PQ3RF43

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

■ Features

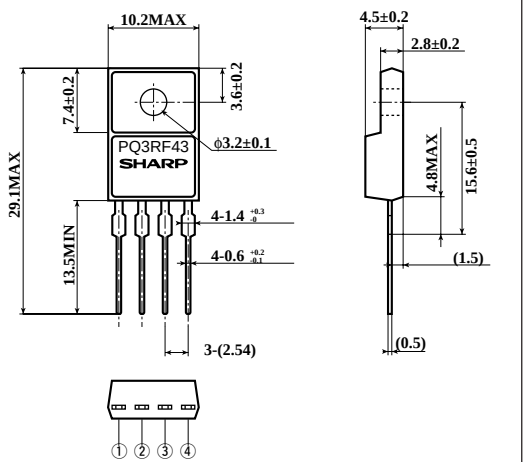
- Low power-loss
  (Dropout voltage : MAX.0.5V at Io = 4.0A)
  (Dropout voltage : MAX.1.0V at Io = 4.6A)
- Compact resin full-mold package (TO-220 package)
- 3.3V/4.6A output type
- High-precision output voltage type
  Output voltage precision : ±2.5%
- Built-in ON/OFF control function
- Built-in overcurrent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

■ Applications

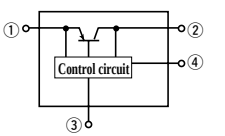
- Power supplies for various electronic equipment such as personal computers

■ Outline Dimensions

(Unit : mm)



Internal connection diagram



① DC input (V_{IN})
② DC output (V_O)
③ GND
④ ON/OFF control terminal (V_C)

■ Absolute Maximum Ratings

(T_a=25˚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	W
*2 Junction temperature	T_j	150	˚C
Operating temperature	T_{opr}	-20 to +80	˚C
Storage temperature	T_{stg}	-40 to +150	˚C
8 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 ”.

■ Electrical Characteristics

(Unless otherwise specified, conditions shall be V_{IN}=5V,I_O=2.0A,T_a=25˚C)

Parameter	Symbol	Conditions	NIN.	TYP.	MAX.	Unit
Output voltage	V_O	-	3.218	3.3	3.382	V
Load regulation	$R_{eg}L$	I_O=5mA to 4.6A	-	0.5	2.0	%
Line regulation	$R_{eg}I$	V_{IN}=4 to 10V	-	0.5	2.5	%
Temperature coefficient of output voltage	T_CV_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

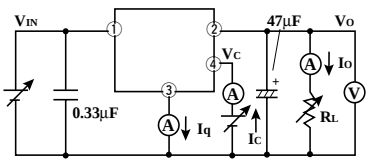


Fig.2 Test Circuit for Ripple Rejection

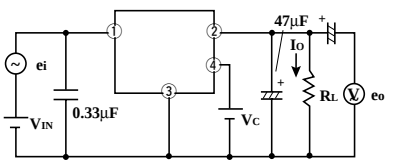
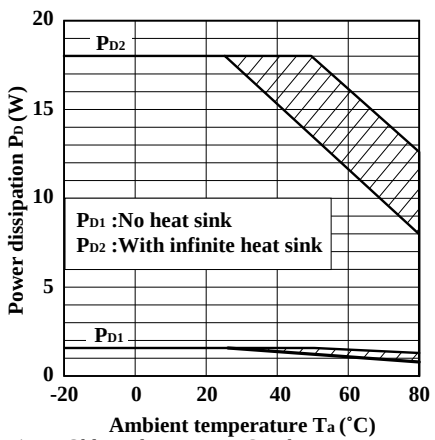


Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics(Typical Value)

