SHARP

PQ05RD21 series Low Power-Loss Voltage Regulator

2.0A Output Type, High Cost Performance Low Power-Loss Voltage Regulator

■ General Description

Sharp's **PQ05RD21 series** is 2.0A output type low power-loss voltage regulator(TO-220). It contributes to energy and space saving of various electronic equipment such as AV, OA equipment.

■ Features

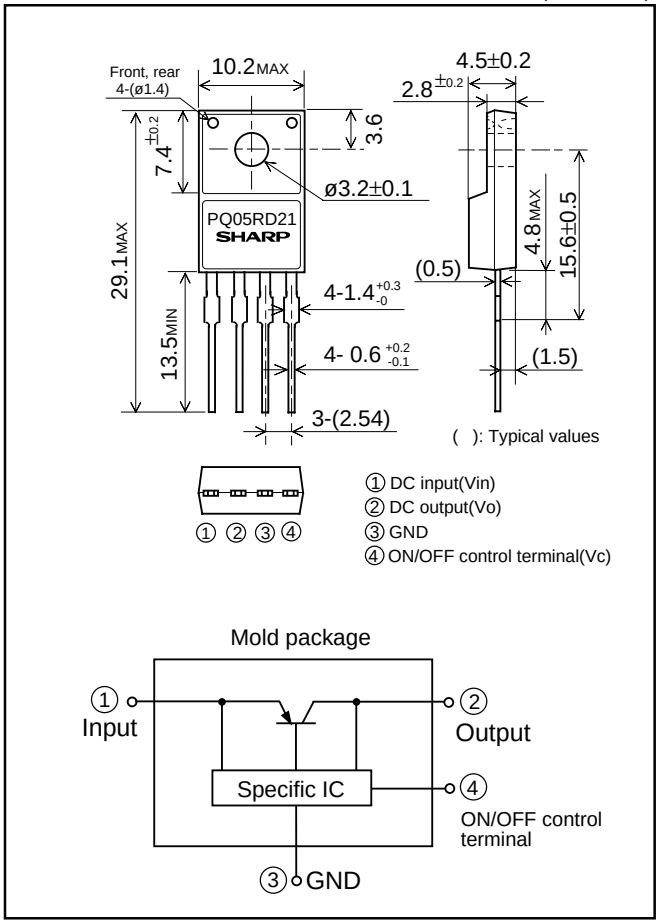
(1) Low power-loss(Dropout voltage: MAX 0.5V at Io=2.0A)
(2) 2.0A output type
(3) Compact resin full-mold package(equivalent to TO-220)
(4) Available 3.3V/5V/9V/12V output type
(5) Output voltage precision: ±3.0%
(6) Built-in ON/OFF control function
(7) Overcurrent, overheat protection functions
(8) Lead forming type is also available.

■ Applications

(1) Power supplies for various electronic equipment such as AV, OA

■ Outline Dimensions

(Unit: mm)



■ Model Line-up

2.0A output	3.3V output	**PQ3RD23**
	5.0V output	**PQ05RD21**
	9.0V output	**PQ09RD21**
	12.0V output	**PQ12RD21**

PQ05RD21 series Low Power-Loss Voltage Regulator

■ Absolute Maximum Ratings

(Ta=25˚C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V_{in}	20	V
*1 ON/OFF control terminal voltage	V_C	20	V
Output current	I_o	2.0	A
*2 Power dissipation	P_{d1}	1.4	W
	P_{d2}	15	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 Pd1: No heat sink, Pd2: With infinite heat sink

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

■ Electrical Characteristics

(Unless otherwise specified, Io=1.0A, *4, Ta=25˚C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	**PQ3RD23**	Vo	–	3.201	3.3	3.399	V
	PQ05RD21			4.85	5.0	5.15	
	PQ09RD21			8.73	9.0	9.27	
	PQ12RD21			11.64	12.0	12.36	
Load regulation		RegL	Io=5mA to 2.0A	–	0.1	2.0	%
Line regulation		RegI	*5 , Io=5mA	–	0.5	2.5	%
Temperature coefficient of output voltage		TcVo	Tj=0 to 125˚C, Io=5mA	–	±0.02	–	%/˚C
Ripple rejection		RR	–	45	55	–	dB
Dropout voltage		Vi-o	*6, Io=2A	–	–	0.5	V
*7 ON-state voltage for control		$V_{C(on)}$	–	2	–	–	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		Iq	Io=0A	–	–	10	mA

*4 **PQ3RD23**:Vin=5V,**PQ05RD21**:Vin =7V, **PQ09RD21**:Vin =11V, **PQ12RD21**: Vin =14V

*5 **PQ3RD23**:Vin=4 to 10V, **PQ05RD21**:Vin = 6 to 12V, **PQ09RD21**:Vin =10 to 16V, **PQ12RD21**: Vin =13 to19V

*6 Input voltage shall be the value when output voltage is 95% in comparison with the initial value. **PQ3RD23**:Vin=3.7V

*7 In case of opening control teminal ④, output voltage turns on.