PQ05RR1/11/1B

1A Output, Low Power-Loss Voltage Regulators(Built-in Reset Signal Generating Function)

■ Features

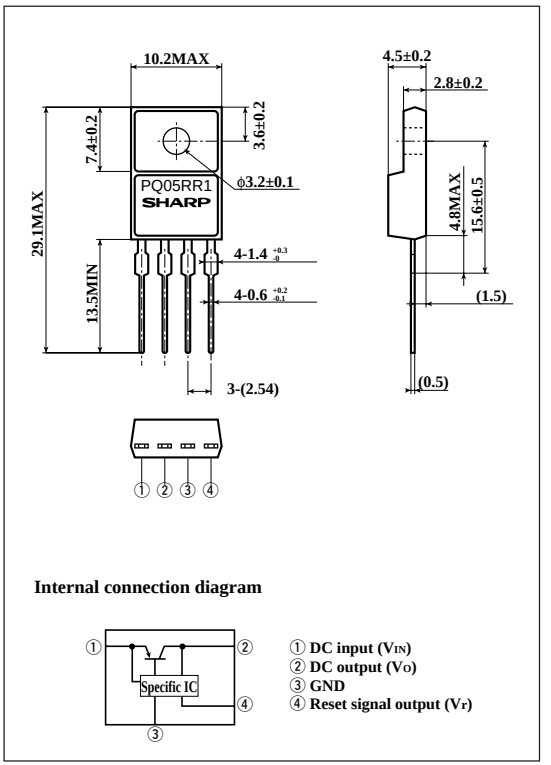
- Low power-loss (Dropout voltage : MAX. 0.5V)
- Compact resin full-mold package
- Built-in reset signal generating function to prevent errors of microcomputer when the output voltage drops.
- Lead forming type **(PQ05RR1B**) is also available.

■ Applications

- Series power supply for equipment provided with microcomputer such as electronic musical instruments and VCRs

■ Outline Dimensions

(Unit : mm)



■ Model Line-ups

Output voltage	5V output
Output voltage precision:±5%	PQ05RR1
Output voltage precision:±2.5%	PQ05RR11

■ Absolute Maximum Ratings

(T_a=25˚C)

	Parameter	Symbol	Rating	Unit
*1	Input voltage	V_{IN}	35	V
*1	Reset output voltage	V_r	35	V
	Output current	I_O	1	A
	Reset output current	I_r	10	mA
	Power dissipation(No heat sink)	P_{D1}	1.5	W
*2	Power dissipation(With infinite heat sink)	P_{D2}	15	W
	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, condition shall be V_{IN}=7V, I_O=0.5A, T_a=25˚C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	PQ05RR1	V_O	-	4.75	5.0	5.25	V
	PQ05RR11			4.88	5.0	5.12	
Load regulation		$R_{eg}L$	I_O=5mA to 1.0A	-	0.1	2.0	%
Line regulation		$R_{eg}I$	V_{IN}=6 to 12V	-	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	-	-	0.5	V
Low reset output voltage		V_{rl}	I_O=5mA, I_r=5mA	-	-	0.8	V
Reset threshold voltage		V_{rt}	I_O=5mA	V_O-0.25	-	V_O-0.1	V
Reset output leak current		I_{rlk}	I_O=5mA, V_r=35V	-	-	30	μA
Quiescent current		I_q	I_O=0	-	-	10	mA

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

Fig.1 Test Circuit

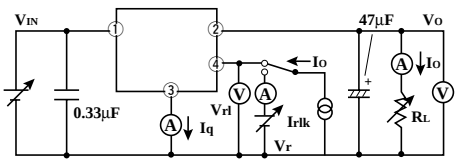
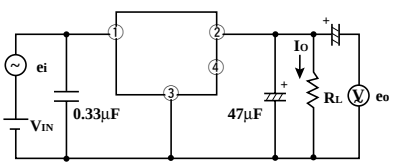
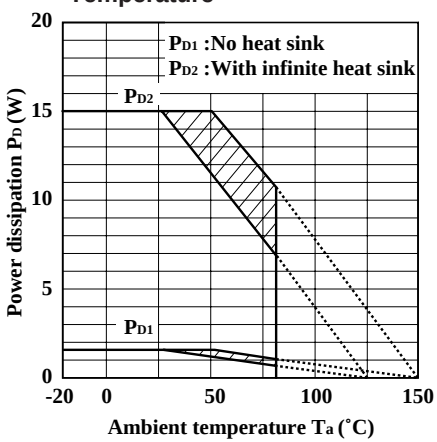


Fig.2 Test Circuit of Ripple Rejection



f=120Hz (sine wave)
ei=0.5Vrms
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)

