

PQ05RF14

1A Output, Low Power-Loss Voltage Regulator Considering Power Line Voltage Drop

■ Features

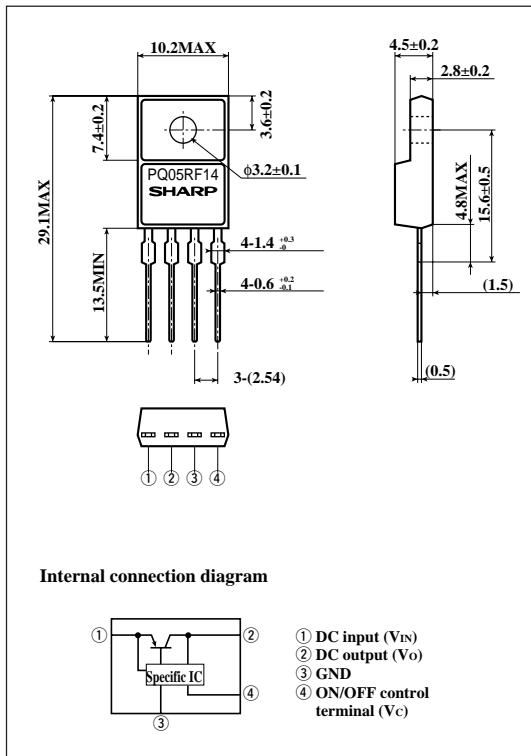
- Low power-loss (Dropout voltage : MAX. 0.5V)
- Compact resin full-mold package
- Output voltage value (5.1V) with an allowance for power line voltage drop
- High-precision output voltage type (output voltage precision : ±2.5%)
- Built-in ON/OFF control function

■ Applications

- Series power supply for various electronic equipment such as VCRs and electronic instruments

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V _{IN}	35	V
*1 ON/OFF control terminal voltage	V _C	35	V
Output current	I _O	1	A
Power dissipation (No heat sink)	P _{D1}	1.5	W
Power dissipation (with infinite heat sink)	P _{D2}	15	W
*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 Over heat protection may operate at 125=<T_j<150°C

· Please refer to the chapter“ Handling Precautions ”.



“ In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP’s device. ”

■ Electrical Characteristics

(Unless otherwise specified, condition shall be $V_{IN}=7V$, $I_o=0.5A$, $T_a=25^{\circ}C$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	V_o	-	4.97	5.1	5.23	V
Load regulation	R_{eL}	$I_o=5mA$ to 1A	-	0.1	2.0	%
Line regulation	R_{eL}	$V_{IN}=6$ to 16V	-	0.5	2.5	%
Temperature coefficient of output voltage	TcV_o	$T_j=0$ to $125^{\circ}C$	-	± 0.02	-	$\%/^{\circ}C$
Ripple rejection	RR	Refer to Fig. 2	45	55	-	dB
Dropout voltage	V_{i-o}	^{*3}	-	-	0.5	V
ON-state voltage for control	$V_{C(ON)}$	^{*4}	2.0	-	-	V
ON-state current for current	$I_{C(ON)}$	$V_C=2.7V$	-	-	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} Input voltage shall be the value when output voltage is 95% in comparison with the initial value.

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

Fig.1 Test Circuit

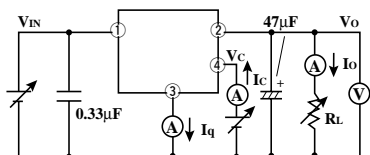


Fig.2 Test Circuit of Ripple Rejection

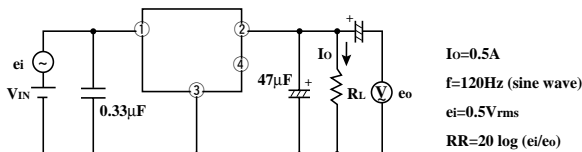
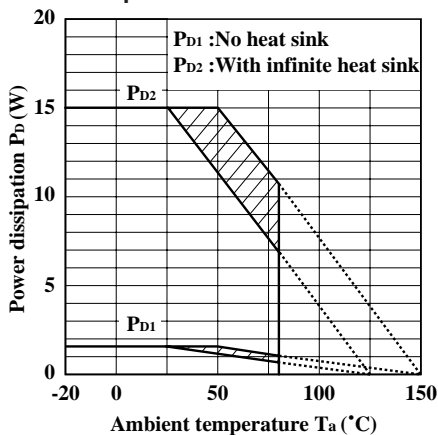


Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics (Typical Value)

