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 (5.1 V) with an allowance for power line voltage drop

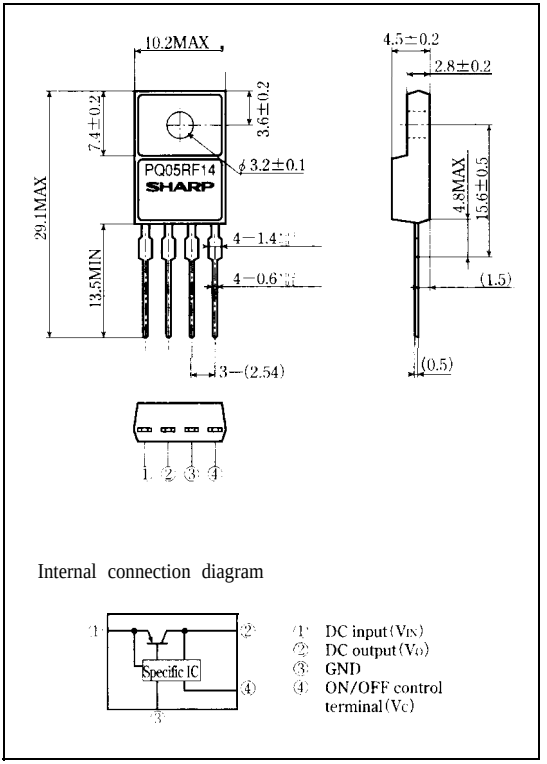
. High-precision output voltage type (output voltage precision : ± 2.5%)
- Built-in ON/OFF control function

■ Applications

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

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta=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	10	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,	150	°C
Operating temperature	T_{opr}	-2(I 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≦Tj≦150°C

Please refer to the chapter "Handling Precautions"

■ Electrical Characteristics

(Unless otherwise specified, condition shall be V_{IN}=7V, Io=0.5A, T_a=25°C)

Parameter	Symbol	Conditions	MIN.	TYP	MAX.	Unit
Output voltage	V_O		497	5.1	5.23	V
Load regulation	RegL	Io=5mA to 1A		0.1	2.0	%
Line regulation	RegL	V_{IN}=6 to 16V		0.5	2.5	%
Temperature coefficient of output voltage	TcVo	Tj=0 to 125°C		±0.02		%/°C
Ripple rejection	RR	Refer to Fig. 2	45	55		dB
Dropout voltage	VI-U	*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	Io=0A			In	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

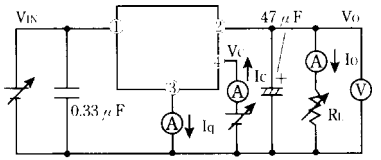
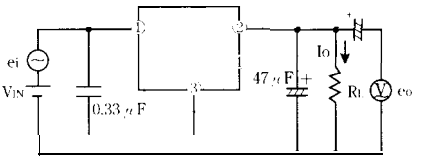
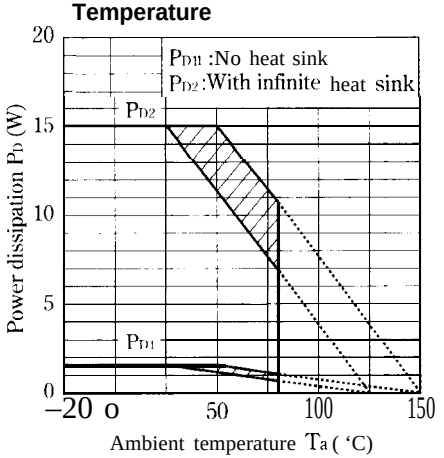


Fig. 2 Test Circuit of Ripple Rejection



Io=0.5A
f=120Hz (sine wave)
ei=0.5Vrms
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)

