

# PQ15RW08/PQ15RW11/PQ15RW21

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

### Features

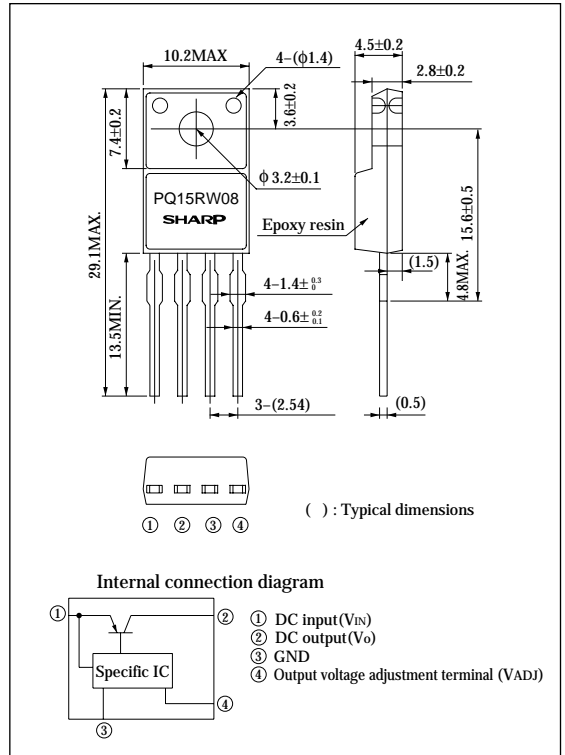
- Low power-loss  
(Dropout voltage: MAX. 0.5V at  $I_o=0.5A$  [PQ15RW08/11],  $I_o=2A$  [PQ15RW21])
- Compact resin mold package (equivalent to TO-220)
- Variable output voltage (3.0 to 15V)
- Low voltage operation (Minimum supply voltage: 3.5V)
- Reference voltage precision:  $\pm 2.5\%$
- Built-in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

### Applications

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

### Outline Dimensions

(Unit : mm)



### Absolute Maximum Ratings

( $T_a=25^\circ C$ )

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	$I_o$	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			$^\circ C$
Operating temperature	$T_{opr}$	-20 to +80			$^\circ C$
Storage temperature	$T_{stg}$	-40 to +150			$^\circ C$
Soldering temperature	$T_{sol}$	260 (For 10s)			$^\circ C$

\*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  $125 \leq T_j < 150^\circ C$

• Please refer to the chapter " Handling Precautions ".

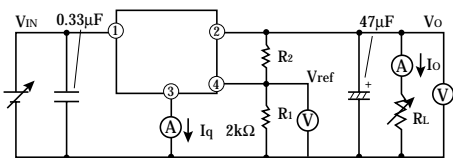
**Electrical Characteristics** (Unless otherwise specified, conditions shall be  $V_{IN}=5V$ ,  $V_O=3.3V$  ( $R_1=2k\Omega$ ,  $R_2=500\Omega$ ),  $I_o=0.5A$ ) ( $T_a=25^\circ C$ )

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	$R_{egl}$	$V_{IN}=5$ 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	$T_c V_{ref}$	$T_j=0$ to $125^\circ C$	—	$\pm 0.01$	—	%/ $^\circ C$
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:  $I_o=2A$

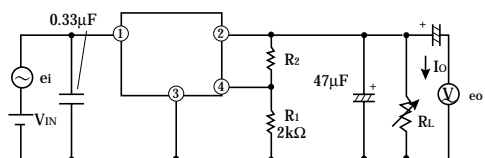
Fig. 1 Test Circuit



$$V_o = V_{ref} \times \left( 1 + \frac{R_2}{R_1} \right) \text{ Nearly } = 2.64 \times \left( 1 + \frac{R_2}{R_1} \right)$$

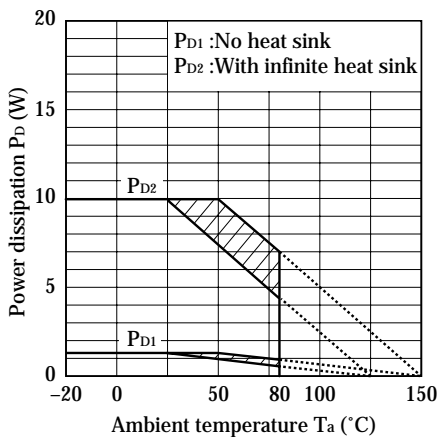
[ $R_1=2k\Omega$ ,  $V_{ref}$  Nearly= $2.64V$ ]

