

PQ1CG41H2FZ/PQ1CG41H2RZ

TO-220 Type Chopper Regulator built-in 300kHz oscillation circuit

■ Features

- Maximum switching current: 1.5A
- Built-in ON/OFF control function
- Built-in soft start function to suppress overshoot of output voltage in power on sequence or ON/OFF control sequence
- Built-in oscillation circuit
(Oscillation frequency: TYP. 300kHz)
- Built-in overheat, overcurrent protection functions
- TO-220 package
- Variable output voltage
(Output variable range: V_{ref} to 35V/ $-V_{ref}$ to -30V)
[Possible to select step-down output/inverting output according to external connection circuit]
- PQ1CG41H2FZ: Zigzag forming
PQ1CG41H2RZ: Self-stand forming

■ Applications

- CTV, CTB
- LCD monitors
- Facsimiles, printers and other OA equipment
- CD-ROM drives/DVD-ROM drives

■ Absolute Maximum Ratings

($T_a=25^{\circ}\text{C}$)

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
*4 Power dissipation	P_{D1}	1.4	W
	P_{D2}	14	W
*5 Junction temperature	T_j	150	$^{\circ}\text{C}$
Operating temperature	T_{opr}	-20 to +80	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-40 to +150	$^{\circ}\text{C}$
Soldering temperature	T_{sol}	260 (10s)	$^{\circ}\text{C}$

*1 Voltage between V_{IN} terminal and COM terminal

*2 Voltage between V_{OUT} terminal and COM terminal

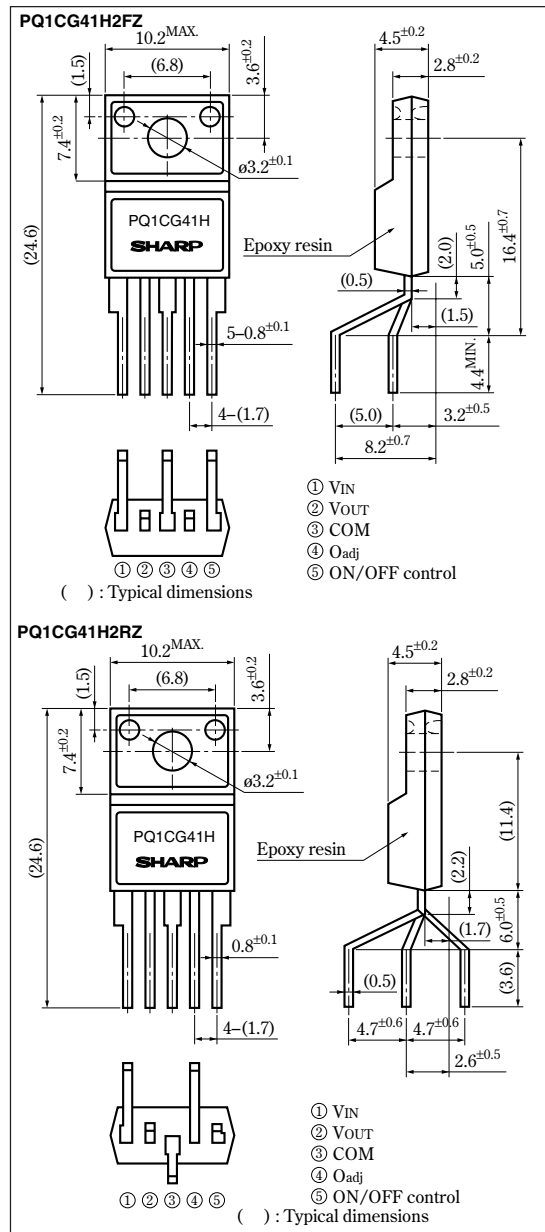
*3 Voltage between ON/OFF control and COM terminal

*4 P_D : With infinite heat sink

*5 Overheat protection may operate at the condition $T_j: 125^{\circ}\text{C}$ to 150°C .