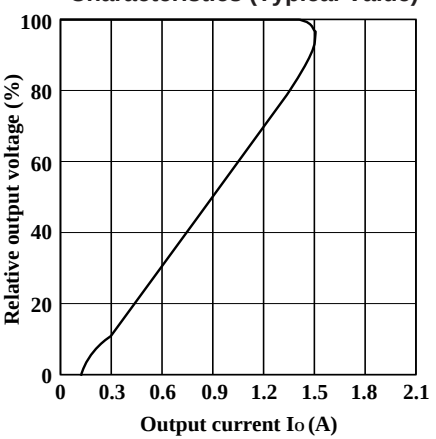


Fig.5 Output Voltage Deviation vs. Junction Temperature

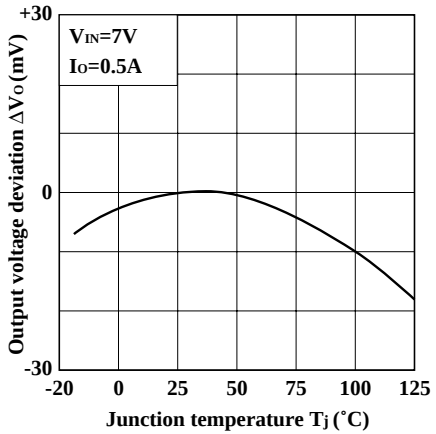


Fig.6 Output Voltage vs. Input Voltage (Typical Value)

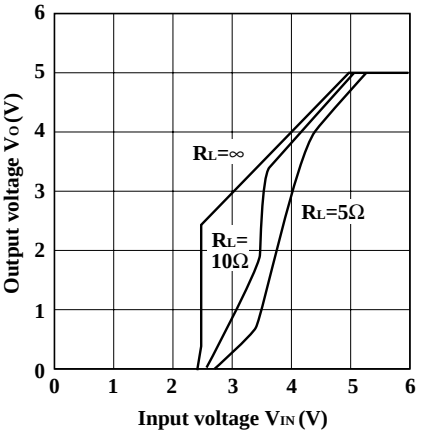


Fig.7 Circuit Operating Current vs. Input Voltage (Typical Value)

