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# PQ1CZ38M2Z Series

## SC-63 Surface Mount Type Chopper Regulator

### ■ Features

1. Maximum switching current:0.8A
2. Built-in ON/OFF control function.
3. Built-in soft start function to suppress overshoot of output voltage in power on sequence or ON/OFF control sequence.
4. Built-in oscillation circuit.  
(Oscillation frequency:TYP. 300kHz)
5. Built-in overheat/overcurrent protection function.
6. 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]

### ■ Applications

1. Facsimiles.
2. Printers.
3. Switching power supplies.

### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Rating	Unit
*1 Input voltage	$V_{IN}$	40	V
Output adjustment terminal voltage	$V_{ADJ}$	7	V
Dropout voltage	$V_{L-O}$	41	V
*2 Output-COM voltage	$V_{OUT}$	-1	V
*3 ON/OFF control voltage	$V_C$	-0.3 to +40	V
Switching current	$I_{SW}$	0.8	A
*4 Power dissipation	$P_D$	8	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	$^\circ\text{C}$
*6 Soldering temperature	$T_{sol}$	260	$^\circ\text{C}$

\*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

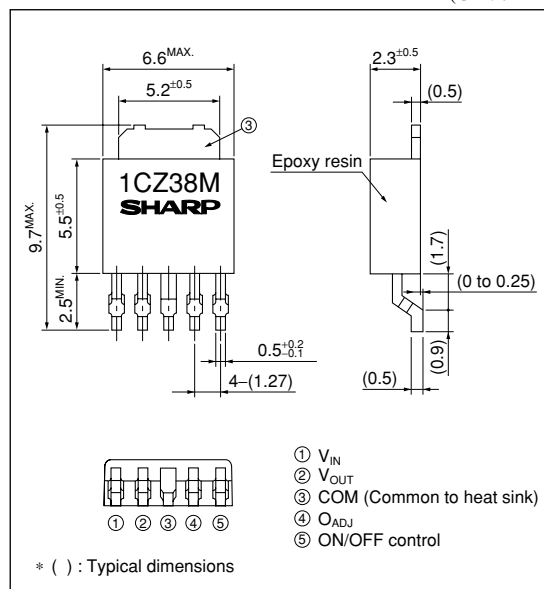
\*4  $P_D$ :With infinite heat sink

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

\*6 For 10s

### ■ Outline Dimensions

(Unit : mm)

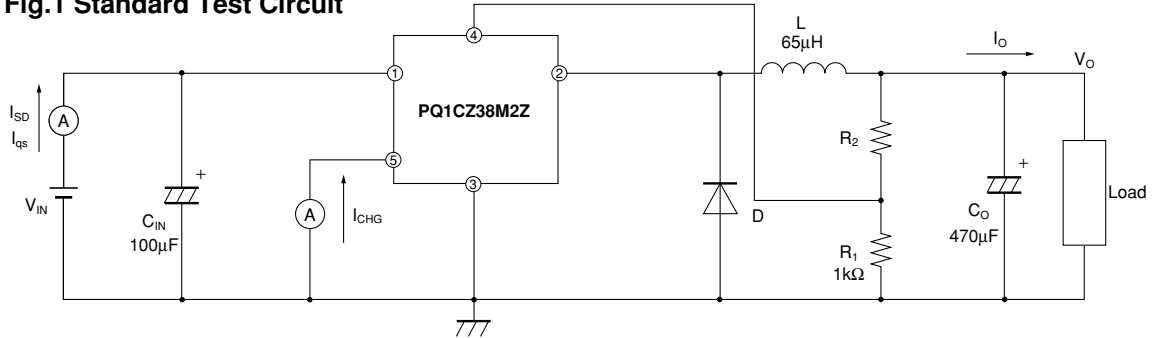


■ Electrical Characteristics

(Unless otherwise specified, condition shall be  $V_{IN}=12V$ ,  $I_O=0.2A$ ,  $V_O=5V$ , ⑤ terminal is open,  $T_a=25^{\circ}C$ )

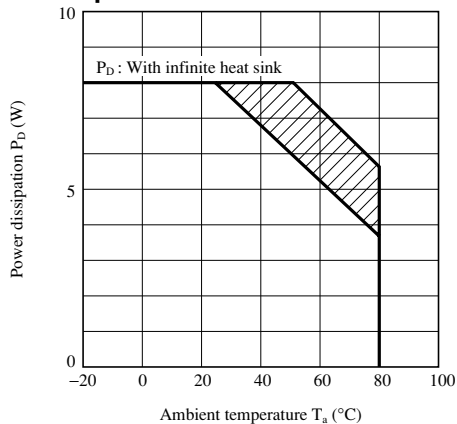
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output saturation voltage	$V_{SAT}$	$I_{SW}=0.5A$	-	0.9	1.5	V
Reference voltage	$V_{REF}$	-	1.235	1.26	1.285	V
Reference voltage temperature fluctuation	$\Delta V_{REF}$	$T_f=0$ to $125^{\circ}C$	-	$\pm 0.5$	-	%
Load regulation	$ R_{egL} $	$I_O=0.1$ to $0.5A$	-	0.2	1.5	%
Line regulation	$ R_{egI} $	$V_{IN}=8$ to $35V$	-	1	2.5	%
Efficiency	$\eta$	$I_O=0.5A$	-	80	-	%
Oscillation frequency	$f_0$	-	270	300	330	kHz
Oscillation frequency temperature fluctuation	$\Delta f_0$	$T_f=0$ to $125^{\circ}C$	-	$\pm 3$	-	%
Overcurrent detecting level	$I_L$	-	0.85	1.2	1.6	A
Charge current	$I_{CHG}$	②, ④ terminals are open, ⑤ terminal	-	-10	-	$\mu A$
Input threshold voltage	$V_{THL}$	Duty=0%, ④ terminal=0V, ⑤ terminal	-	1.3	-	V
	$V_{THH}$	Duty=100%, ④ terminal=1.1V, ⑤ terminal	-	2.1	-	
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	$\mu A$
Output OFF-state consumption current	$I_{QS}$	$V_{IN}=40V$ , ④ terminal=0V, ⑤ terminal=0.9V	-	5	10	mA