■ Outline Dimensions

(Unit : mm)



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Electrical Characteristics (Unless otherwise specified, condition shall be $V_{IN}=12V$, $I_o=0.2A$, $V_o=5V$, ON-OFF terminals is open, $T_a=25^\circ C$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output saturation voltage	V_{SAT}	$I_{sw}=1A$	-	1.0	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 $1A$	-	0.2	1.5	%
Line regulation	$ R_{egH} $	$V_{IN}=8$ to $35V$	-	0.5	2.5	%
Efficiency	η	$I_o=1A$	-	83	-	%
Oscillation frequency	f_o	-	270	300	330	kHz
Oscillation frequency temperature fluctuation	Δf_o	$T_j=0$ to $125^\circ C$	-	± 3	-	%
Overcurrent detecting level	I_L	-	1.55	2.0	2.6	A
Charge current	I_{CHG}	②,④ terminals is open,⑤ terminal	-	-10	-	μA
Input threshold voltage	V_{THL}	Duty ratio=0%,④ terminal=0V,⑤ terminal	-	1.3	-	V
	V_{THH}	Duty ratio=100%,④ terminals=1.1V,⑤ terminal	-	2.3	-	V
ON threshold voltage	$V_{TH(ON)}$	④ terminal=0V,⑤ terminal	0.7	0.8	0.9	V
Stand-by current	I_{SD}	$V_{IN}=40V$,⑤ terminal=0V	-	140	400	μA
Output OFF-state dissipation current	I_{QS}	$V_{IN}=40V$,④ terminal=0V,⑤ terminal=0.9V	-	8	12	mA

Fig.1 Test Circuit

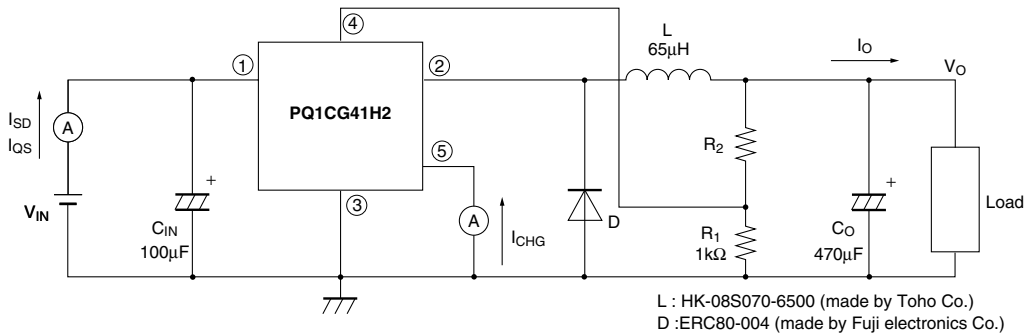
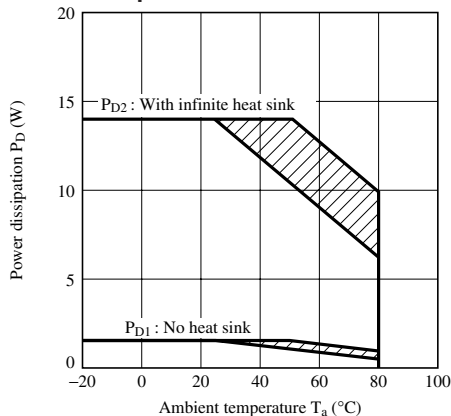