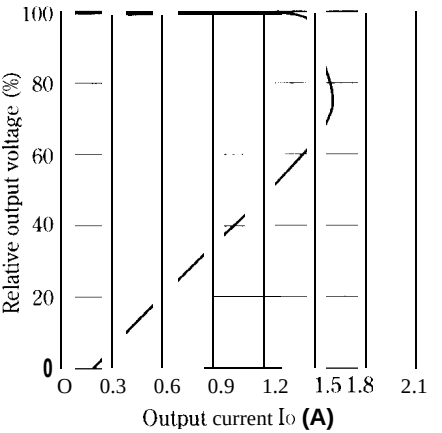


Fig. 5 Output Voltage vs. Input Voltage

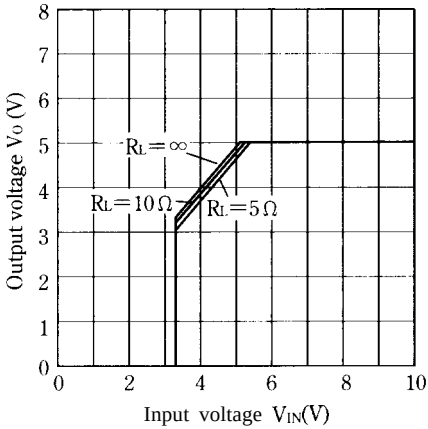


Fig. 6 Circuit Operating Current vs. input Voltage

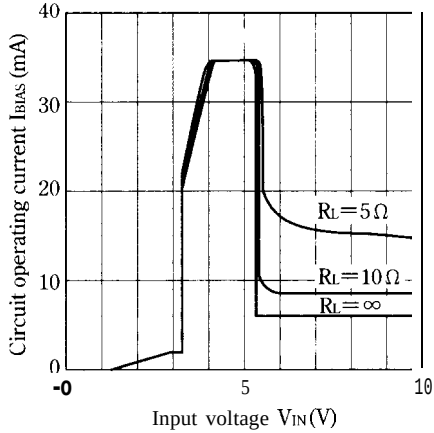


Fig. 7 Dropout Voltage vs. Junction Temperature

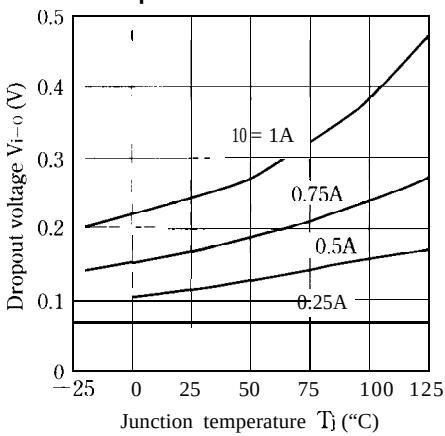


Fig. 8 Quiescent Current vs. Junction Temperature

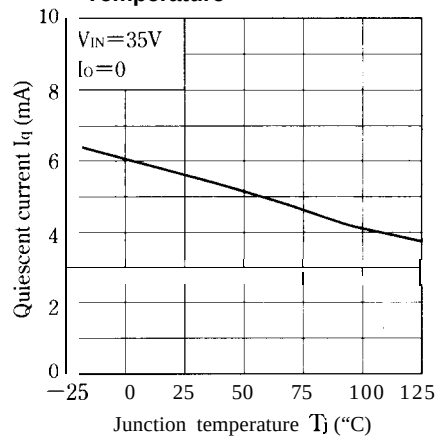


Fig. 9 Ripple Rejection vs. Input Ripple Frequency

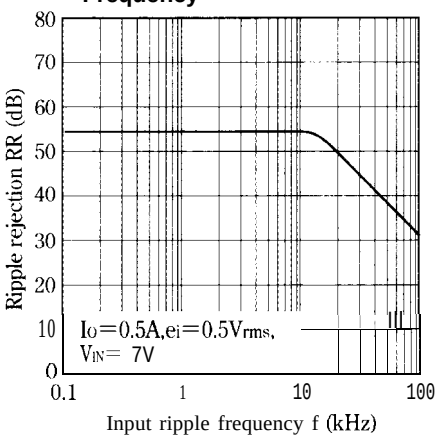


Fig.1 O Ripple Rejection vs. Output Current

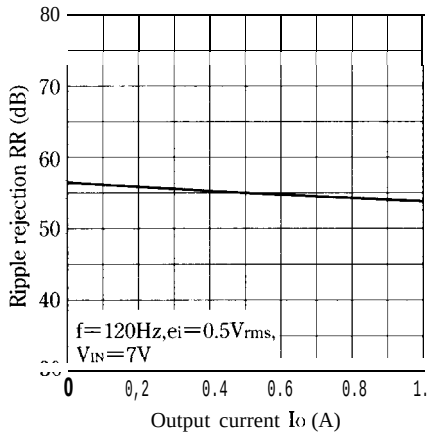


Fig.11 Output Peak Current vs. Dropout Voltage

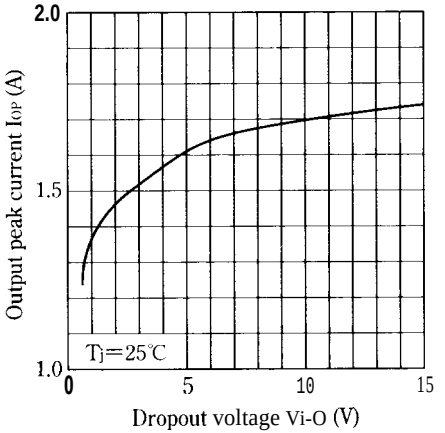


Fig.12 Output Peak Current vs. Junction Temperature