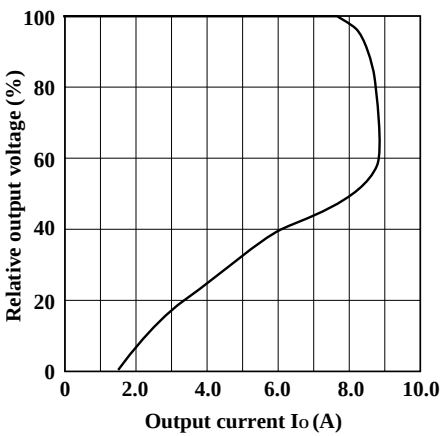


Fig.5 Output Voltage Deviation vs. Junction Temperature

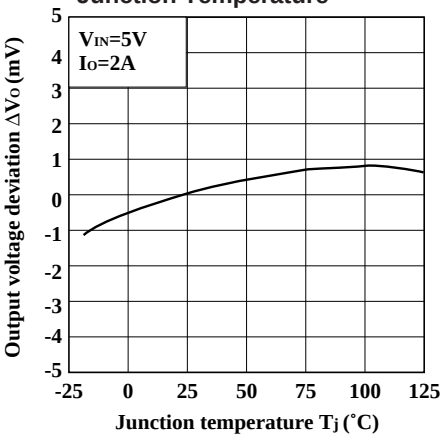


Fig. 6 Output Voltage vs. Input Voltage

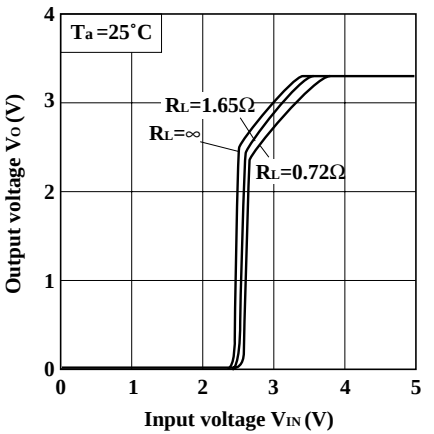


Fig. 7 Circuit Operating Current vs. Input Voltage

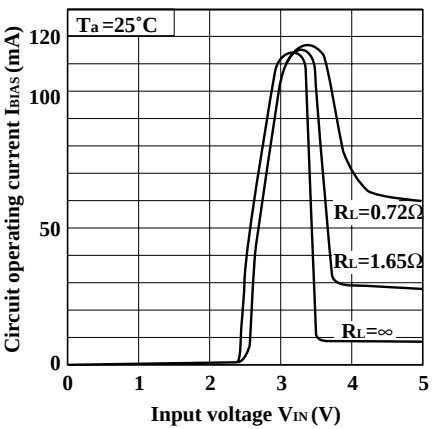


Fig.8 Dropout Voltage vs. Junction Temperature

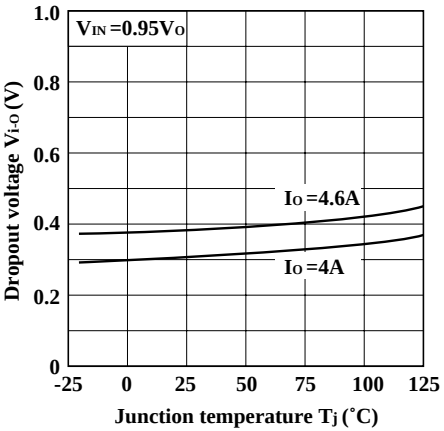


Fig.9 Quiescent Current vs. Junction Temperature

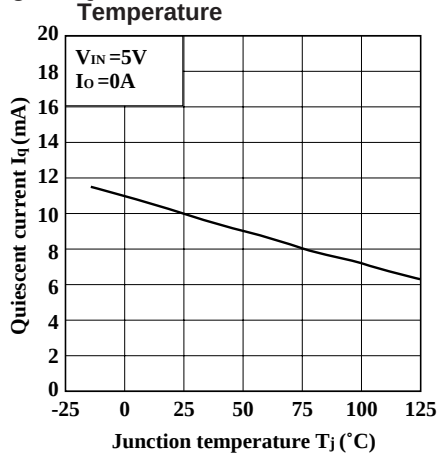
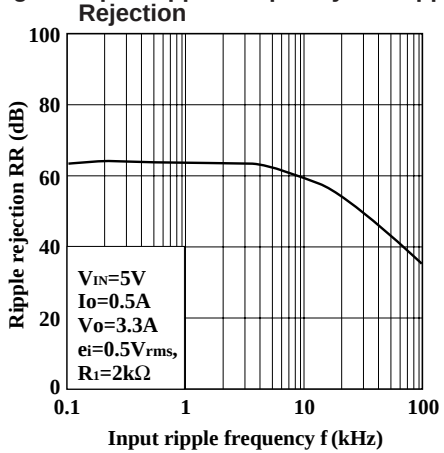


Fig.10 Input Ripple Frequency vs. Ripple Rejection



■ Typical Application