

PQ1CG1

TO-220 Type Chopper Regulator

Features

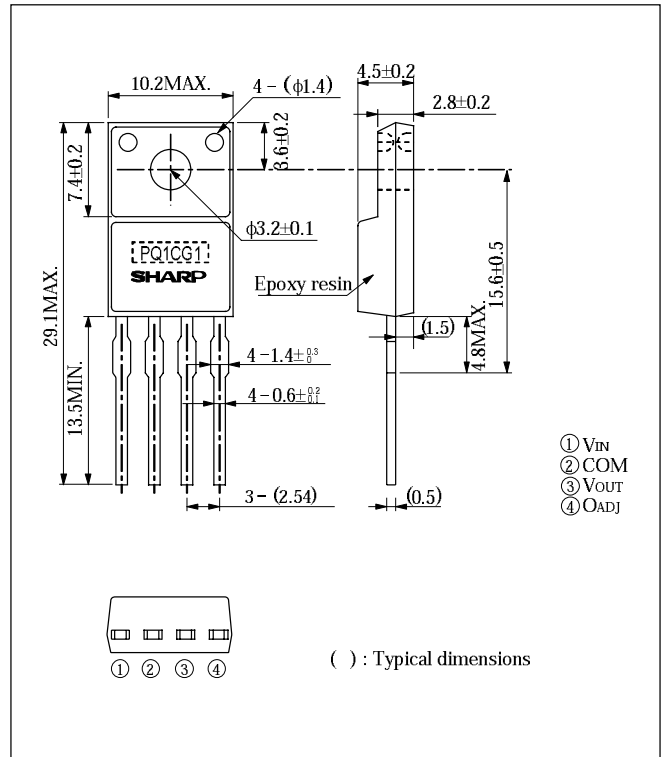
- Maximum switching current: 1.5A
- Built-in oscillation circuit
(Oscillation frequency: TYP.100kHz)
- Built-in overheat protection, overcurrent protection function
- Variable output voltage(1.26 to 35V/-1.26 to -30V)
[Possible to select step-down output / porality inversion output according to external connection circuit]

Applications

- Personal computers
- Printers

Outline Dimensions

(Unit : mm)



Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V _{IN}	40	V
Output adjustment terminal voltage	V _{ADJ}	7	V
Dropout voltage	V _{LO}	41	V
*2 Output-COM voltage	V _{OUT}	-1	V
Switching current	I _{SW}	1.5	A
*3 Power dissipation	P _{D1}	1.4	W
	P _{D2}	14	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} and COM

*2 Voltage between V_{OUT} and COM

*3 P_{D1}: No heat sink, P_{D2}: With infinite heat sink

*4 Overheat protection may operate at 125 ≤ T_j ≤ 150°C.

• Please refer to the chapter " Handling Precautions ".

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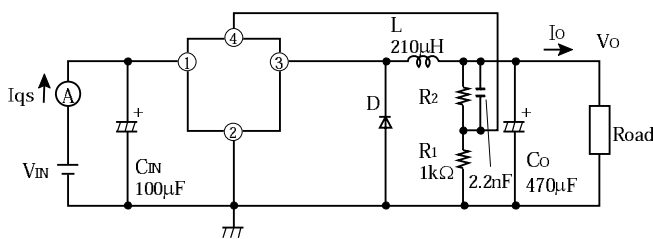
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Electrical Characteristics

(Unless otherwise specified, $V_{IN}=12V$, $I_o=0.2A$, $V_o=5V$, $T_a=25^\circ C$)

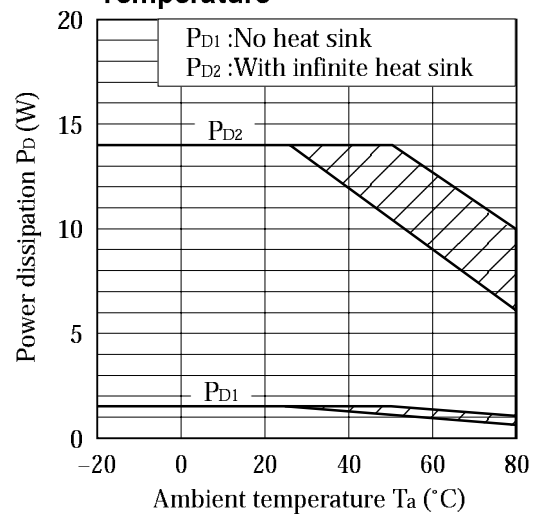
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output saturation voltage	V_{SAT}	$I_o=1A$, No L, D, C_o	—	1	1.5	V
Reference voltage	V_{ref}	—	1.235	1.26	1.285	V
Reference voltage temperature fluctuation	ΔV_{ref}	$T_j=0$ to $125^\circ C$	—	± 0.5	—	%
Load regulation	$ R_{egL} $	$I_o=0.2$ to $1A$	—	0.1	1.5	%
Line regulation	$ R_{egI} $	$V_{IN}=8$ 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=open	90	—	—	%
Overcurrent detection level	I_L	No L, D, C_o	1.55	2	2.6	A
OFF-state consumption current	I_{qs}	$V_{IN}=40V$, No.4 pin=3V	—	8	12	mA

