SHARP

Under development	
New product	●

PQxxxDZ01Z series Low Power-Loss Voltage Regulator

SC-63 Package, Low Power-Loss Voltage Regulator

■ Features

(1) Output current :1 A
(2) Low dropout voltage: MAX. 0.5 V(Io=o.5 A)
(3) Built-in ON/OFF control function
(4) Built-in overcurrent protection, overheat protection
(5) SC-63 package.

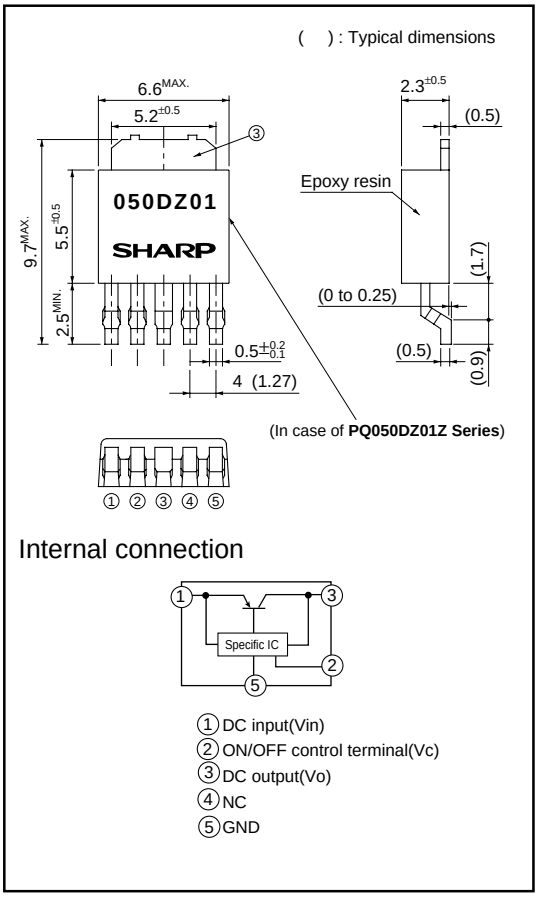
■ Applications

(1) AV equipment.
(2) OA equipment.

■ Model Line-up

Package type	Output voltage(V_O)	
	3.3 V	5.0 V
Taping	**PQ033DZ01ZP**	**PQ050DZ01ZP**
Sleeve	**PQ033DZ01ZZ**	**PQ050DZ01ZZ**

■ Outline Dimensions (Unit : mm)



Internal connection

① DC input(Vin)
② ON/OFF control terminal(Vc)
③ DC output(Vo)
④ NC
⑤ GND

■ Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Ratings		Unit
		PQ033DZ01Z	PQ050DZ01Z	
*1 Input voltage	V_{in}	9	10	V
*1 ON/OFF control terminal voltage	V_C	9	10	V
Output current	I_O	1		A
*2 Power dissipation	Pd	5		W
*3 Junction temperature	Tj	150		˚C
Operating temperature	Topr	- 30 to +85		˚C
Storage temperature	Tstg	- 40 to +150		˚C
Soldering temperature	Tsol	260 (for 10s)		˚C

*1 All are open except GND and applicable terminals.
*2 Pd: With infinite heat sink.
*3 Overheat protection may operate at 125≤Tj≤150˚C.

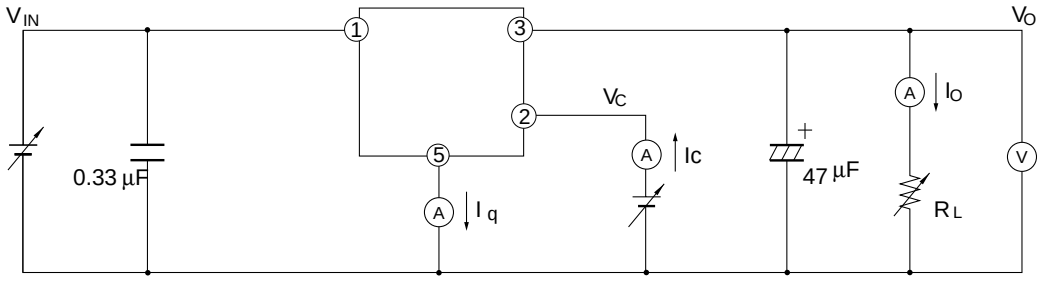
■ Electrical Characteristics

(Unless otherwise specified,Vin=Vo(TYP.)+2V,Io=0.5A,Vc=2.7V,Ta=25˚C)

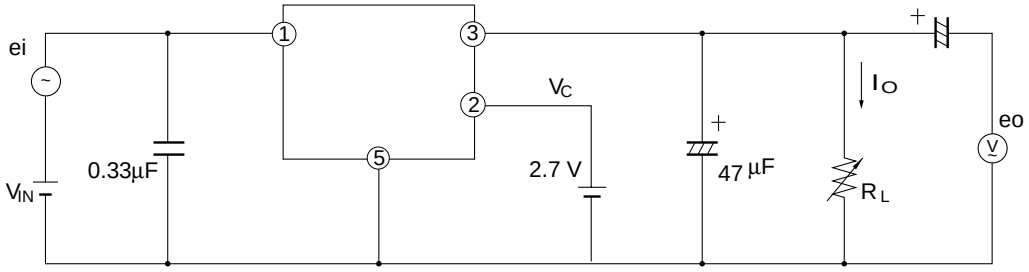
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	**PQ033DZ01Z**	Vo	-	3.201	3.3	3.399	V
	PQ050DZ01Z			4.85	5.0	5.15	
Load regulation		RegL	Io=5mA to 1.0A	-	0.1	1.0	%
Line regulation		RegI	*4 , Io=5mA	-	0.1	1.0	%
Temperature coefficient of output voltage		TcVo	Tj=0 to125˚C,Io=5mA	-	±0.01	-	%/˚C
Ripple rejection		RR	-	-	60	-	dB
Dropout voltage		Vi-o	*5, Io=0.5 A	-	0.2	0.5	V
*6 ON-state voltage for control		$V_{C(on)}$	-	2.0	-	-	V
ON-state current for control		$I_{C(on)}$	V_C=2.7V	-	-	200	µA
OFF-state voltage for control		$V_{C(off)}$	-	-	-	0.8	V
OFF-state current for control		$I_{C(off)}$	V_C=0.4V	-	-	2	µA
Quiescent current		Iq	Io=0A	-	3	5	mA
Output OFF-state dissipation current		Iqs	Io=0A, V_C=0.4V	-	-	5	µA

*4 **PQ033DZ01Z** : Vin = 4.3 to 8.3 V, **PQ050DZ01Z**:Vin =6 to 10 V
*5 **PQ033DZ01Z** : Vin = 3.7 V
PQ050DZ01Z : Input voltage shall be the value when output voltage is 95% in comparison with the initial value.
*6 In case of opening control terminal②, output voltage turns off.

■ Standard Test Circuit



■ Test Circuit for Ripple Rejection



f=120Hz(sine wave)
ei(rms)=0.5 V
Vin=7 V
Vin=5.3 V

Io=0.3 A
RR=20log(ei(rms)/eo(rms))

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

  (ii) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when SHARP devices are used for or in connection with equipment that requires higher reliability such as:
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  --- Traffic signals
  --- Gas leakage sensor breakers
  --- Alarm equipment
  --- Various safety devices, etc.

  (iii) SHARP devices shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as:
  --- Space applications
  --- Telecommunication equipment [trunk lines]
  --- Nuclear power control equipment
  --- Medical and other life support equipment (e.g., scuba).

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