

# PQ7DV10

Variable Output, (1.5 to 7V) 10A Output Low Power-loss Voltage Regulator

## Features

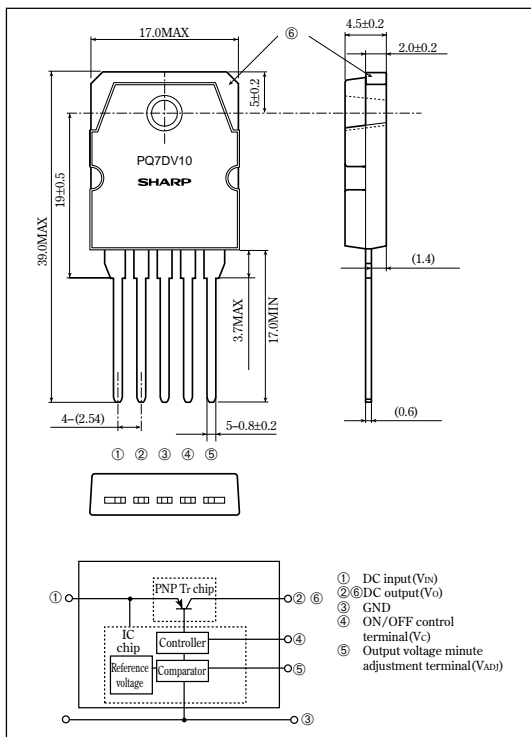
- 10A output type
- Low power-loss  
(Dropout voltage : MAX.0.5V at  $I_o=10A$ )
- Variable output type (1.5 to 7V)
- Low operating voltage (Minimum input voltage: 3.0V)
- High-precision reference voltage type  
(Reference voltage precision:  $\pm 2.0\%$ )
- TO-3P package
- Built-in ON/OFF control function
- 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
*1 Output adjustment terminal voltage	$V_{ADJ}$	5	V
Output current	$I_o$	10	A
Power dissipation (No heat sink)	$P_{D1}$	2.2	W
Power dissipation (With infinite heat sink)	$P_{D2}$	60	W
*2 Junction temperature	$T_j$	150	$^\circ C$
Operating temperature	$T_{opr}$	-20 to +80	$^\circ C$
Storage temperature	$T_{stg}$	-40 to +150	$^\circ C$
Soldering temperature	$T_{sol}$	260 (For 10s)	$^\circ C$

\*1 All are open except GND and applicable terminals.

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

•Please refer to the chapter " Handling Precautions ".

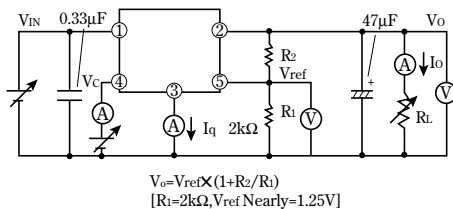


**Electrical Characteristics** (Unless otherwise specified, conditions shall be  $V_{IN}=5V, I_o=5A, V_o=3V(R_1=2k\Omega) T_a=25^\circ C$ )

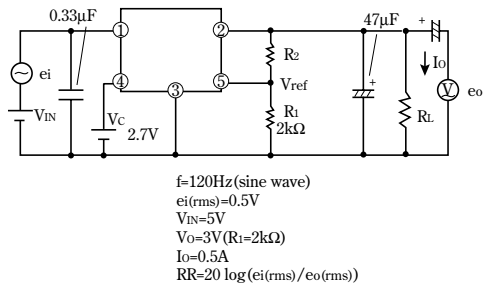
Parameter	Symbol	Conditions	NIN.	TYP.	MAX.	Unit
Input voltage	$V_{IN}$	-	3	-	10	V
Reference voltage	$V_o$	-	1.5	-	7	V
Reference voltage	$V_{ref}$	-	1.225	1.25	1.275	V
Load regulation	$R_{egL}$	$I_o=5mA$ to 10A	-	0.5	2	%
Line regulation	$R_{egI}$	$V_{IN}=4$ to 10V	-	0.5	2.5	%
Temperature coefficient of output voltage	$T_cV_o$	$T_j=0$ to $125^\circ C$	-	$\pm 0.01$	-	%/ $^\circ C$
Ripple rejection	RR	Refer to Fig. 2	45	55	-	dB
Dropout voltage	$V_{I-O}$	$V_{IN}=3V, I_o=10A$	-	-	0.5	V
*3 ON-state voltage for control	$V_{C(ON)}$	-	2	-	-	V
ON-state current for control	$I_{C(ON)}$	$V_C=2.7V$	-	-	20	$\mu A$
OFF-state voltage for control	$V_{C(OFF)}$	-	-	-	0.8	V
OFF-state current for control	$I_{C(OFF)}$	$V_C=0.4V$	-	-	-40	mA
Quiescent current	$I_q$	$I_o=0A$	-	-	17	mA

\*3 In case of opening control terminal @, output voltage turns on.

