

# PQ1 PF2 (Under Development)

Primary Regulator for Switching Power Supply (30W Class)

## Features

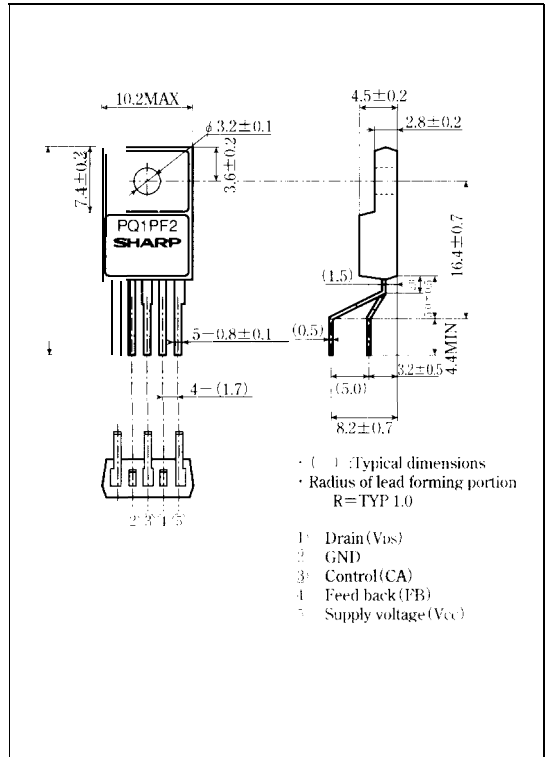
- 5-terminal lead forming package (equivalent to TO-220)
- Built-in oscillation circuit  
(oscillation frequency: YFP, 100kHz)
- Output for power supply :30W class
- Built-in overheat protection, overcurrent protection function

## Applications

- Switching power supplies for VCRs
- Switching power supplies for peripheral equipment of PCS  
(FDD/CD-ROM drive/HDD)

## Outline Dimensions

(Unit : mm)



## Absolute Maximum Ratings

(T<sub>a</sub>=25°C)

Parameter	Symbol	Rating	Unit
Drain-GND(source) voltage	V <sub>D</sub>	500*	V
Drain current	I <sub>D</sub>	3	A
*1 Power supply voltage	V <sub>CC</sub>	35	V
**2 FB terminal input voltage	V <sub>FB</sub>	4	V
CA terminal input current	I <sub>CA</sub>	2	MA
*3 Power dissipation	P <sub>D1</sub>	1.5	w
	P <sub>D2</sub>	18	W
*4 Junction temperature	T <sub>j</sub>	150	C
	operating temperature	T <sub>opr</sub>	-20 to +80
Storage temperature	T <sub>stg</sub>	-40 to +150	C
Soldering temperature	T <sub>sol</sub>	260 (For 10s.)	[°]

\*1 Voltage between V<sub>CC</sub> terminal and GND terminal.

\*\*2 Voltage between FB-terminal and GND terminal.

\*3 P<sub>D1</sub>:No heat sink, P<sub>D2</sub>:With infinite heat sink

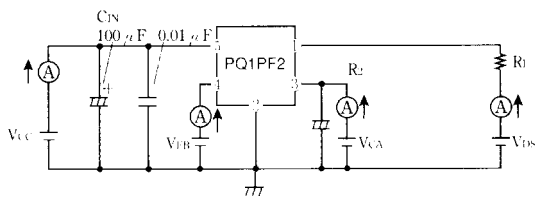
\*4 Overheat protection may operate at 125 ≤ T<sub>j</sub> ≤ 150°C

Please refer to the chapter "Handling Precautions"