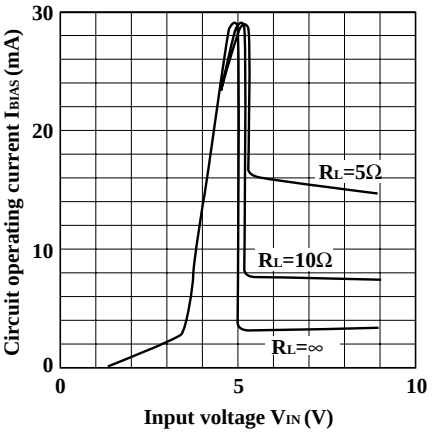


Fig.8 Quiescent Current vs. Junction Temperature

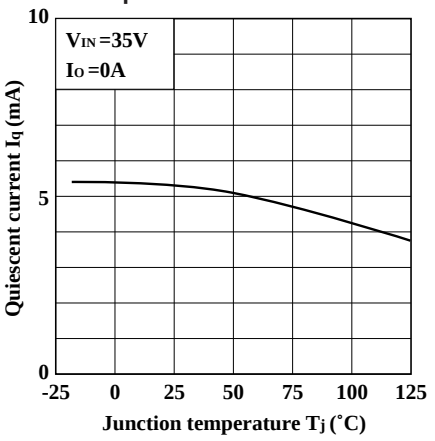


Fig.9 Ripple Rejection vs. Input Ripple Frequency

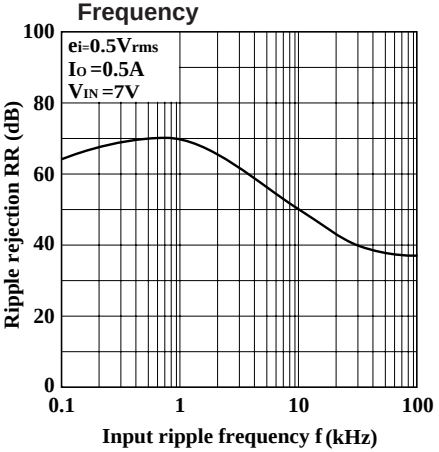


Fig.10 Ripple Rejection vs. Output Current

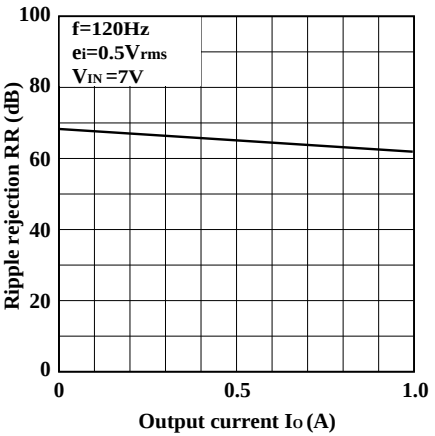


Fig.11 Output Peak Current vs. Junction Temperature

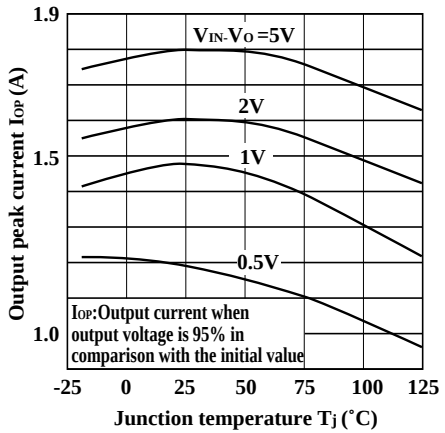


Fig.12 Output Peak Current vs. Dropout Voltage

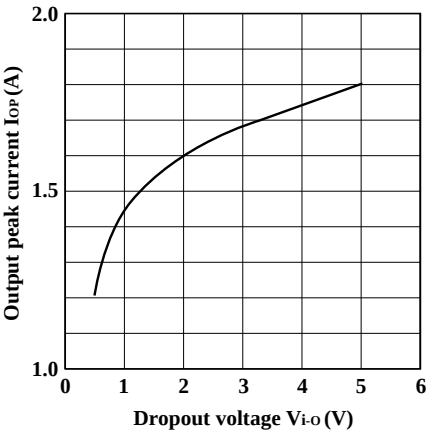
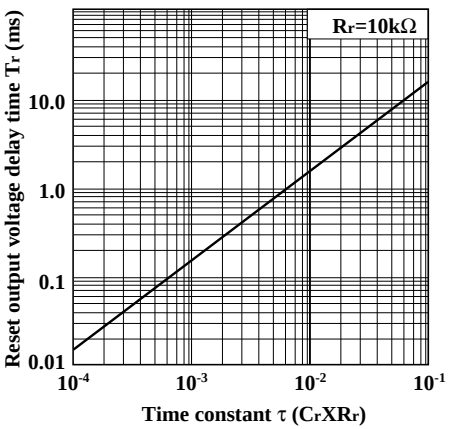
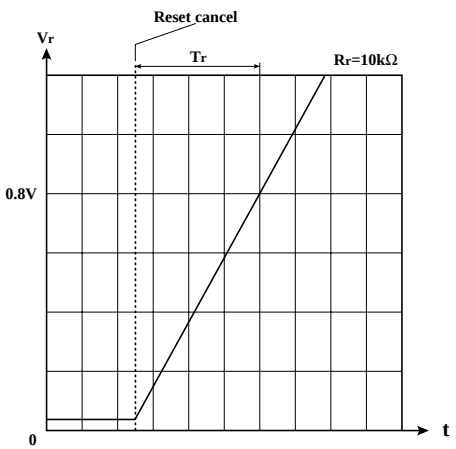
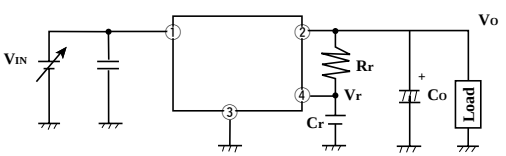


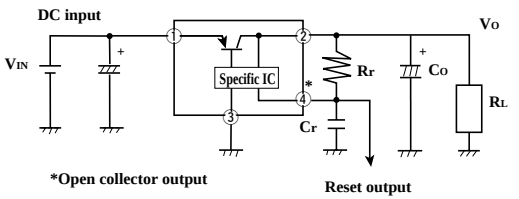
Fig.13 Reset Output Delay Time vs. Time Constant



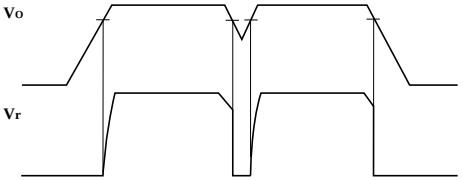




■ Typical Application



■ Reset Output Response Characteristics

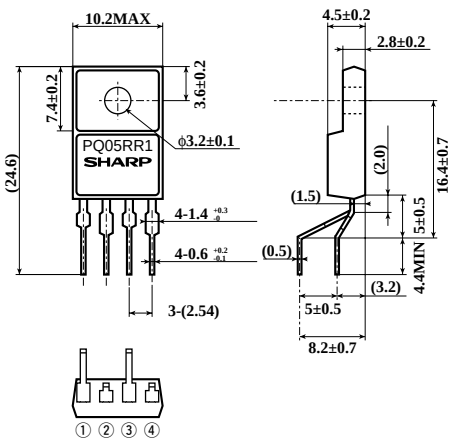


■ Model Line-up for Lead Forming Type

Output voltage	5Voutput
Output voltage precision:±2.5%	PQ05RR1B

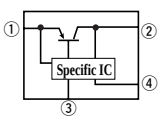
■ Outline Dimensions

(Unit : mm)



· ( ) : Typical value
· Radius of lead forming portion : R=0.5 to 1.5mm

Internal connection diagram



① DC input (V_{IN})
② DC output (V_O)
③ GND
④ Reset signal output (V_r)

Note) The value of absolute maximum ratings and electrical characteristics is same as ones of PQ05RR11.