

PQ1 CF2

TO-220 Package Chopper Regulator

■ Features

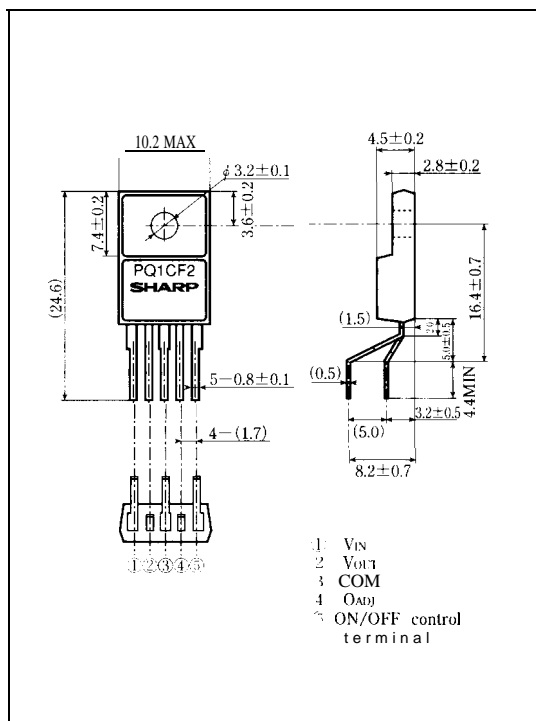
- . Maximum switching current : 1.5A
- Built-in ON/OFF control function
- . Built-in soft start function
- Built-in oscillation circuit
(oscillation frequency: TYP.100kHz)
- Built-in overheat protection, overcurrent protection function
- . TO-220 package
- Variable output voltage
(1.26 to 35V / - 1.26 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 voltage	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"

SHARP

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■ Electrical Characteristics

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

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}	$T_j=0$ to $125^\circ C$		± 0.5		(%)
Load regulation	R_{gL}	$I_o=0.2$ to $1A$		0.1	1.5	%
Line regulation	R_{gI}	$V_{IN}=8$ 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	$T_j=0$ to $125^\circ C$		± 2		%
Maximum duty	D_{MAX}	4 terminal is open		90		%
Overcurrent detecting level	h	No L, D, C_o	1.55	2.0	2.6	A
Charge current	I_{CHG}	2, 4 terminal is open	-15	-10	-5	μA
Input threshold voltage	V_{THL}	Duty=0%, 4 terminal=0V, 5 terminal I	1.95	2.25	2.55	I V
	V_{THH}	Duty=D _{MAX} , 4 terminal is open, 5 terminal	3.25	3.55	3.85	v
On threshold voltage	V_{FONH}	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

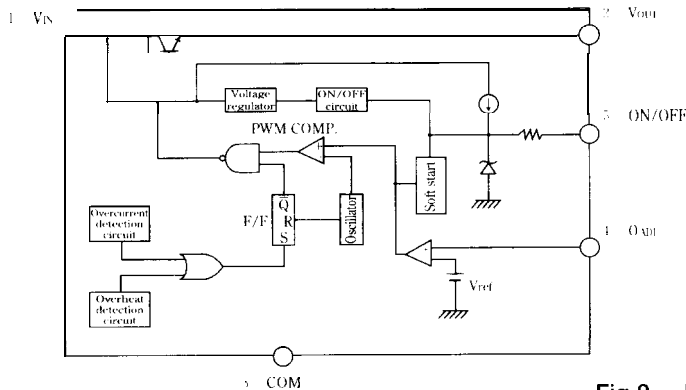
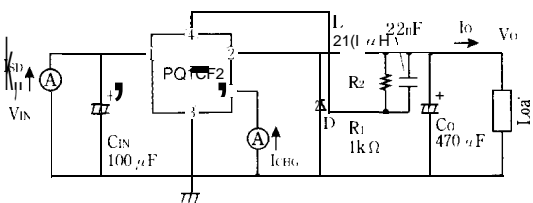
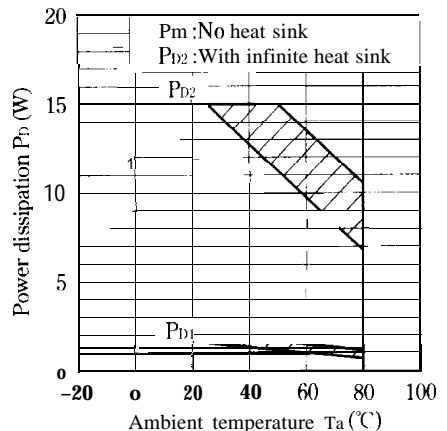


Fig.1 Test Circuit



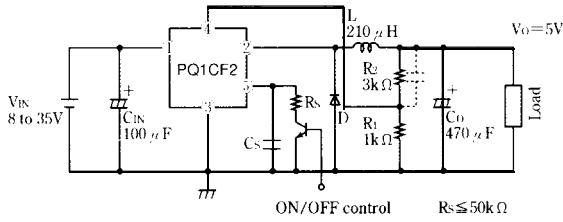
f. HK 14D 100-2110 (made by Toho Co.)
 l): ERC80-004 (made by Fuji electronics Co.)

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)