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.

Fig. 3 Overcurrent Protection Characteristics (Typical Value)

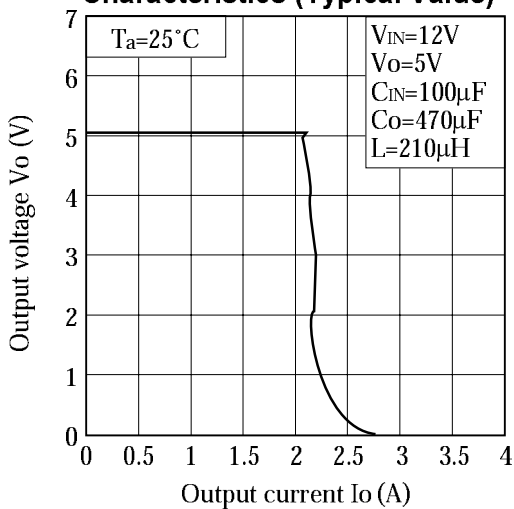


Fig. 4 Efficiency vs. Input Voltage

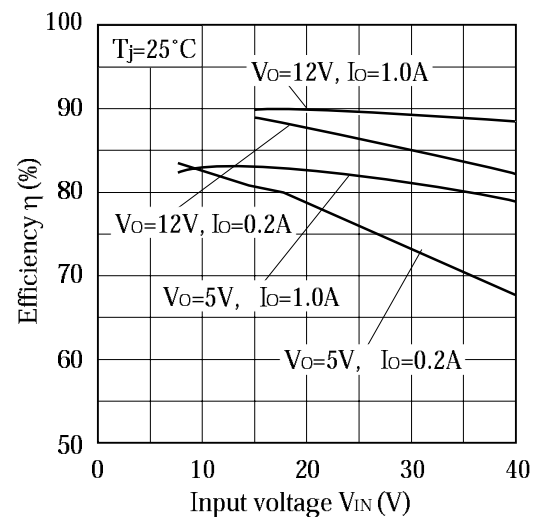


Fig. 5 Switching Current vs. Output Saturation Voltage

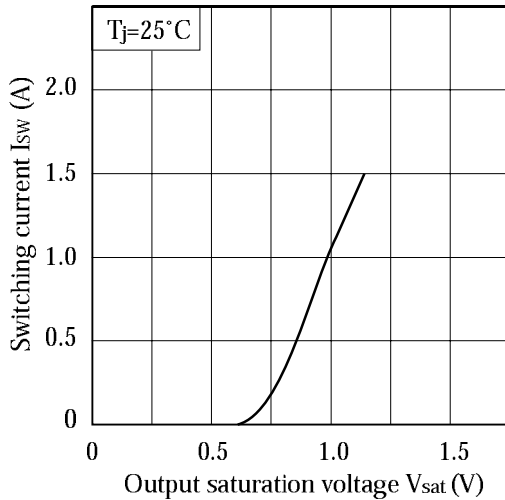


Fig. 6 Reference Voltage Fluctuation vs. Junction Temperature

