

PQ1CF2

TO-220 Package Chopper Regulator

■ Features

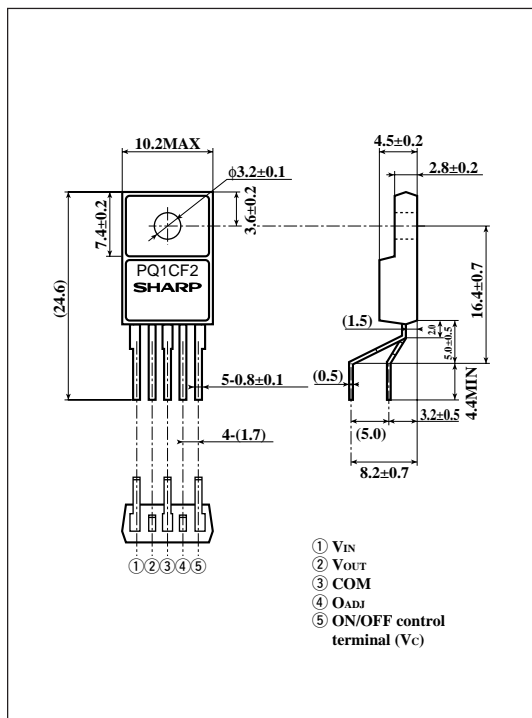
- Maximum switching current : 1.5A
- Built-in ON/OFF control function
- Built-in soft start function
- Built-in oscillation circuit
(oscillation frequency : TYP.100kHz)
- Built-in overheat protection, overcurrent protection function
- TO-220 package
- Variable output voltage
(1.26 to 35V/-1.26 to -30V)
[Possible to choose step down output/inverting output according to external connection circuit]

■ Applications

- Switching power supplies
- Facsimiles
- Printers
- Personal computers

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V _{IN}	40	V
Error input voltage	V _{ADJ}	7	V
Input-output voltage	V _{i-o}	41	V
*2 Output-COM voltage	V _{OUT}	-1	V
*3 ON/OFF control valtage	V _C	-0.3 to 40	V
Switching current	I _{SW}	1.5	A
Power dissipation (No heat sink)	P _{D1}	1.5	W
Power dissipation (With infinite heat sink)	P _{D2}	15	W
*4 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 Voltage between V_{IN} terminal and COM terminal.

*2 Voltage between V_{OUT} terminal and COM terminal.

*3 Voltage between V_C terminal and COM terminal.

*4 Overheat protection may operate at 125=<T_J<=150°C

· Please refer to the chapter“ Handling Precautions ”.

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■ Electrical Characteristics

(Unless otherwise specified, conditions shall be $V_{IN}=5V$, $I_o=2.5A$, $V_o=3V[R_1=2k\Omega]T_a=25^\circ C$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output saturation voltage	V_{sat}	$I_o=1A, No L, D, C_o$	-	0.9	1.5	V
Reference voltage	V_{ref}	-	1.235	1.26	1.285	V
Temperature fluctuation in reference voltage	ΔV_{ref}	$T_j=0 \text{ to } 125^\circ C$	-	± 0.5	-	%
Load regulation	$ R_{egL} $	$I_o=0.2 \text{ to } 1A$	-	0.1	1.5	%
Line regulation	$ R_{egI} $	$V_{IN}=8 \text{ to } 35V$	-	0.5	2.5	%
Efficiency	η	$I_o=1A$	-	82	-	%
Oscillation frequency	f_o	-	80	100	120	kHz
Oscillation frequency temperature fluctuation	Δf_o	$T_j=0 \text{ to } 125^\circ C$	-	± 2	-	%
Maximum duty	D_{MAX}	④ terminal is open	90	-	-	%
Overcurrent detecting level	I_L	No L, D, C _o	1.55	2.0	2.6	A
Charge current	I_{CHG}	②④ terminal is open	-15	-10	-5	μA
Input threshold voltage	V_{THL}	Duty=0%, ④ terminal=0V, ⑤ terminal	1.95	2.25	2.55	V
	V_{THH}	Duty= D_{MAX} , ④ terminal is open, ⑤ terminal	3.25	3.55	3.85	V
On threshold voltage	V_{THON}	④ terminal=0V, ⑤ terminal	1.05	1.4	1.75	V
Stand-by current	I_{SD}	$V_{IN}=40V$, ④ terminal=0V	-	150	400	μA
Output OFF-state consumption current	I_{qs}	$V_{IN}=40V$, ⑤ terminal=3V	-	8	12	mA

■ Block Diagram

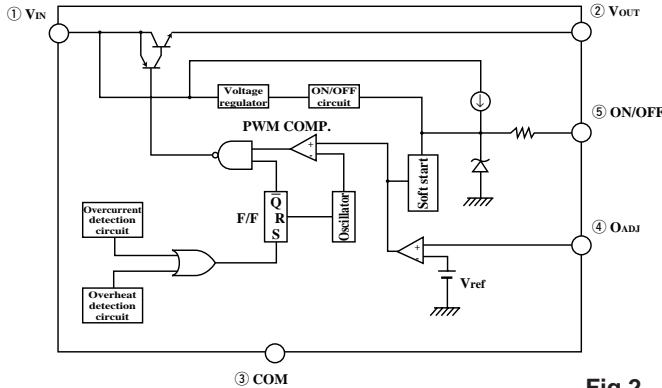
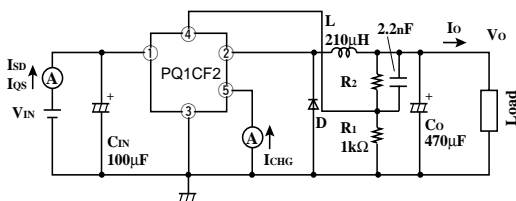
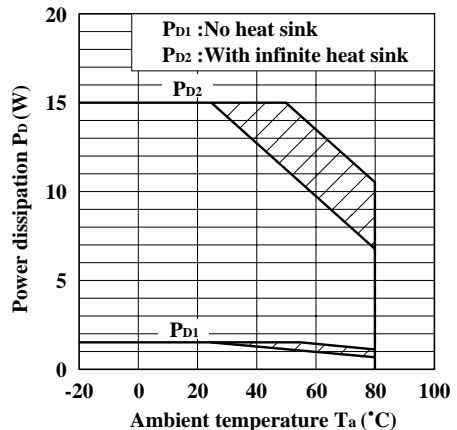


Fig.1 Test Circuit



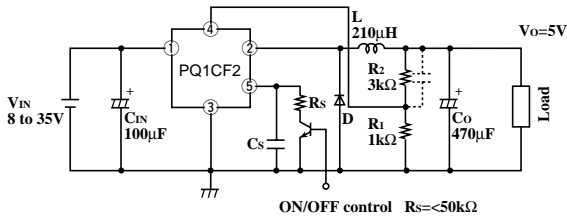
L : HK-14D100-2110 (made by Toho Co.)
 D : ERC80-004 (made by Fuji electronics Co.)

Fig.2 Power Dissipation vs. Ambient Temperature



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

■ Step Down Type Circuit Diagram (5V output)



■ Polarity Inversion Type Circuit Diagram (-5V output)