■ Electrical Characteristics (Unless otherwise specified, conditions shall be  $V_{DS}=10V, V_{CC}=18V, V_{CA}=OPEN, V_{FB}=2.2V, R_I=56\Omega, T_a=25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Conditions	MIN.	m .	MAX.	Unit
Drain-source onstate resistance	$R_{DS(ON)}$	$I_D=1.3A$	-	2.2	3.0	$\Omega$
Drain-source leakage current	$I_{DSS}$	$V_{DS}=500V, V_{CC}=7V$ $V_{CA}=GND, V_{FB}=GND$			250	$\mu A$
oscillation frequency	$f_o$		90	100	110	kHz
Temperature change in oscillation frequency	$\Delta f_o$	$T_I=0\text{ to }125\text{ }^\circ\text{C}$		$\pm 5$		%
Maximum duty	$D_{MAX}$		42	45	50	%
FB threshold voltage	$V_{FBI}$	Duty=0%		0.9		V
	$V_{FBH}$	Duty= $D_{MAX}$		1.8		V
	$V_{FB(OCP)}$	$V_{CA}=6V$	2.6	2.8	3.1	V
FB current	$I_{FB}$	$V_{FB}=GND$	-800	-620	-440	$\mu A$
	$V_{CAL}$	Duty=0%		0.9		v
CA threshold voltage	$V_{CAH}$	Duty= $D_{MAX}$		1.8		V
	$V_{CA(ON/OFF)}$		0.49	0.6	0.74	V
	$V_{CA(OVP)}$		7.2	7.7	8.2	v
CA sink current	$k_{AIN}$	$V_{FB}=1V, V_{CA}=6V$	20	36	52	$\mu A$
Overcurrent detecting level	$I_{D(OCP)}$			1.8		A
Operation starting voltage	$V_{CC(ON)}$	$V_{DS}=OPEN, V_{FB}=OPEN$	15.5	17.0	18.5	v
Operation stopping voltage	$V_{CC(OFF)}$	$V_{DS}=OPEN, V_{FB}=OPEN$	8.5	9.3	10.1	V
Stand-by current	$I_{CC(ST)}$	$V_{DS}=OPEN, V_{CI}=14V,$ $V_{FB}=OPEN$		100	150	$\mu A$
Output OFF-mode consumption current	$I_{CC(OFF)}$	$V_{DS}=OPEN, V_{CA}=GND$ $V_{FB}=OPEN$		0.6	1.8	mA
Output-operating mode consumption current	$I_{CC(OP)}$			10	18	mA
Charging current	$I_{CA(CHG)}$	$V_{CA}=GND, V_{FB}=OPEN$	-15	-10	-5	$\mu A$

Fig.1 Test Circuit



■ Block Diagram

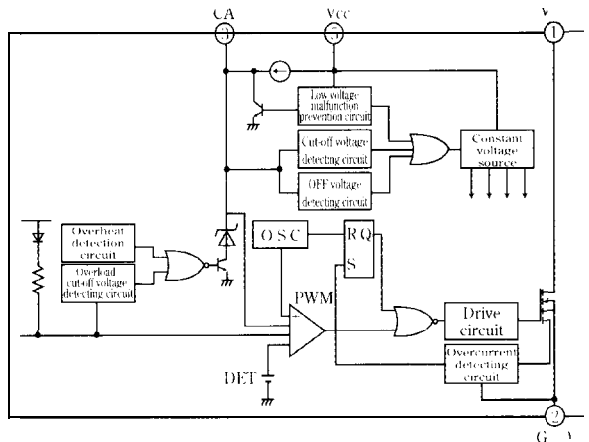
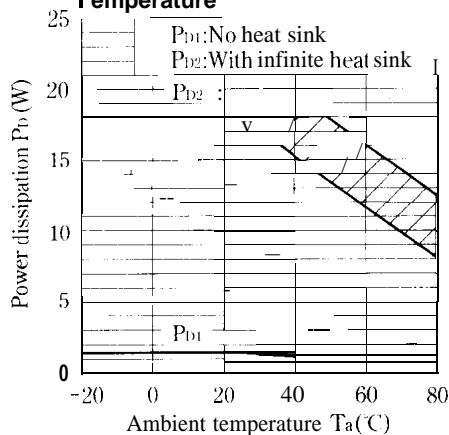


Fig. 2 Power Dissipation vs. Ambient Temperature



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