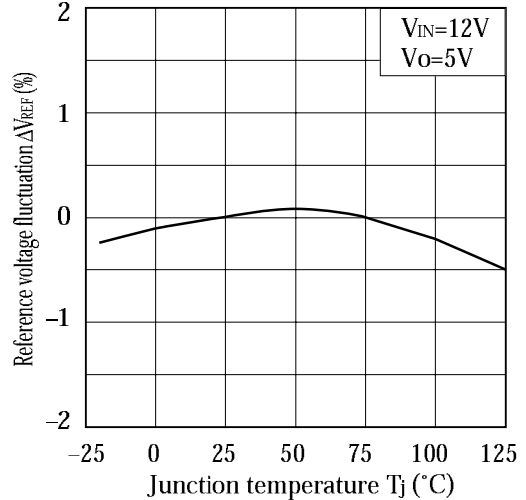


Fig. 7 Load Regulation vs. Output Current

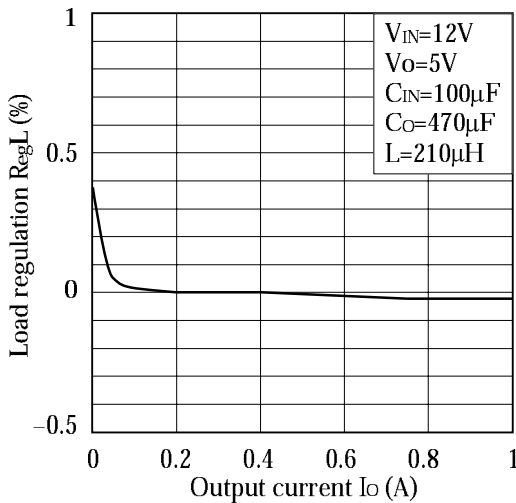


Fig. 8 Line Regulation vs. Input Voltage

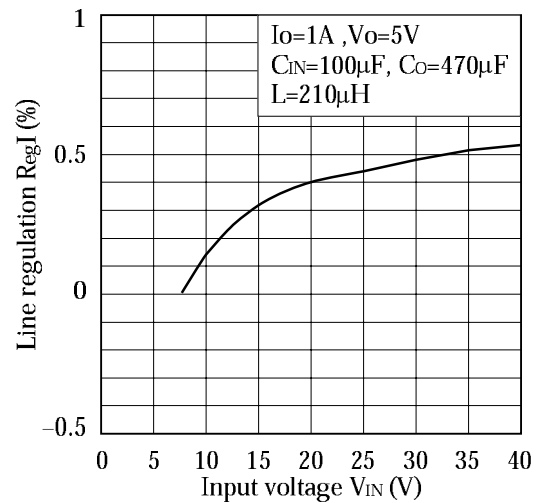


Fig. 9 Oscillation Frequency Fluctuation vs. Junction Temperature

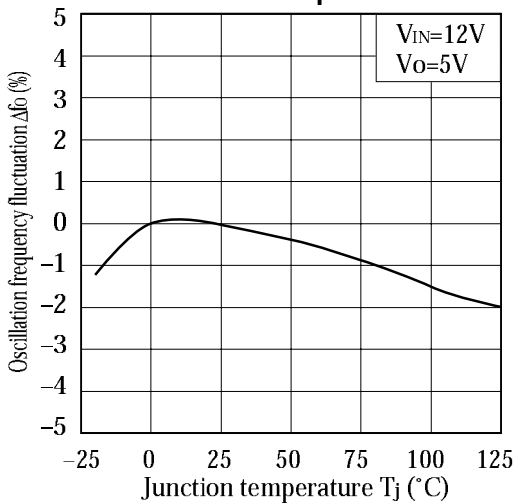


Fig.10 Overcurrent Detecting Level vs. Junction Temperature

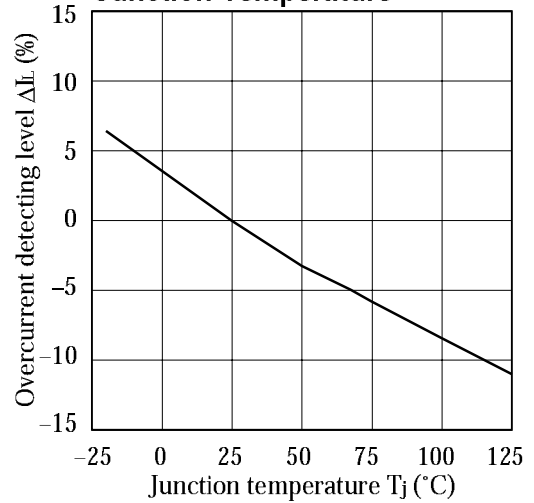