Fig.2 Power Dissipation vs. Ambient Temperature



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

Fig.3 Block Diagram

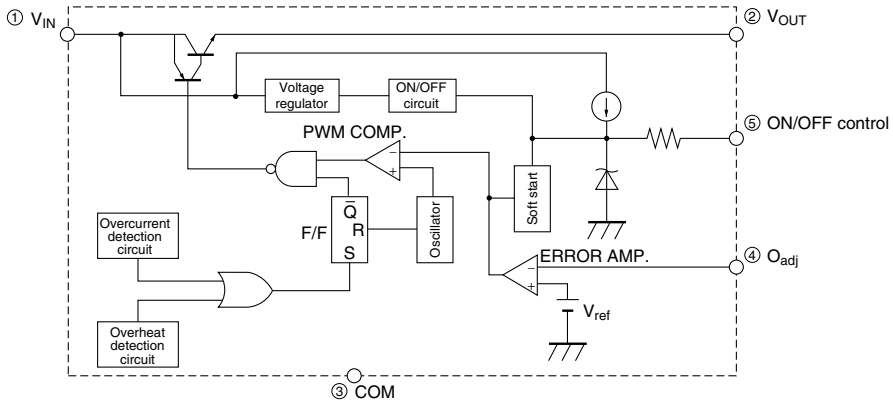


Fig.4 Step Down Type Circuit Diagram

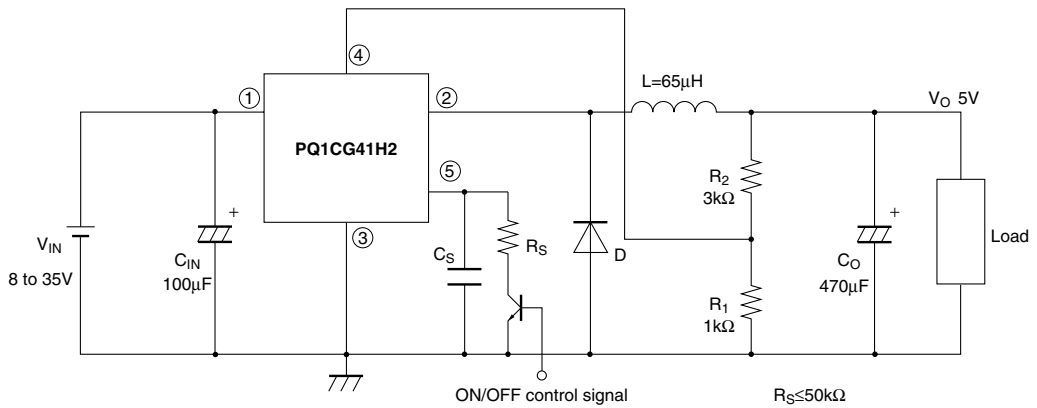
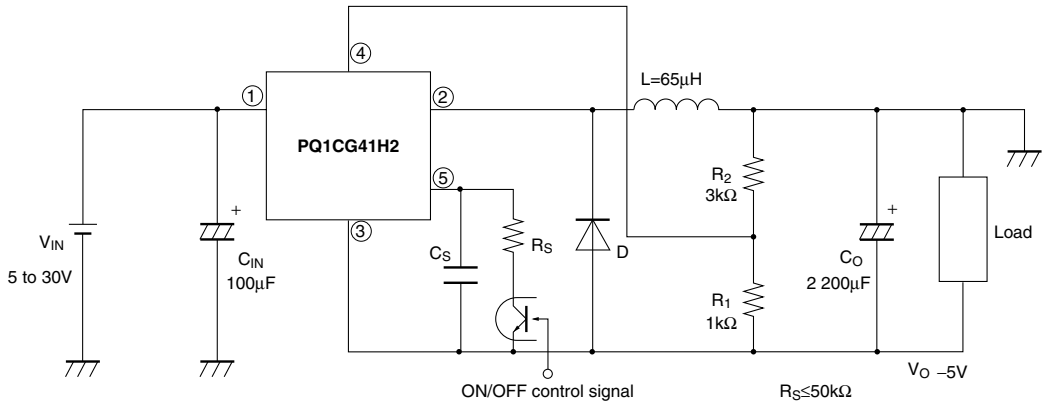


Fig.5 Polarity Inversion Type Circuit Diagram



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