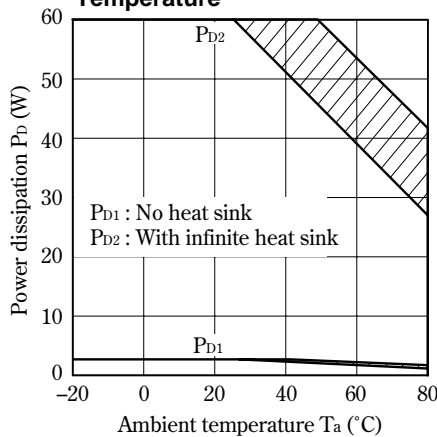
**Fig. 1 Test Circuit**



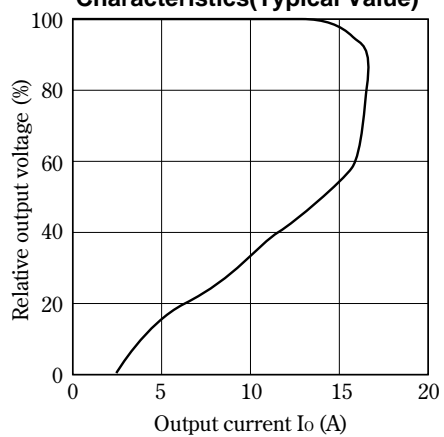
**Fig. 2 Test Circuit for Ripple Rejection**



**Fig. 3 Power Dissipation vs. Ambient Temperature**

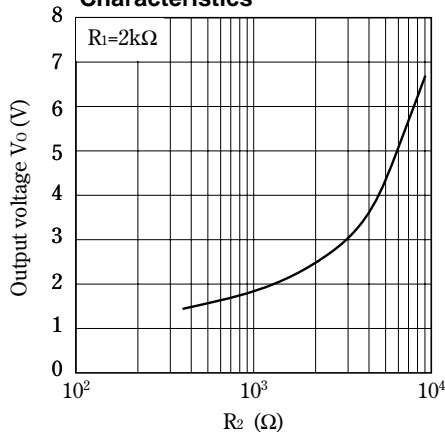


**Fig. 4 Overcurrent Protection Characteristics(Typical Value)**

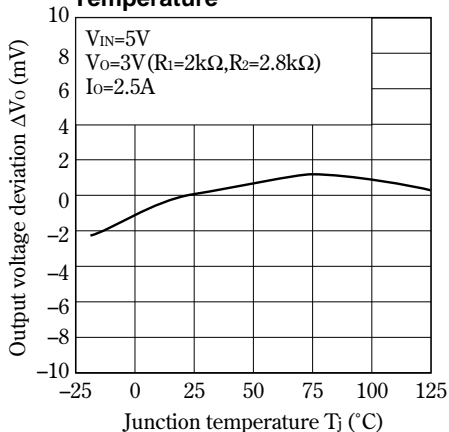


Note) Oblique line portion : Overheat protection may operate in this area.

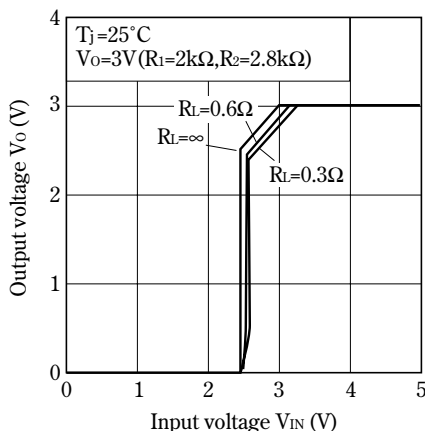
**Fig. 5 Output Voltage Adjustment Characteristics**