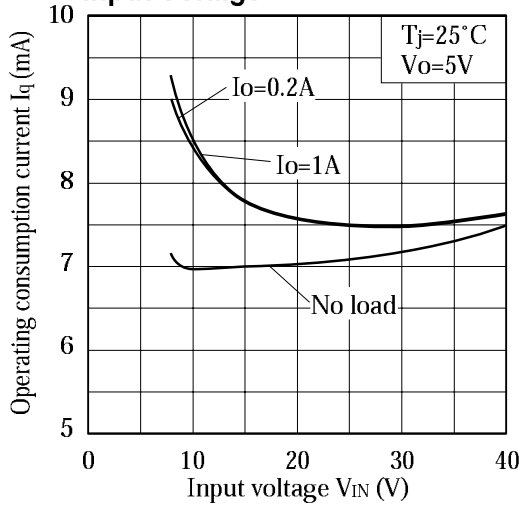
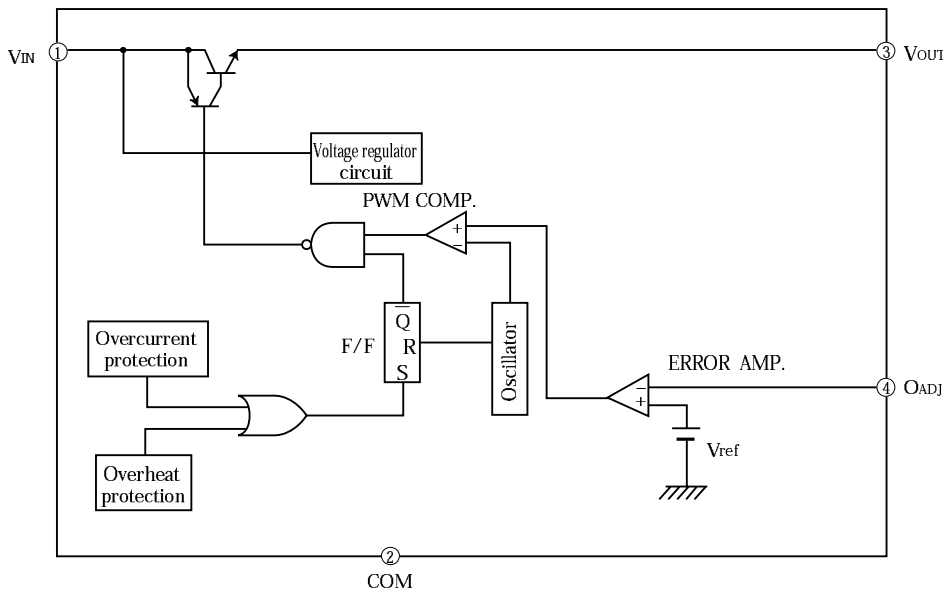


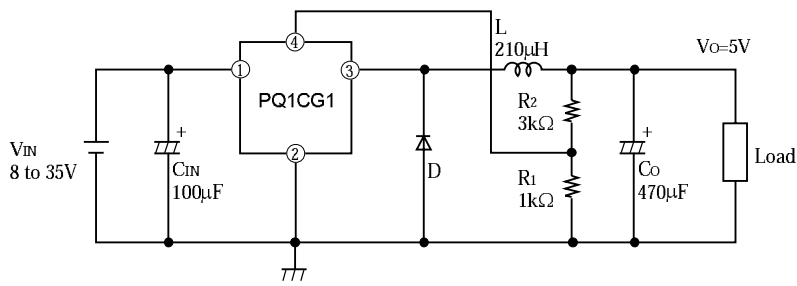
Fig.11 Operating Consumption Current vs. Input Voltage



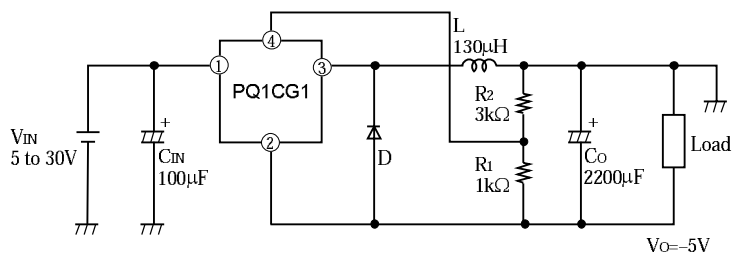
■ Block Diagram



■ Step-down Output Type Circuit Diagram(5V Output)



■ Inversion Output Type Circuit Diagram(-5V Output)



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