PQ05RRI 2/13

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

■ Features

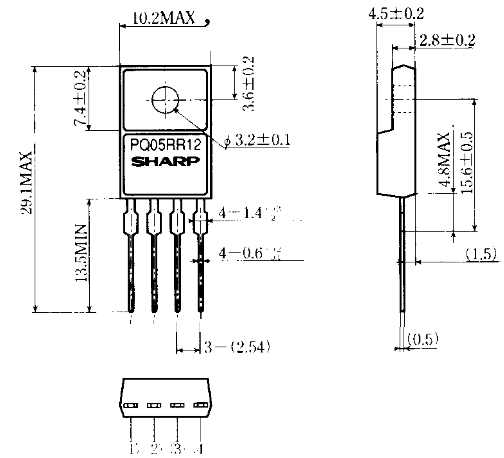
- Compact resin full-mold package
- Low power-loss (Dropout voltage: MAX. 0.5V)
- The regulators are provided with reset signal generating function to prevent errors of microcomputer when input voltage is applied and output voltage drops.
- High-precision output type
  (Output Voltage precision: ± 2.5%) (**PQ05RR1 3)**

■ Applications

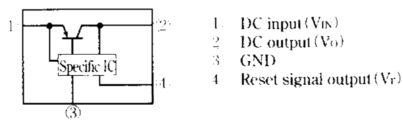
- Series power supply for equipment such as TVs. VCRs and electronic music instruments

■ Outline Dimensions

(Unit : mm)



Internal connection diagram



■ Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Rating	Unit
※1 Input voltage	V_{IN}	24	V
※1 Reset output voltage	V_r	24	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
※3 Soldering temperature	T_{sol}	260	°C

※1 All are open except GND and applicable terminals
※2 Overheat protection may operate at 125≤T_j≤150 °C.
※3 For 10s

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	PQ05RR12	V_O		4.75	5.0	5.25	V
	PQ05RR13			4.88	5.0	5.12	
Load regulation		R_{egL}	I_O=5mA to 1.0A		0.1	2.0	%
Line regulation		R_{egI}	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}	*4		-	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, *5	3.55	3.75	3.95	V
Reset output leak current		I_{rlk}	I_O=5mA, V_r=24V			30	μA
Quiescent current		I_q	I_O=0			10	mA

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

*5 Output voltage shall be the value when input voltage lowers and V_r becomes low

Fig. 1 Test Circuit

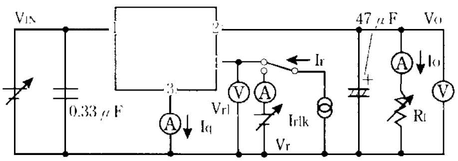
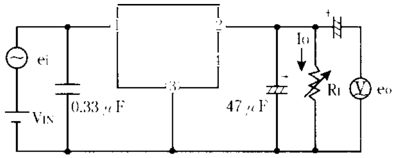
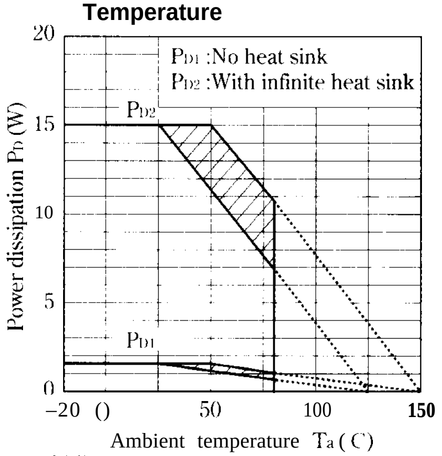


Fig. 2 Test Circuit of Ripple Rejection



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)