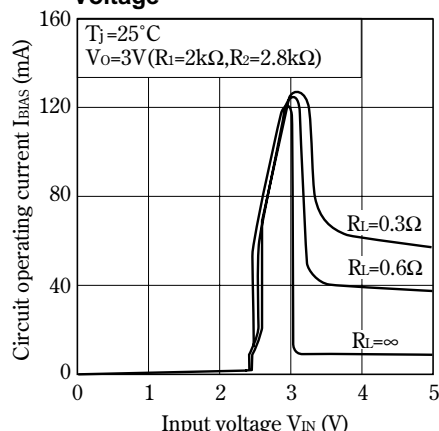
**Fig. 6 Output Voltage Deviation vs. Junction Temperature**



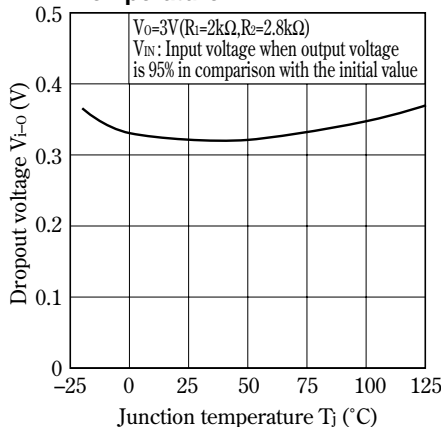
**Fig. 7 Output Voltage vs. Input Voltage**



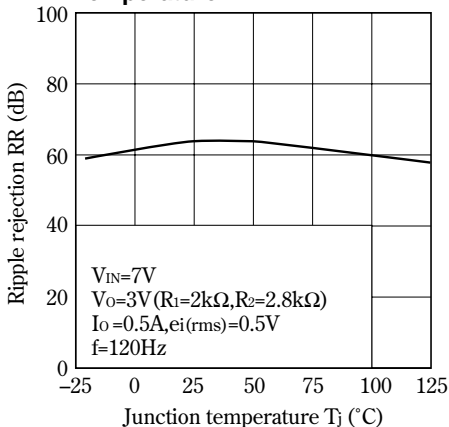
**Fig. 8 Circuit Operating Current vs. Input Voltage**



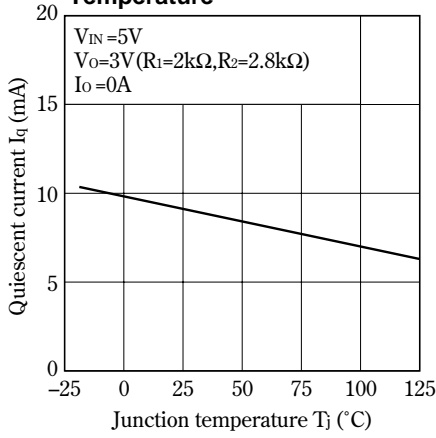
**Fig. 9 Dropout Voltage vs. Junction Temperature**



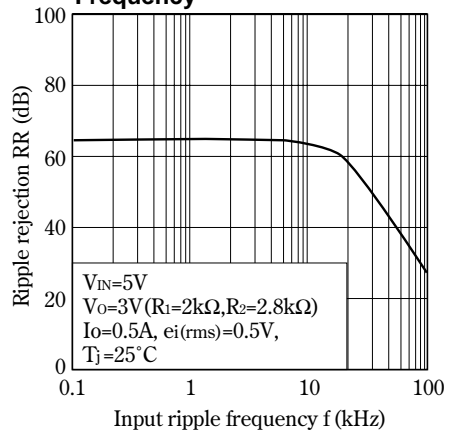
**Fig.10 Ripple Rejection vs. Junction Temperature**



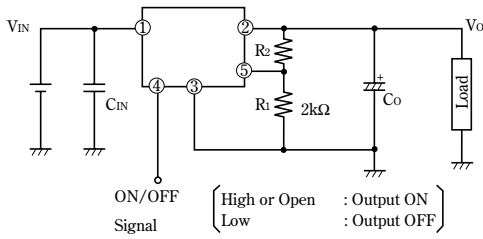
**Fig.11 Quiescent Current vs. Junction Temperature**



**Fig.12 Ripple Rejection vs. Input Ripple Frequency**



■ Typical Applications



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