

PQ05RD11 Series

1A Output, General Purpose Low Power-loss Voltage Regulators

■ Features

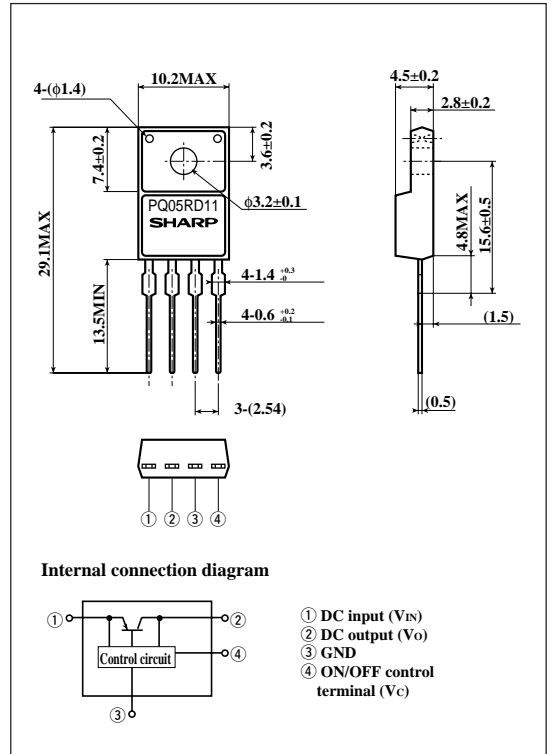
- Low Power-loss (Dropout voltage : MAX.0.5V at I_o=0.5A)
- Line-up for 5V, 9V and 12V output type
- Compact resin package (TO-220 package)
- High-precision output voltage type
Output voltage precision : ±3.0%
- Built-in ON/OFF control function
- Built-in overcurrent protection, overheat protection, ASO protection circuit

■ 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
*1 Input voltage	V _{IN}	20	V
*1 ON/OFF control terminal voltage	V _C	20	V
Output current	I _o	1.0	A
Power dissipation (No heat sink)	P _{D1}	1.4	W
Power dissipation (With infinite heat sink)	P _{D2}	15	
*2 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<T_j<150°C

· Please refer to the chapter "Handling Precautions".

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■ Electrical Characteristics

(Unless otherwise specified, conditions shall be $I_o=0.5A$, ^{*3}, $T_a=25^{\circ}C$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	V _o	-	4.85	5.0	5.15	V
			8.73	9.0	9.27	
			11.64	12.0	12.36	
Load regulation	R _{egL}	I _o =5mA to 1.0A	-	0.1	2.0	%
Line regulation	R _{egI}	^{*4} , I _o =5mA	-	0.5	2.5	%
Temperature coefficient of output voltage	T _c V _o	T _j =0 to 125°C, I _o =5mA	-	±0.02	-	%/°C
Ripple rejection	RR	-	45	55	-	dB
Dropout voltage	V _{i-o}	^{*5}	-	-	0.5	V
^{*6} ON-state voltage for control	V _{C(ON)}	-	2	-	-	V
ON-state current for control	I _{C(ON)}	V _C =2.7V	-	-	20	μA
OFF-state voltage for control	V _{C(OFF)}	-	-	-	0.8	V
OFF-state current for control	I _{C(OFF)}	V _C =0.4V	-	-	-0.4	mA
Quiescent current	I _q	I _o =0A	-	-	10	mA

^{*3} PQ05RD11: V_{IN} = 7V, PQ09RD11: V_{IN} = 11V, PQ12RD11: V_{IN} = 14V

^{*4} PQ05RD11: V_{IN} = 6 to 12V, PQ09RD11: V_{IN} = 10 to 16V, PQ12RD11: V_{IN} = 13 to 19V

^{*5} Input voltage shall be the value when output voltage is 95% in comparison with the initial value.

^{*6} In case of opening control terminal ④, output voltage turns on.

Fig.1 Test Circuit

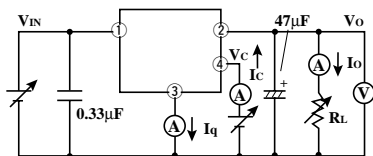
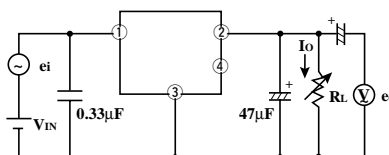
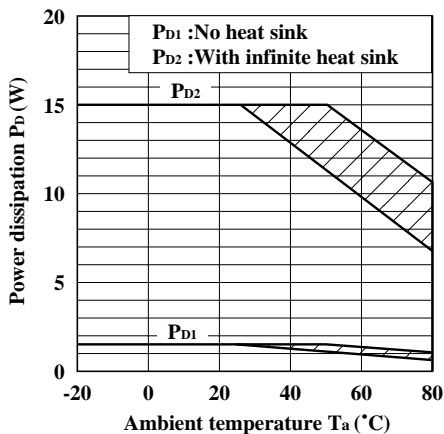


Fig.2 Test circuit for Ripple Rejection



f=120Hz (sine wave)
 ei=0.5V_{rms}
 V_{IN}= 7V (PQ05RD11)
 V_{IN}=11V (PQ09RD11)
 V_{IN}=14V (PQ12RD11)
 I_o=0.3A
 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) (PQ05RD11)

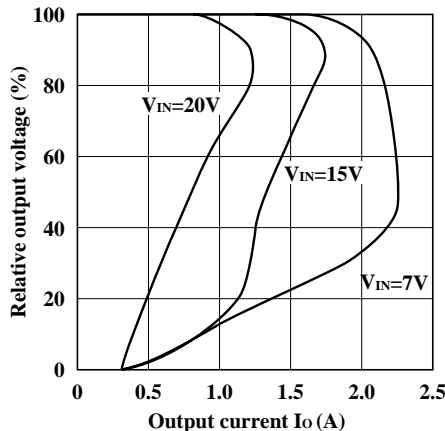


Fig.5 Overcurrent Protection Characteristics (Typical Value) (PQ09RD11)

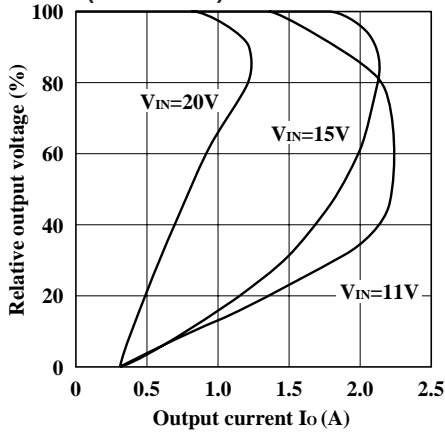


Fig.6 Overcurrent Protection Characteristics (Typical Value) (PQ12RD11)

