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PQ15RW08/PQ15RW11/PQ15RW21

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

Features

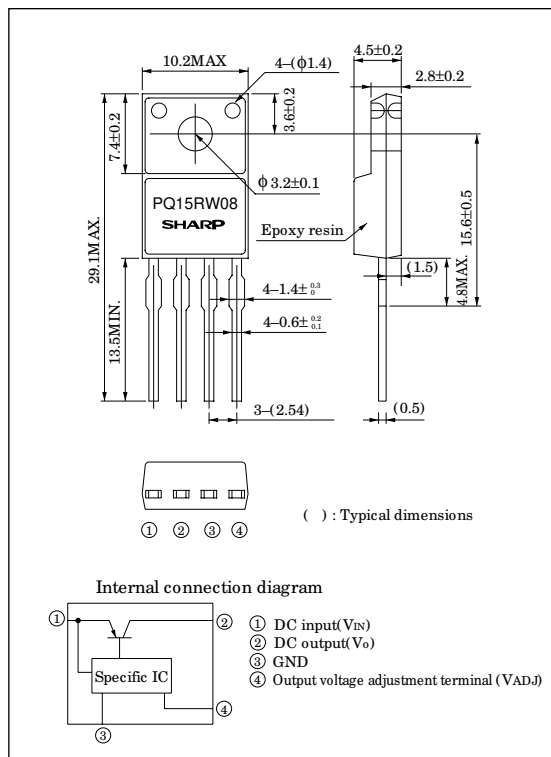
- Low power-loss
(Dropout voltage: MAX. 0.5V at $I_o=0.5A$ [PQ15RW08/11],
 $I_o=2A$ [PQ15RW21])
- Compact resin mold package (equivalent to TO-220)
- Variable output voltage (3.0 to 15V)
- Low voltage operation (Minimum supply voltage: 3.5V)
- Reference voltage precision: $\pm 2.5\%$
- Built-in overcurrent, 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°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			°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 ≤ T_J ≤ 150°C

• Please refer to the chapter "Handling Precautions".

SHARP

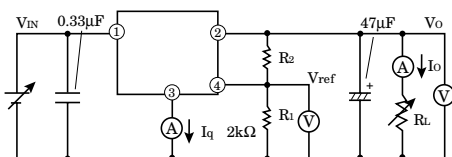
Electrical Characteristics (Unless otherwise specified, conditions shall be $V_{IN}=5V$, $V_O=3.3V$ ($R_1=2k\Omega$, $R_2=500\Omega$), $I_O=0.5A$) ($T_a=25^\circ C$)

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_{eL}	※4	—	0.3	2.0	%
Line regulation	R_{eI}	$V_{IN}=5$ 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 $125^\circ C$	—	± 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: $I_O=2A$

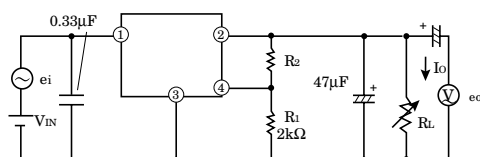
Fig. 1 Test Circuit



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

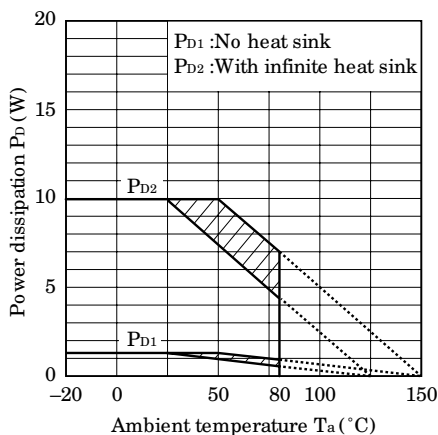
[$R_1=2k\Omega$, V_{ref} Nearly=2.64V]

