

PQ3RF43

3.3V/4.6V Output Low Power-Loss Voltage Regulator

■ Features

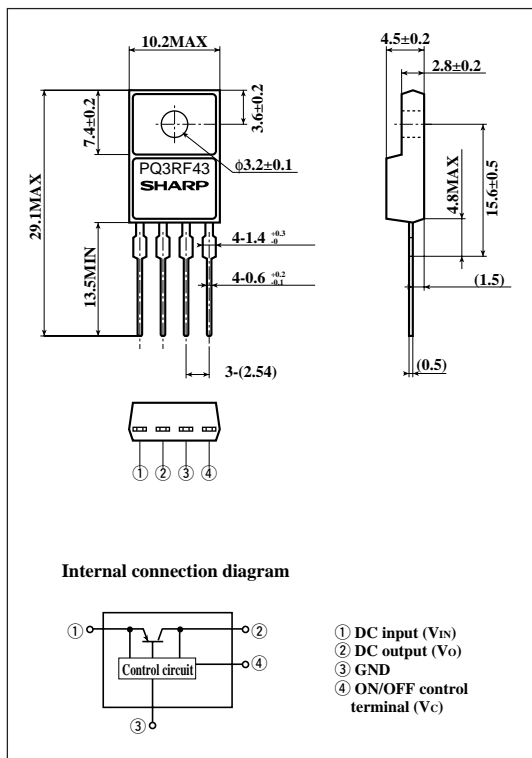
- Low power-loss
(Dropout voltage : MAX.0.5V at $I_o = 4.0A$)
(Dropout voltage : MAX.1.0V at $I_o = 4.6A$)
- Compact resin full-mold package (TO-220 package)
- 3.3V/4.6A output type
- High-precision output voltage type
Output voltage precision : $\pm 2.5\%$
- Built-in ON/OFF control function
- Built-in overcurrent protection, overheat protection function

■ Applications

- Power supplies for various electronic equipment such as personal computers

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

($T_a = 25^\circ C$)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V_{IN}	10	V
*1 ON/OFF control terminal voltage	V_C	10	V
Output current	I_o	4.6	A
Power dissipation (No heat sink)	P_{D1}	1.8	W
Power dissipation (With infinite heat sink)	P_{D2}	18	
*2 Junction temperature	T_j	150	$^\circ C$
Operating temperature	T_{opr}	-20 to +80	$^\circ C$
Storage temperature	T_{stg}	-40 to +150	$^\circ C$
8 Soldering temperature	T_{sol}	260 (For 10s.)	$^\circ C$

*1 All are open except GND and applicable terminals.

*2 Overheat protection may operate at $125 < T_j < 150^\circ C$.

· Please refer to the chapter "Handling Precautions".

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■ Electrical Characteristics

(Unless otherwise specified, conditions shall be $V_{IN}=5V, I_o=2.0A, T_a=25^{\circ}C$)

Parameter	Symbol	Conditions	NIN.	TYP.	MAX.	Unit
Output voltage	V_o	-	3.218	3.3	3.382	V
Load regulation	R_{eL}	$I_o=5mA$ to 4.6A	-	0.5	2.0	%
Line regulation	R_{eI}	$V_{IN}=4$ to 10V	-	0.5	2.5	%
Temperature coefficient of output voltage	$T_C V_o$	$T_j=0$ to 125°C	-	± 0.02	-	%/°C
Ripple rejection	RR	-	45	55	-	dB
Dropout voltage (1)	$V_{I-O(1)}$	^{*3} , $I_o=4.0A$	-	-	0.5	V
Dropout voltage (2)	$V_{I-O(2)}$	^{*3} , $I_o=4.6A$	-	-	1.0	V
^{*4} ON-state voltage for control	$V_C(ON)$	-	2.0	-	-	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	$I_o=0A$	-	-	17	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 terminal④, output voltage turns on.

Fig.1 Test Circuit

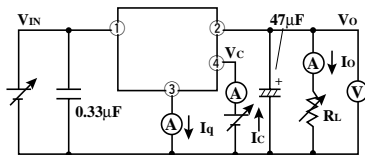


Fig.2 Test Circuit for Ripple Rejection

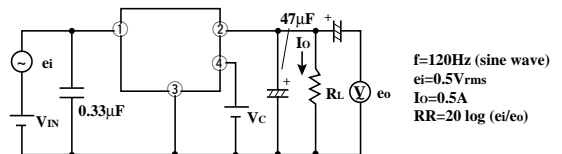
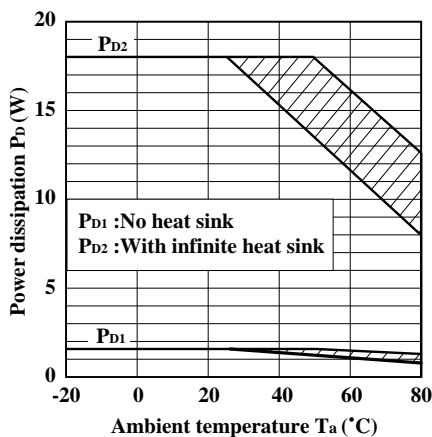


Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics(Typical Value)

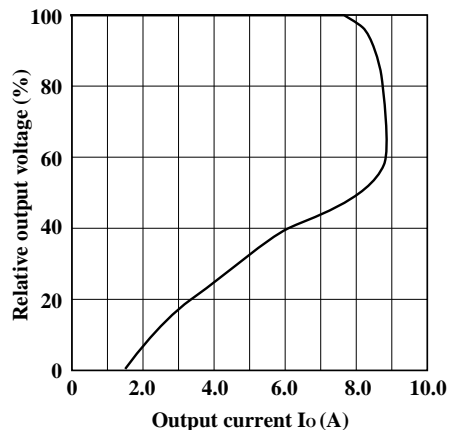


Fig.5 Output Voltage Deviation vs. Junction Temperature

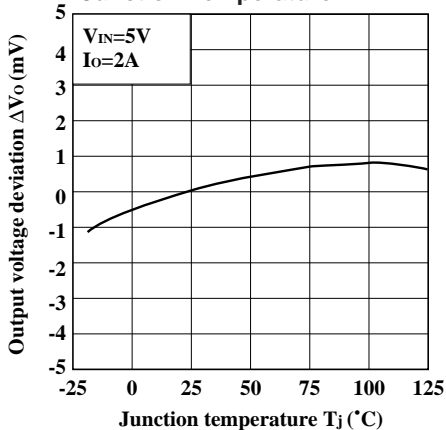


Fig. 6 Output Voltage vs. Input Voltage

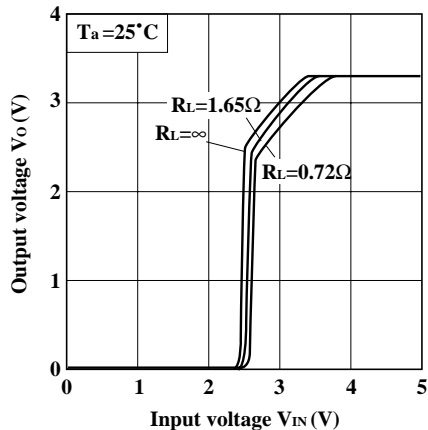


Fig. 7 Circuit Operating Current vs. Input Voltage

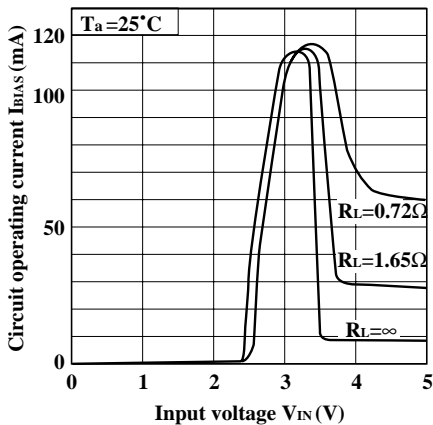


Fig.8 Dropout Voltage vs. Junction Temperature

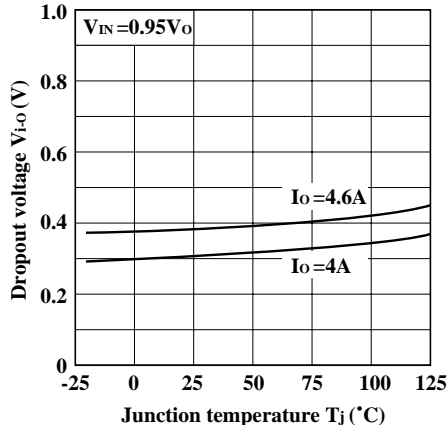


Fig.9 Quiescent Current vs. Junction Temperature

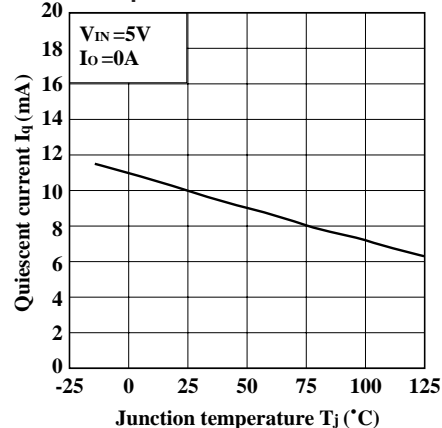
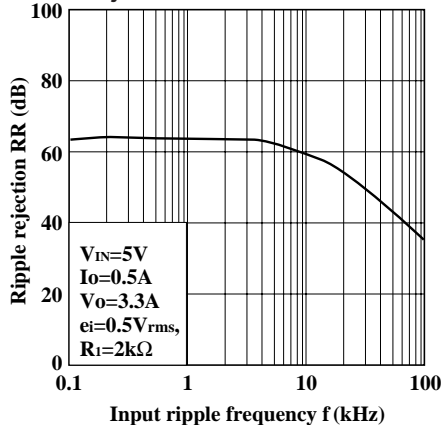


Fig.10 Input Ripple Frequency vs. Ripple Rejection



■ Typical Application

