


Fig.10 Dropout Voltage vs. Junction Temperature (PQ3TZ50/PQ3TZ53)

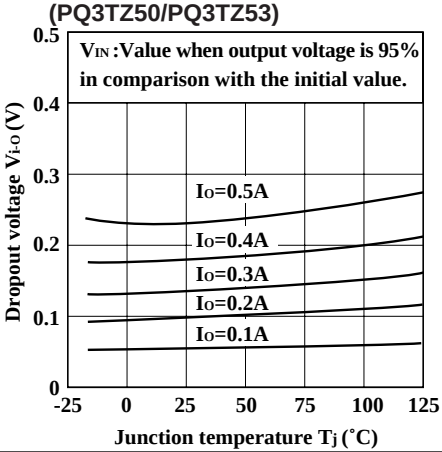


Fig.11 ON-state Voltage for Control vs. Junction Temperature(Typical Value) (PQ3TZ50/PQ3TZ53)

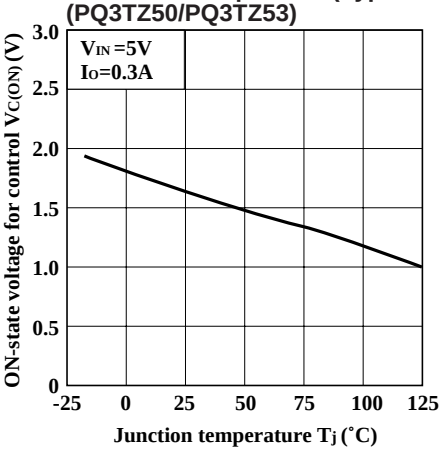


Fig.12 Quiescent Current vs. Junction Temperature(Typical Value) (PQ3TZ50/PQ3TZ53)

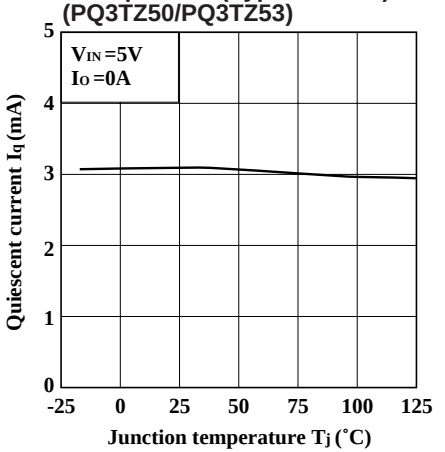


Fig.13 Ripple Rejection vs. Input Ripple Frequency (PQ3TZ50/PQ3TZ53)

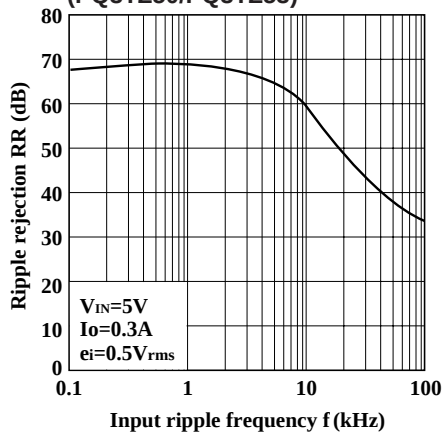


Fig.14 Output Peak Current vs. Junction Temperature(Typical Value) (PQ3TZ50/PQ3TZ53)

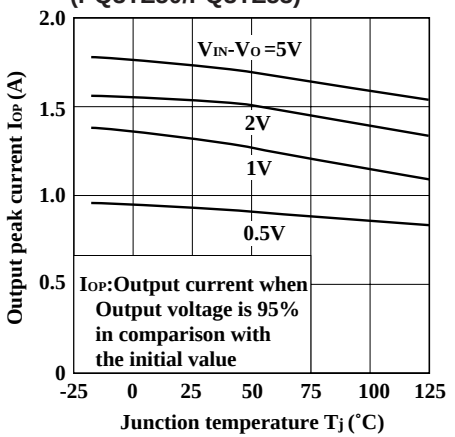
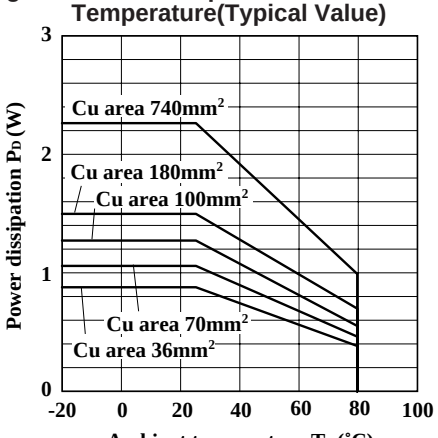
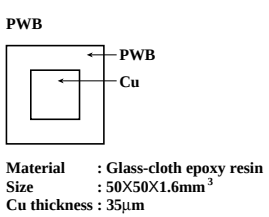


Fig.15 Power Dissipation vs. Ambient Temperature(Typical Value)





Material : Glass-cloth epoxy resin
Size : 50X50X1.6mm 3
Cu thickness : 35μm

■ Model Line-ups for Tape-packaged Products

	Sleeve-packaged products		Tape-packaged products	
Output current	**Standard type**	**High-precision output type**	**Standard type**	**High-precision output type**
0.5A output	-	PQ3TZ50	-	PQ3TZ50U
1.0A output	-	PQ3TZ53	-	PQ3TZ53U