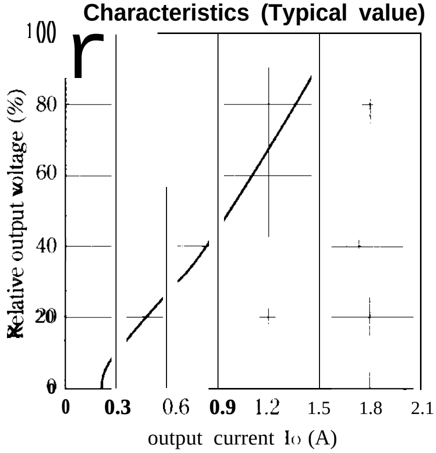


Fig. 5 Output Voltage Deviation vs. Junction Temperature

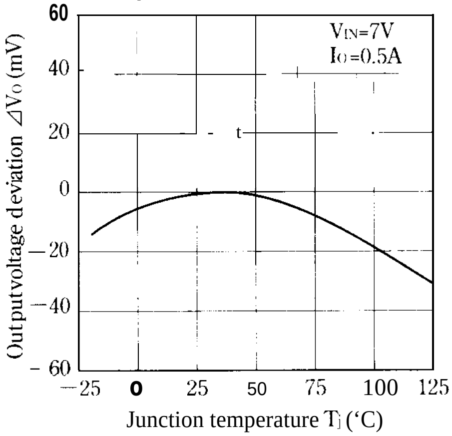


Fig. 6 Output Voltage vs. Input Voltage

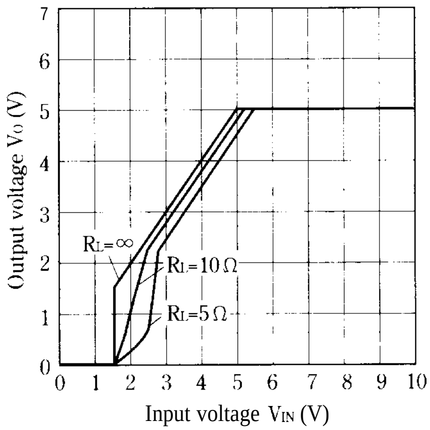


Fig. 7 Circuit Operating Current vs. Input Voltage

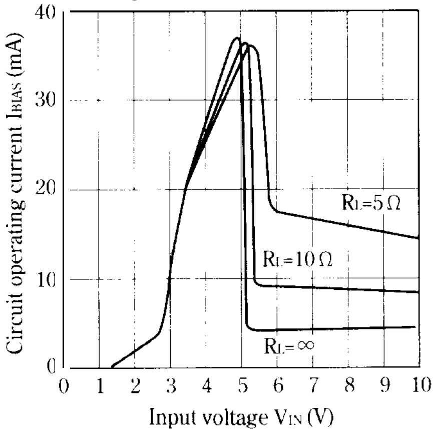


Fig. 8 Quiescent Current vs. Junction Temperature

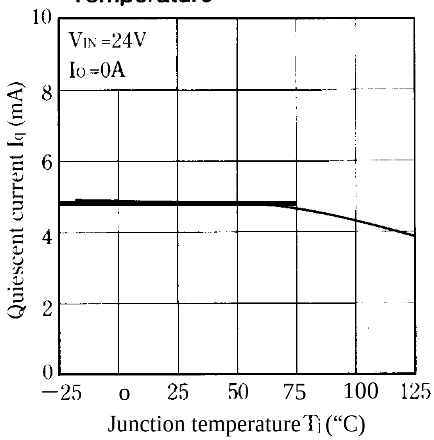


Fig. 9 Ripple Rejection vs. Input Ripple Frequency

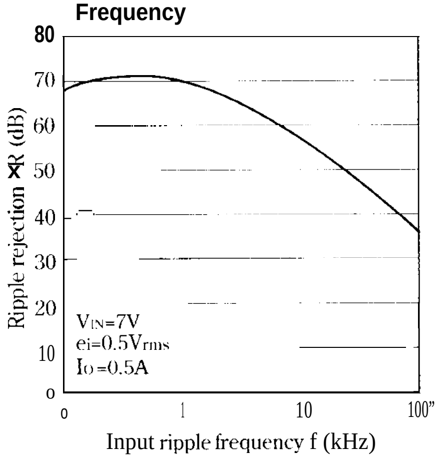


