PQ15RW08/PQ15RW11/PQ15RW21

Variable Output, General Purpose Type Low Power-Loss Voltage Regulator

■ Features

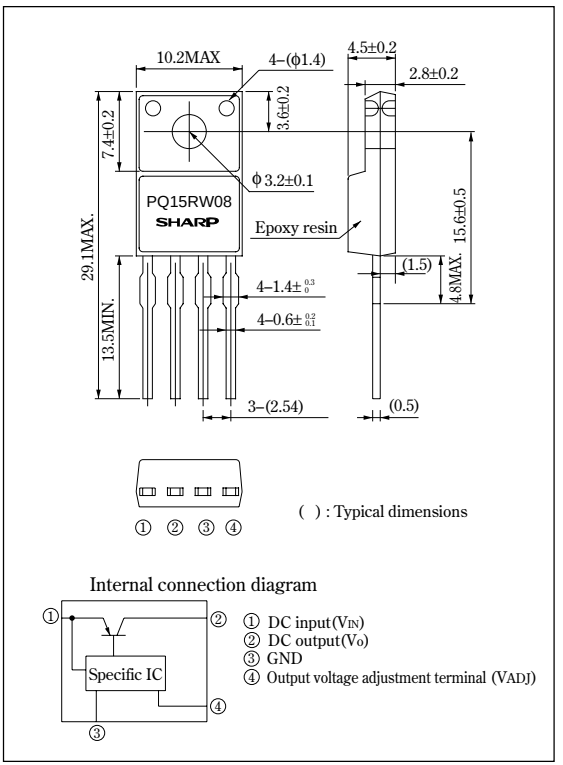
- Low power-loss
  (Dropout voltage: MAX. 0.5V at Io=0.5A [PQ15RW08/11],
  Io=2A [PQ15RW21])
- Compact resin mold package (equivalent to TO-220)
- Variable output voltage (3.0 to 15V)
- Low voltage operation (Minimum supply voltage: 3.5V)
- Reference voltage precision: ±2.5%
- Built-in overcurrent, overheat protection functions, ASO protection circuit
- Lead forming type is also available.

■ Applications

- Power supplies for various electronic equipment such as AV, OA eguipment

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta=25˚C)

Parameter	Symbol	Rating			Unit
		PQ15RW08	PQ15RW11	PQ15RW21	
※1 Input voltage	V_{IN}	20			V
※1 Output adjustment terminal voltage	V_{ADJ}	5			V
Output current	Io	0.8	1.0	2.0	A
※2 Power dissipation	P_{D1}	1.25	1.4		W
	P_{D2}	10	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 P_{D1}: No heat sink, P_{D2}: With infinite heat sink
※3 Overheat protection may operate at 125<=Tj<=150˚C

• Please refer to the chapter " Handling Precautions ".

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Internet Internet address for Electronic Components Group http://sharp-world.com/ecg/

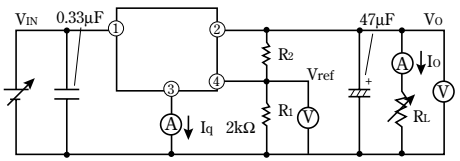
■ Electrical Characteristics (Unless otherwise specified, conditions shall be V_{IN}=5V, V_O=3.3V(R_1=2kΩ, R_2=500Ω), I_O=0.5A) (T_a=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	V_{IN}	—	3.5	—	20	V
Output voltage	V_O	—	3.0	—	15	V
Load regulation	R_{egL}	※4	—	0.3	2.0	%
Line regulation	R_{egI}	V_{IN}=5 to 15V, I_O=5mA	—	0.5	2.5	%
Ripple rejection	RR	Refer to Fig. 2	45	55	—	dB
Reference voltage	V_{ref}	—	2.574	2.64	2.706	V
Temperature coefficient of reference voltage	T_cV_{ref}	Tj=0 to 125°C	—	±0.01	—	%/°C
Dropout voltage	V_{i-o}	V_{IN}=3.5V, ※5	—	—	0.5	V
Quiescent current	I_q	I_O=0A	—	—	8	mA

※4 PQ15RW08: I_O=5mA to 0.8A, PQ15RW11: I_O=5mA to 1A, PQ15RW21: I_O=5mA to 2A

※5 PQ15RW08/PQ15RW11: I_O=0.5A, PQ15RW21: I_O=2A

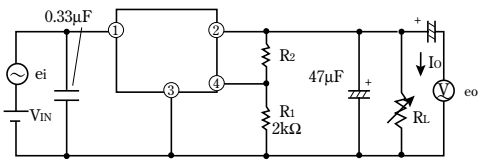
Fig. 1 Test Circuit



$$V_O = V_{ref} \times \left(1 + \frac{R_2}{R_1}\right)$$

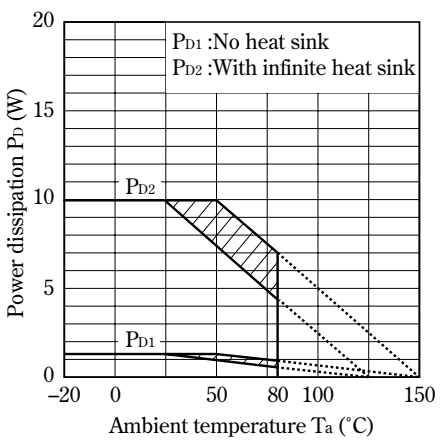
[R_1=2kΩ, V_{ref} Nearly=2.64V]