Fig. 2 Test Circuit of Ripple Rejection



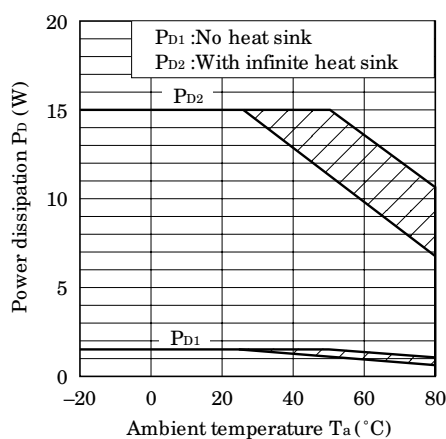
$f=120Hz$ (sine wave)
 $e_i=0.5V_{rms}$
 $I_O=0.5A$
 $RR=20 \log(e_i/e_o)$
 $V_{IN}=5V$
 $V_O=3.3V$ ($R_1=2k\Omega$)

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)

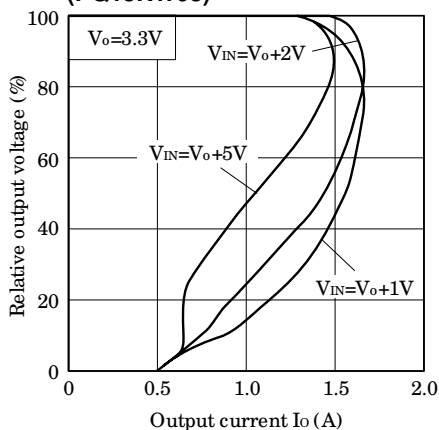


Fig. 6 Overcurrent Protection Characteristics (Typical Value) (PQ15RW11)

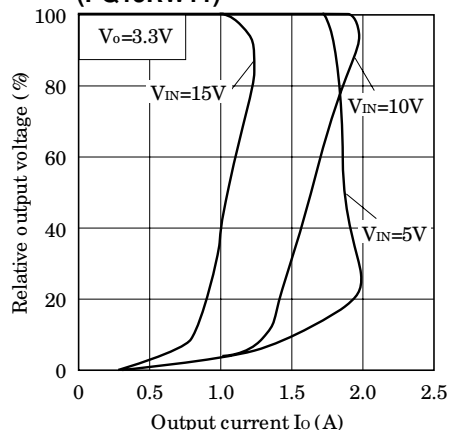


Fig. 7 Overcurrent Protection Characteristics (Typical Value) (PQ15RW21)

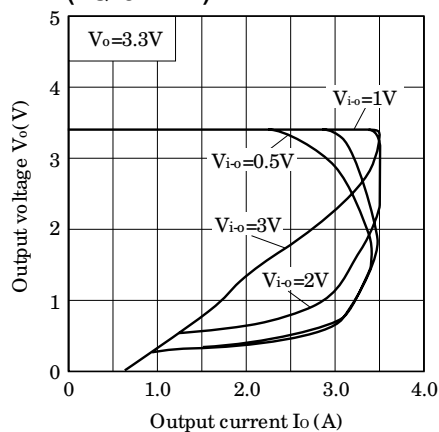
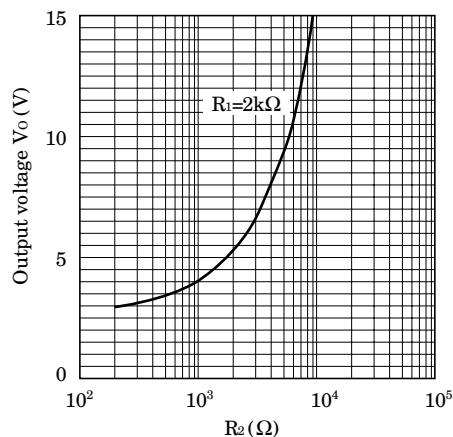
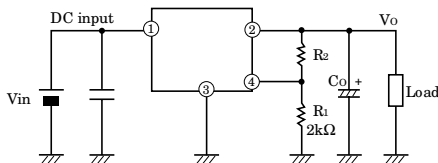


Fig. 8 Output Voltage Adjustment Characteristics



Typical Application



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