Fig.10 Ripple Rejection vs. Output Current

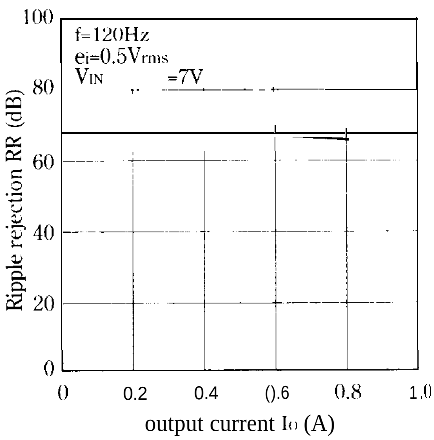


Fig.11 Output Peak Current vs. Junction Temperature

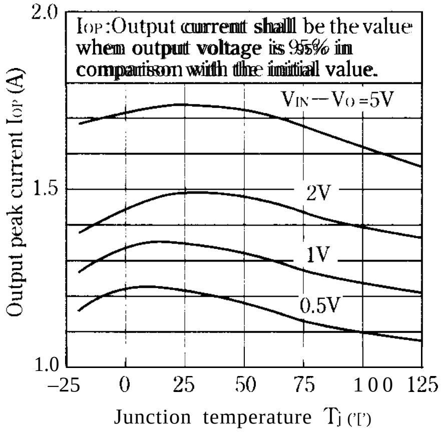


Fig.12 Output Peak Current vs. Dropout Voltage

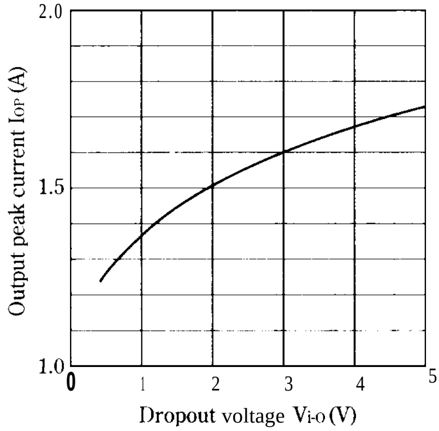
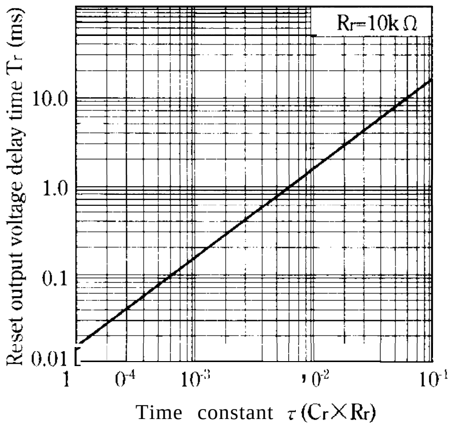
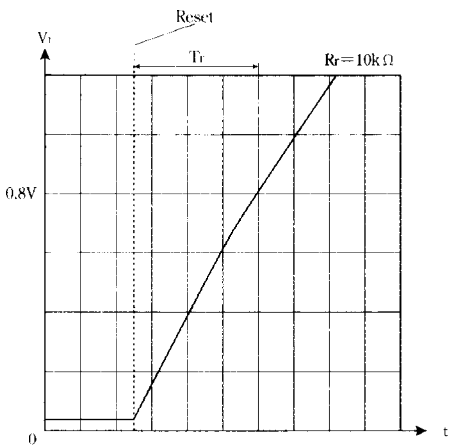
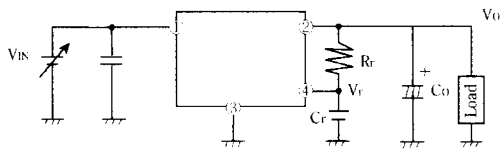


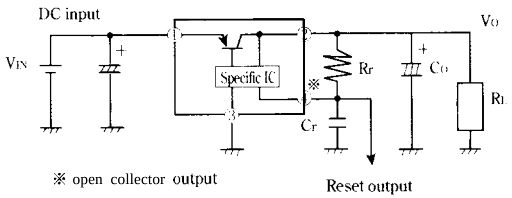
Fig.13 Reset Output Delay Time vs. Time Constant







Typical Application



Reset Output Response Characteristics