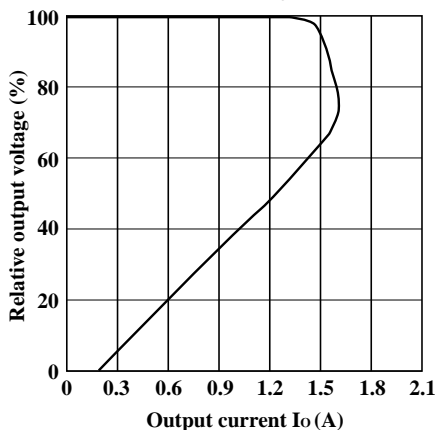


Fig.5 Output Voltage vs. Input Voltage

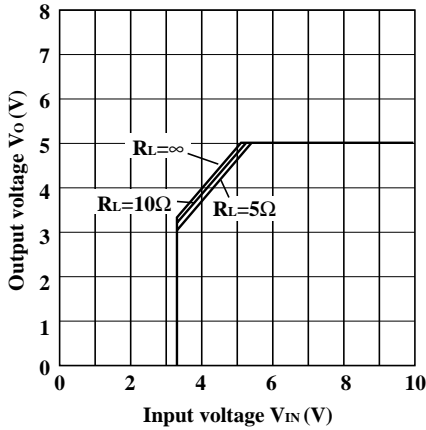


Fig.6 Circuit Operating Current vs. Input Voltage

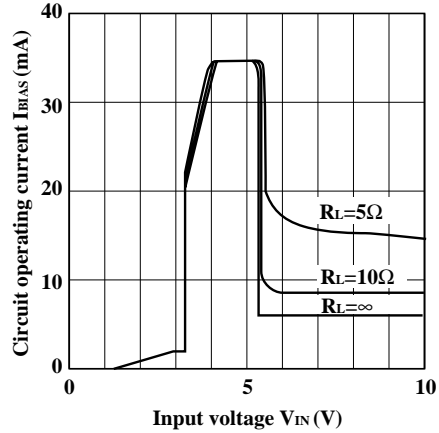


Fig.7 Dropout Voltage vs. Junction Temperature

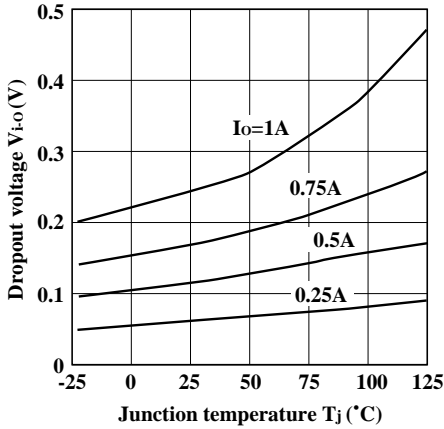


Fig.8 Quiescent Current vs. Junction Temperature

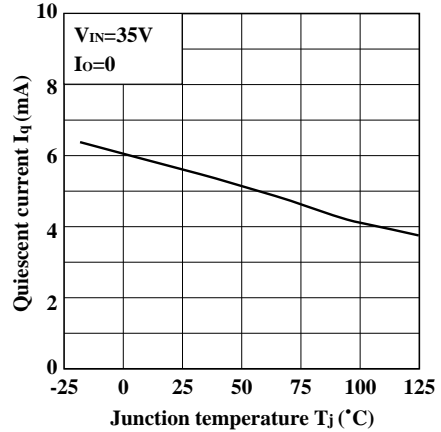


Fig.9 Ripple Rejection vs. Input Ripple Frequency

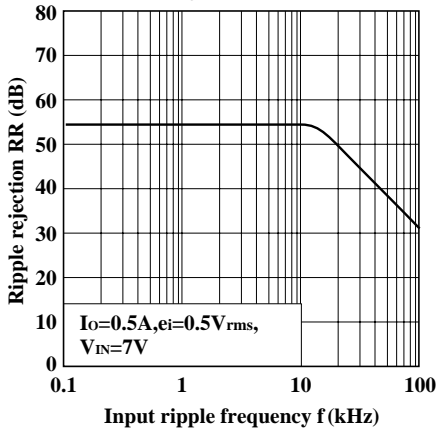


Fig.10 Ripple Rejection vs. Output Current

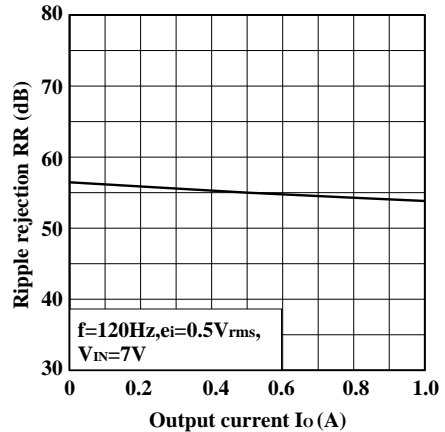


Fig.11 Output Peak Current vs. Dropout Voltage

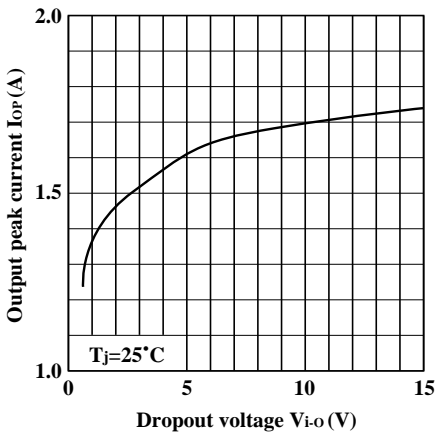


Fig.12 Output Peak Current vs. Junction Temperature