Fig.1 Standard Test Circuit



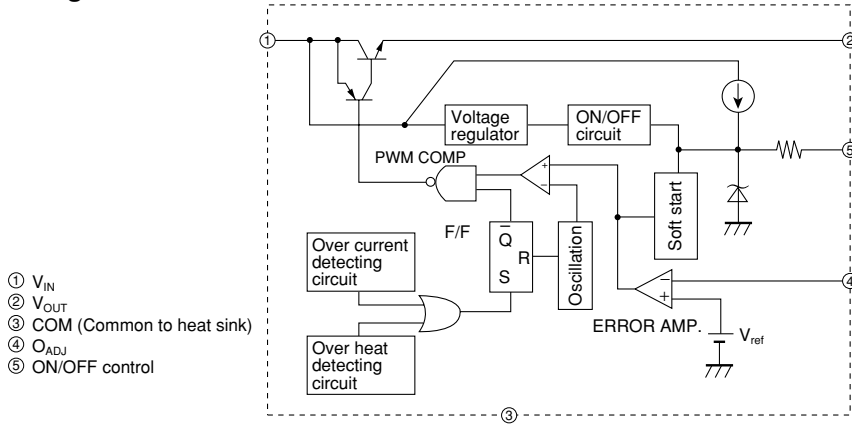
L : HK-08S070-6500 (made by Toho Co.)  
 D : ERC80-004 (made by Fuji electronics Co.)

Fig.2 Power Dissipation vs. Ambient Temperature



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

Fig.3 Block Diagram



- ①  $V_{IN}$
- ②  $V_{OUT}$
- ③ COM (Common to heat sink)
- ④  $O_{ADJ}$
- ⑤ ON/OFF control

Fig.4 Step Down Type Circuit Diagram (5V output)

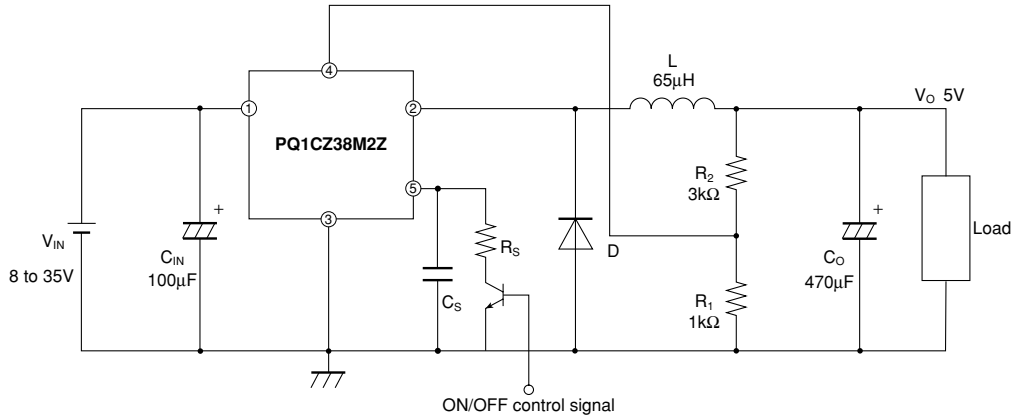
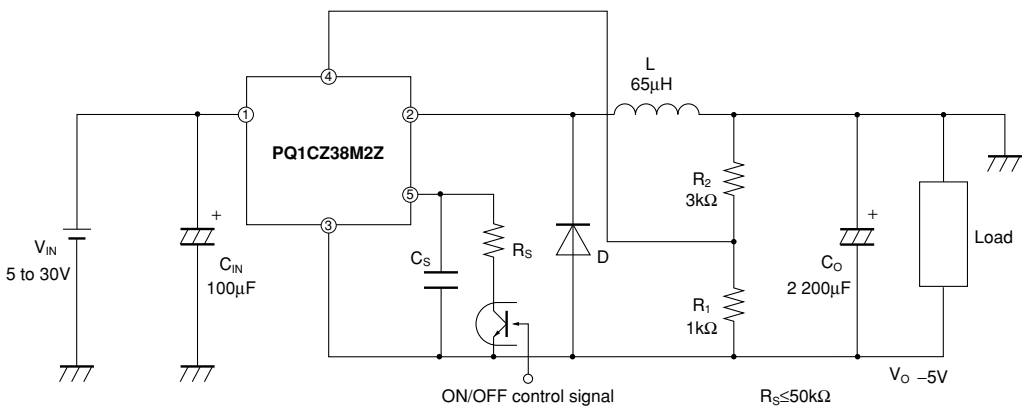


Fig.5 Polarity Inversion Type Circuit Diagram (-5V output)



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