Fig. 2 Test Circuit of Ripple Rejection



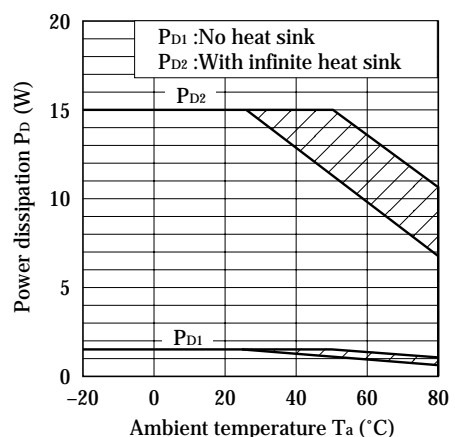
$f=120Hz$ (sine wave)  
 $e_i=0.5V_{rms}$   
 $I_o=0.5A$   
 $RR=20 \log(e_i/e_o)$   
 $V_{IN}=5V$   
 $V_o=3.3V$ ( $R_1=2k\Omega$ )

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



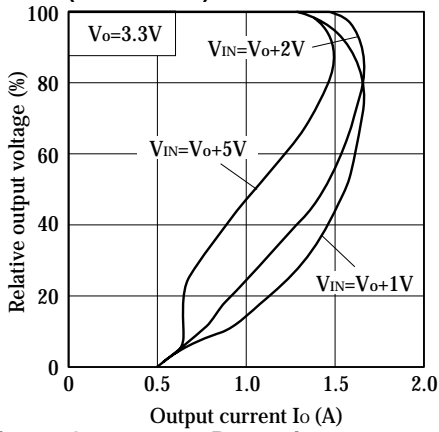
Note) Oblique line portion : Overheat protection may operate in this area.

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

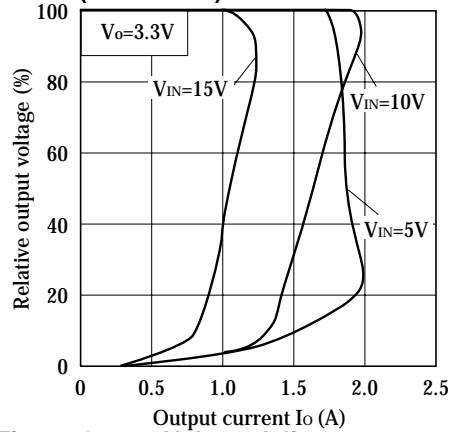


Note) Oblique line portion : Overheat protection may operate in this area.

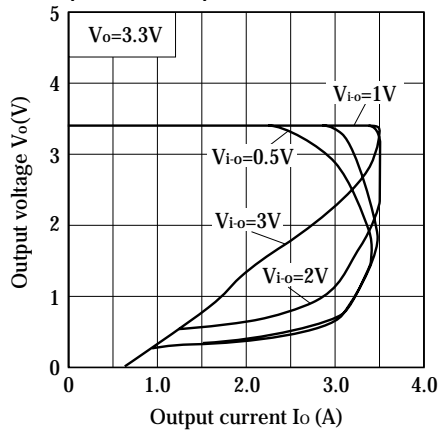
**Fig. 5 Overcurrent Protection Characteristics (Typical Value) (PQ15RW08)**



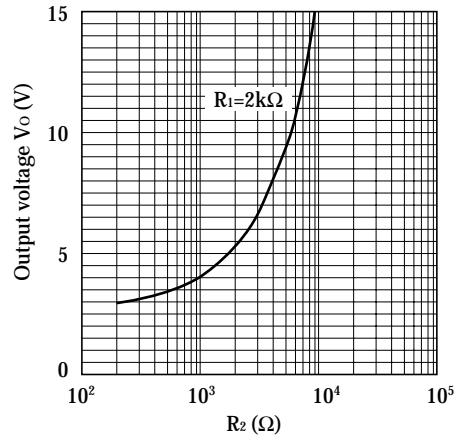
**Fig. 6 Overcurrent Protection Characteristics (Typical Value) (PQ15RW11)**



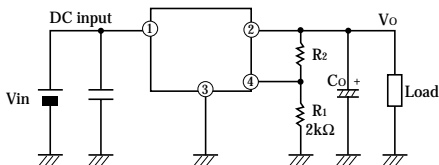
**Fig. 7 Overcurrent Protection Characteristics (Typical Value) (PQ15RW21)**



**Fig. 8 Output Voltage Adjustment Characteristics**



■ Typical Application



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