Fig. 2 Test Circuit of Ripple Rejection



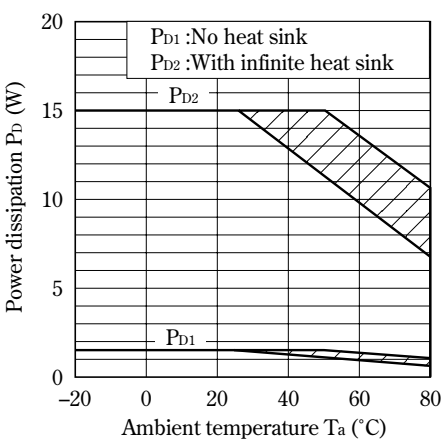
f=120Hz(sine wave)
ei(rms)=0.5V
I_O=0.5A
RR=20 log(ei(rms)/eo(rms))
V_{IN}=5V
V_O=3.3V(R_1=2kΩ)

Fig. 3 Power Dissipation vs. Ambient Temperature (PQ15RW08)



Note) Oblique line portion : Overheat protection may operate in this area.

Fig. 4 Power Dissipation vs. Ambient Temperature(PQ15RW11/21)



Note) Oblique line portion : Overheat protection may operate in this area.

Fig. 5 Overcurrent Protection Characteristics (Typical Value) (PQ15RW08)

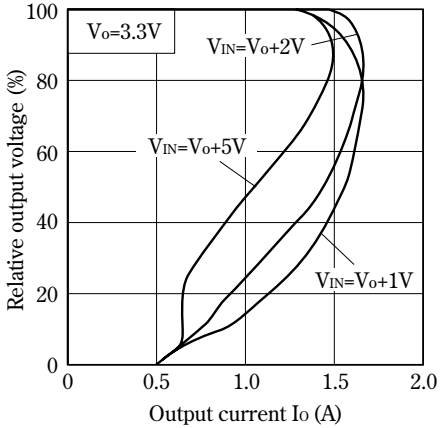


Fig. 6 Overcurrent Protection Characteristics (Typical Value) (PQ15RW11)

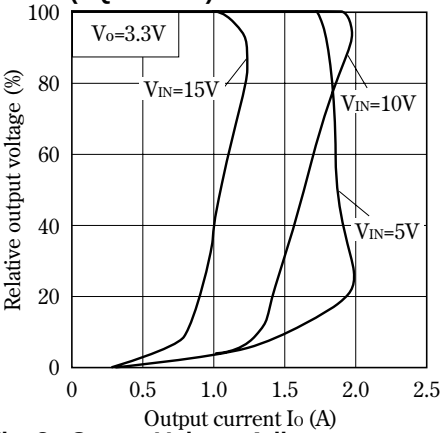


Fig. 7 Overcurrent Protection Characteristics (Typical Value) (PQ15RW21)

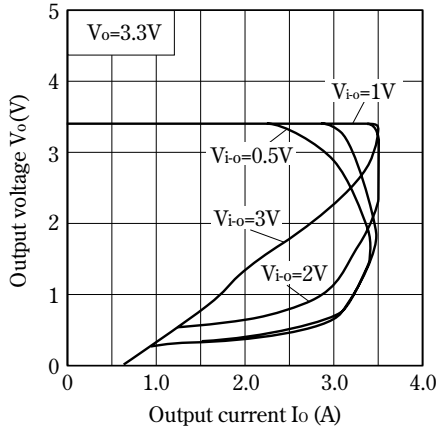
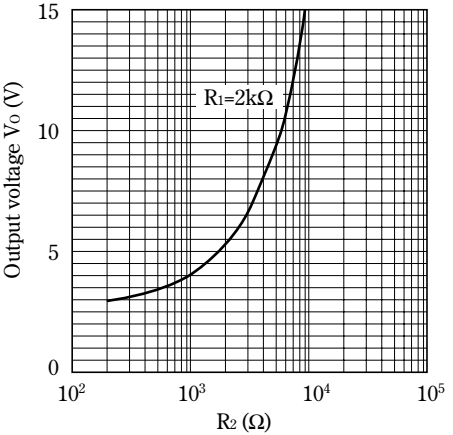
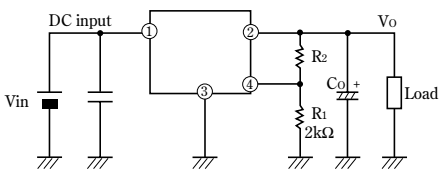


Fig. 8 Output Voltage Adjustment Characteristics



■ Typical Application



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  --- Telecommunication equipment [terminal]
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  --- Industrial control
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  --- Alarm equipment
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