

PQ1PD1 (Under Development)

Primary Regulator for Switching Power Supply (100W Class)

■ Features

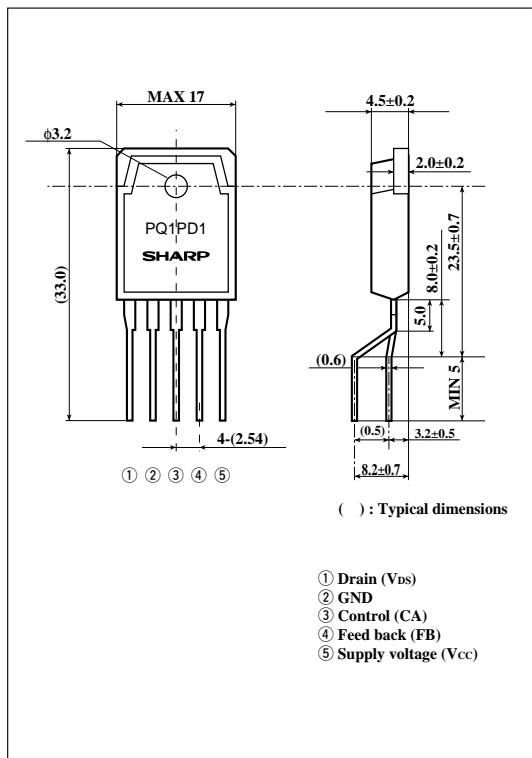
- 5 - terminal lead forming package (equivalent to TO-3P)
- Built-in oscillation circuit (oscillation frequency : 100kHz)
- Output for power supply : 100W class
- Built-in overheat protection, overcurrent protection function

■ Applications

- Switching power supplies for word processors
- Switching power supplies for personal computers
- Switching power supplies for TVs

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Rating	Unit
*1 Drain-GND(source)voltage	V _{DS}	500	V
Drain current	I _D	8	A
Power supply voltage	V _{CC}	35	V
*2 FB terminal input voltage	V _{FB}	4	V
CA terminal input current	I _{CA}	2	mA
*3 Power dissipation	P _D	45	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_{cc} terminal and GND terminal.

*2 Voltage between FB-terminal and GND terminal.

*3 With infinite heat sink, Refer to Fig. 2

*4 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 $V_{DS}=10V, V_{CC}=18V, V_{CA}=OPEN, V_{FB}=2.2V, R_L=56\Omega, T_a=25^\circ C$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Drain-source onstate resistance	$R_{DS(ON)}$	$I_D=2A$	-	0.75	1.0	Ω
Drain-source leakage current	I_{DSS}	$V_{DS}=500V, V_{CC}=7V$	-	-	250	μA
Oscillation frequency	f_o		90	100	110	kHz
Temperature change in oscillation frequency	Δf_o	$T_j=0 \text{ to } 125^\circ C$	-	± 5	-	%
Declining oscillation frequency	f_{OL}	$V_{CA}=5V$	23	33	43	kHz
Maximum duty	D_{MAX}		42	45	50	%
	$V_{FB L}$	Duty=0%	-	0.9	-	V
	$V_{FB FC}$		-	1.1	-	V
	$V_{FB H}$	Duty= D_{MAX}	-	1.8	-	V
FB threshold voltage	$V_{FB OCP}$	$V_{CA}=6V$	2.6	2.8	3.1	V
	I_{FB}	$V_{FB}=GND$	-800	-620	-440	μA
	V_{CAL}	Duty=0%	-	0.9	-	V
CA threshold voltage	$V_{CA H}$	Duty= D_{MAX}	-	1.8	-	V
	$V_{CA(ON/OFF)}$		0.49	0.6	0.74	V
	$V_{CA FC}$		-	4.3	-	V
	$V_{CA(OVP)}$		7.2	7.7	8.2	V
CA sink current	I_{CAIN}	$V_{FB}=1V, V_{CA}=6V$	20	36	52	μA
Overcurrent detecting level	$I_{D(OVP)}$		-	4.8	-	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	$I_{CC(ST)}$	$V_{DS}=OPEN, V_{CC}=14V,$	-	100	150	μA
Output OFF-mode consumption current	$I_{CC(OFF)}$	$V_{DS}=OPEN, V_{CA}=GND$	-	0.6	1.8	mA
Output-operating mode consumption current	$I_{CC(OP)}$		-	12	24	mA
Charging current	$I_{CA(CHG)}$	$V_{CA}=GND, V_{FB}=OPEN$	-15	-10	-5	μA

Fig. 1 Test Circuit

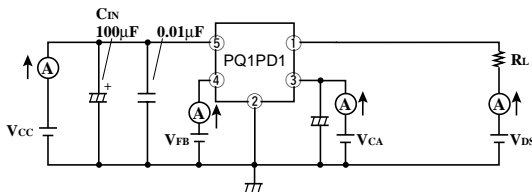
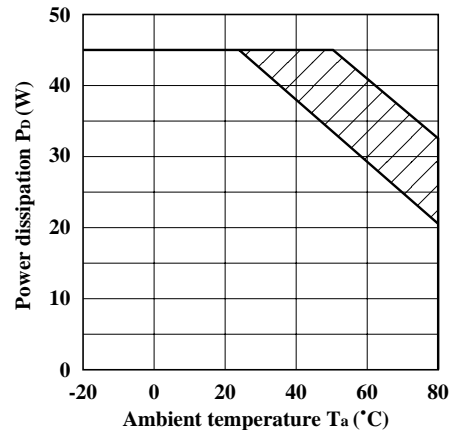


Fig. 2 Power Dissipation vs. Ambient Temperature



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

■ **Block Diagram**

