SHARP

PQ05DZ51/11 series Low Power-Loss Voltage Regulator

0.5A/1.0A Output, General Purpose, Surface Mount Type Low Power-Loss Voltage Regulator

■ General Description

SHARP's **PQ05DZ51/11 series** are 0.5A/1.0A output, general purpose, low power-loss voltage regulators which employ compact surface mount package.
They contribute to low voltage operation and suitable for power supplies of various electronic equipment.

■ Features

(1) Low power-loss
(Dropout voltage : MAX. 0.5V)
(2) Surface mount package (equivalent to SC-63)
(3) Available 3.3V, 5V, 9V, 12V output type
(4) Output current (0.5A : **PQ05DZ51 series**)
(1.0A : **PQ05DZ11 series**)
(5) Output voltage precision : ±3.0%
(6) Built-in ON/OFF control function
(7) Built-in overcurrent protection, overheat protection function
(8) Available tape-packaged products
(ø330mm real : 3000 pcs., **PQ05DZ5U/1U**)

■ Applications

(1) Personal computers
(2) CD-ROM drives
(3) Power supplies for various OA equipment

■ Absolute Maximum Ratings

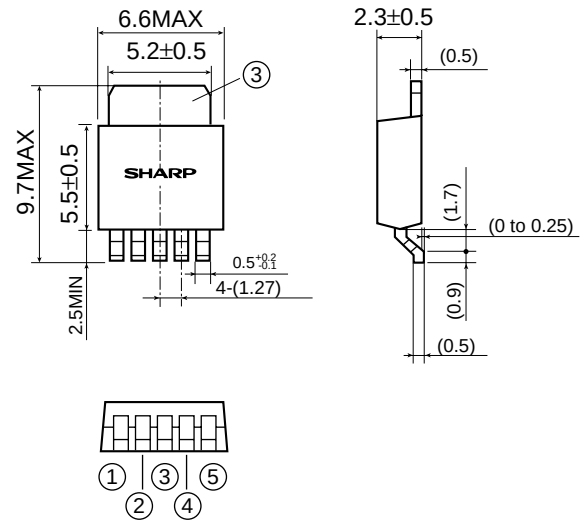
(Ta=25˚C)

Parameter		Symbol	Rating	Unit
*1Input voltage		V_{IN}	24	V
*1 ON/OFF control terminal voltage		V_C	24	V
Output current	PQ05DZ51 series	I_O	0.5	A
	PQ05DZ11 series		1	
*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

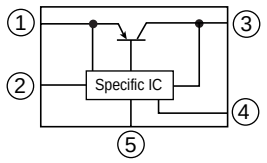
*1 All are open except GND and applicable terminals.
*2 P_D : With infinite heat sink
*3 Overheat protection may operate at 125<=Tj<=150˚C

■ Outline Dimensions

(Unit : mm)



Internal connection



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

■ Model Line-up

0.5A output	3.3V output	**PQ3DZ53**
	5.0V output	**PQ05DZ51**
	9.0V output	**PQ09DZ51**
	12.0V output	**PQ12DZ51**
1.0A output	3.3V output	**PQ3DZ13**
	5.0V output	**PQ05DZ11**
	9.0V output	**PQ09DZ11**
	12.0V output	**PQ12DZ11**

PQ05DZ51/11 series

Low Power-Loss Voltage Regulator

■ Electrical Characteristics

(Unless otherwise specified, conditions shall be Io=0.3A[**PQ05DZ51 series**], Io=0.5A[**PQ05DZ11 series**]*4, Ta=25˚C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	**PQ3DZ53/PQ3DZ13**	Vo	–	3.201	3.3	3.399	V
	PQ05DZ51/PQ05DZ11			4.85	5.0	5.15	
	PQ09DZ51/PQ09DZ11			8.73	9.0	9.27	
	PQ12DZ51/PQ12DZ11			11.64	12.0	12.36	
Load regulation	**PQ05DZ51 series**	RegL	Io=5mA to 0.5A	–	–	2.0	%
	PQ05DZ11 series		Io=5mA to 1.0A				
Line regulation		RegI	*5, Io=5mA	–	–	2.5	%
Temperature coefficient of output voltage		TcVo	Tj=0 to 125˚C, Io=5mA	–	±0.01	–	%/˚C
Ripple rejection		RR	–	45	–	–	dB
Dropout voltage	**PQ05DZ51 series**	Vi-o	*6, Io=0.3A	–	–	0.5	V
	PQ05DZ11 series		*6, Io=0.5A				
*7 ON-state voltage for control		$V_{C(on)}$	–	2.0	–	–	V
ON-state current for control		$I_{C(on)}$	–	–	–	200	µA
OFF-state voltage for control		$V_{C(on)}$	–	–	–	0.8	V
OFF-state current for control		$I_{C(off)}$	V_C=0.4V	–	–	2	µA
Quiescent current		Iq	Io=0A	–	–	10	mA
Output OFF-state consumption current		Iqs	Vc=0.4V, Io=0A	–	–	5	µA

*4 **PQ3DZ53/13**:Vin=5V, **PQ05DZ51/11**:Vin =7V, **PQ09DZ51/11**:Vin =11V, **PQ12DZ51/11**: Vin =14V

*5 **PQ3DZ53/13**:Vin=4 to 10V, **PQ05DZ51/11**:Vin = 6 to 16V, **PQ09DZ51/11**:Vin =10 to 20V, **PQ12DZ51/11**: Vin =13 to 23V

*6 Input voltage shall be the value when output voltage is 95% in comparison with the initial value. **PQ3DZ51/11**:Vin=3.7V

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