PQ1 PDI (Under Development)

Primary Regulator for Switching Power Supply (100W Class)

■ Features

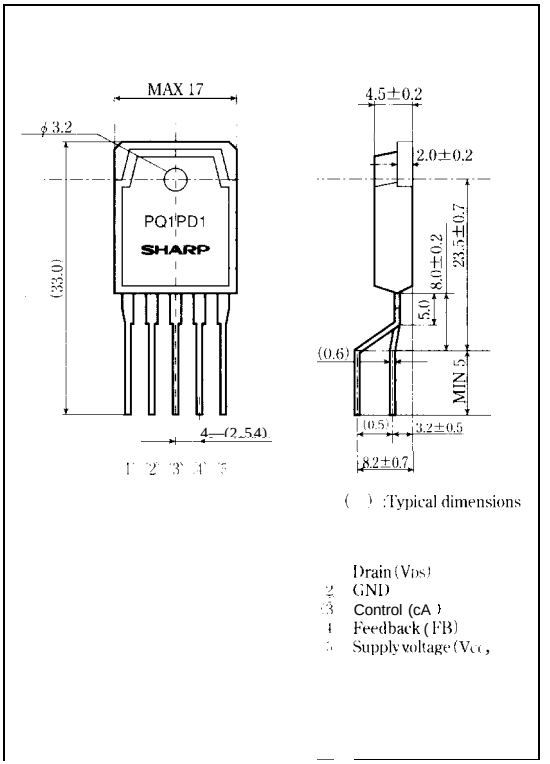
- 5- terminal lead forming package (equivalent to TO-3P)
- Built-in oscillation circuit (oscillation frequency : 100kHz)
- Output for power supply : 100W class
- Built-in overheat protection, overcurrent protection function

■ 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

(Ta=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

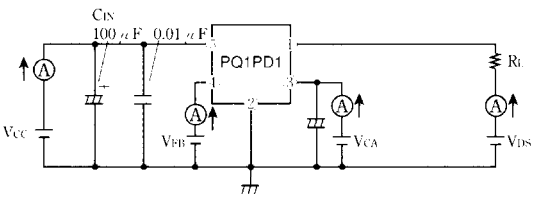
*1 Voltage between Vcc terminal and GND terminal.
*2 Voltage between FB-terminal and GND terminal.
*3 With infinite heat sink, Refer to Fig. 2
*4 Overheat protection may operate at 125≦Tj≦150°C

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=56Ω, T_a=25°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_C, = 7V			250	μA
Oscillation frequency	fo		90	100	110	kHz
Temperature change in oscillation frequency	△fo	T,=O to 125 °[		±5		%
Declining oscillation frequency	f_{OI}	V_{CA}=5V	23	33	43	kHz
Maximum duty	D_{MAX}		42	45	50	%
FBthreshold voltage	V_{IBL}	Duty=0%		0.9		V
	V_{FBIC}			1.1		v
	V_{FBH}	Duty=D_{MAX}		1.8		V
	V_{FB} ()[P	V_{CA}=6V	2.6	2.8	3.1	v
FB current	I_{FB}	V_{FB}=GND	-800	-620	-440	μA
CA threshold voltage	V_{CAL}	Duty=0%		0.9		v
	V_{CAH}	Duty=D_{MAX}		1.8		V
	$V_{CA(ON/OFF}$		0.49	0.6	0.74	v
	V_{CAFC}			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	-lo	-5	μA

Fig. 1 Test Circuit



■ Block Diagram

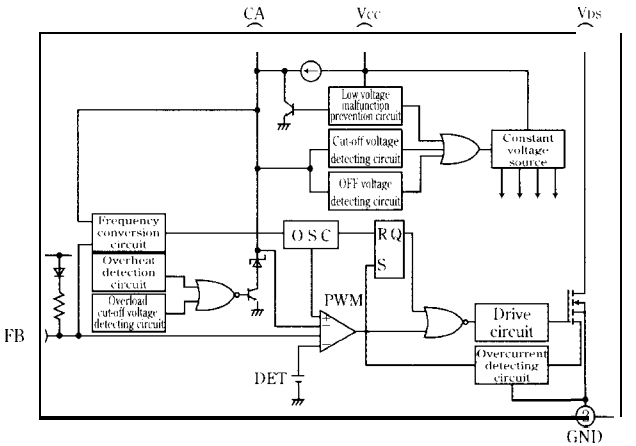
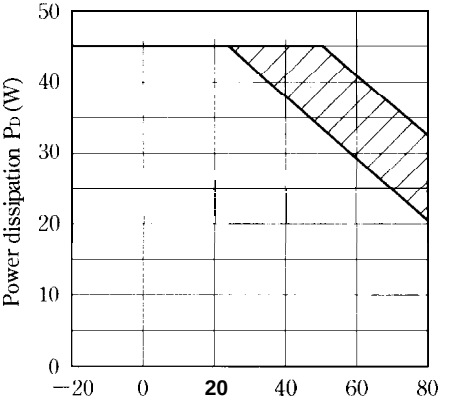


Fig. 2 Power Dissipation vs. Ambient Temperature



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