PQ1CG3032FZ/PQ1CG3032RZ

TO-220 Type Chopper Regulators

(Unit: mm)

Features

- Maximum switching current: 3.5A
- 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. 150kHz)
- Built-in overheat, overcurrent protection functions
- TO-220 package
- Variable output voltage

(Output variable range: Vref to 35V/-Vref to -30V)

[Possible to select step-down output/inversing output according to external connection circuit]

• PQ1CG3032FZ: Zigzag forming

PQ1CG3032RZ: Self-stand forming

Applications

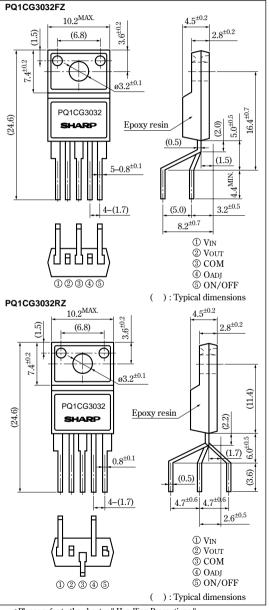
- Color TV
- Digital OA equipment
- Facsimiles, printers and other OA equipment
- Personal computers and amusement equipment

Absolute Maximum Ratings $(Ta=25^{\circ}C)$

Parameter	Symbol	Rating	Unit	
*1Input voltage	Vin	40	V	
Error input voltage	V _{ADJ}	7	V	
Input-output voltage	V _{I-O}	41	V	
*2Output-COM voltage	Vout	-1	V	
**3ON/OFF control voltage	Vc	-0.3 to +40	V	
Switching current	Isw	3.5	A	
*4Power dissipation	PDI	1.4	W	
	P_{D2}	14	W	
*5 Junction temperature	Tj	150	°C	
Operating temperature	Topr	-20 to +80	°C	
Storage temperature	Tstg	-40 to +150	°C	
Soldering temperature	Tsol	260 (10s)	°C	

- *1 Voltage between VIN terminal and COM terminal
- *2 Voltage between VOUT terminal and COM terminal
- #3 Voltage between ON/OFF control and COM terminal
- #4 PD: With infinite heat sink
- #5 Overheat protection may operate at T_i=125°C to 150°C

Outline Dimensions



[•] Please refer to the chapter " Handling Precautions ".

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■ Electrical Characteristics (Unless otherwise specified, condition shall be V_{IN}=12V, Io=0.5A, Vo=5V, ON-OFF terminals is open, Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output saturation voltage	Vsat	Isw=3A	_	1.4	1.8	V
Reference voltage	V _{ref}	-	1.235	1.26	1.285	V
Reference voltage temperature fluctuation	ΔV_{ref}	Tj=0 to 125°C	_	±0.5	_	%
Load regulation	RegL	Io=0.5 to 3A	-	0.2	1.5	%
Line regulation	RegI	V _{IN} =8 to 35V	_	1	2.5	%
Efficiency	η	Io=3A	_	80	_	%
Oscillation frequency	fo	-	135	150	165	kHz
Oscillation frequency temperature fluctuation	Δfo	T _j =0 to 125°C	-	±2	_	%
Overcurrent detecting level	IL	_	3.6	4.7	5.8	A
Charge current	Ichg	2,4 terminals is open,5 terminal	-	-10	_	μΑ
Input threshold voltage	V _{THL}	Duty ratio=0%, 4 terminal=0V, 5 terminal	_	1.3	_	V
	V _{THH}	Duty ratio=100%, 4 terminals is open, 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	Isd	V _{IN} =40V, (5) terminal=0V	_	140	400	μΑ
Output OFF-state dissipation current	Iqs	V _{IN} =40V, 5 terminal=0.9V	_	8	16	mA

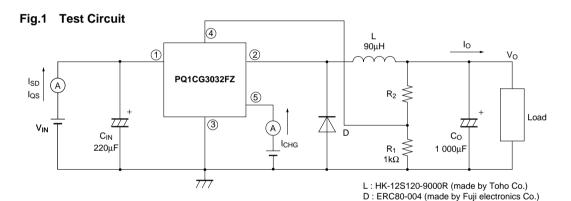


Fig.2 Power Dissipation vs. Ambient Temperature

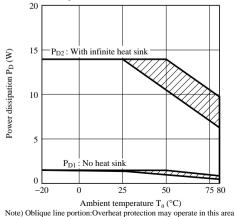


Fig.3 Overcurrent Protection Characteristics (Typical Value)

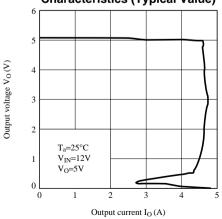


Fig.4 Efficiency vs. Input Voltage

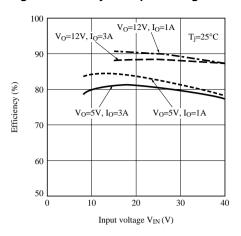


Fig.6 Stand-by Current vs. Intput Voltage

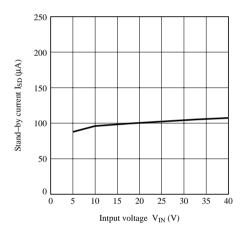


Fig.8 Load Regulation vs. Output Current

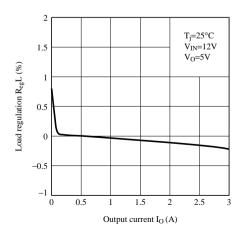


Fig.5 Output Saturation Voltage vs. Switching Current

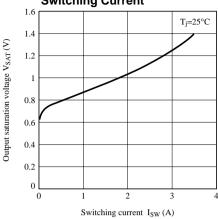


Fig.7 Reference Voltage Fluctuation vs. Junction Temperature

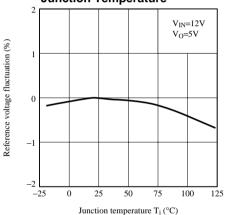


Fig.9 Line Regulation vs. Input Voltage

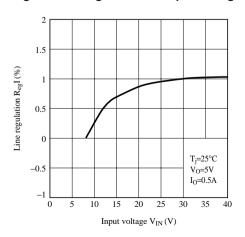


Fig.10 Oscillation Frequency Fluctuation vs. Junction Temperature

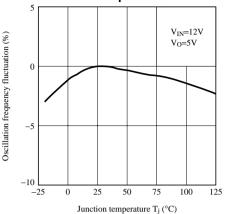


Fig.12 Threshold Voltage vs. Junction Temperature

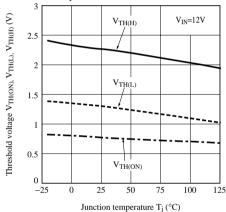


Fig.11 Overcurrent Detecting Level Fluctuation vs. Junction Temperature

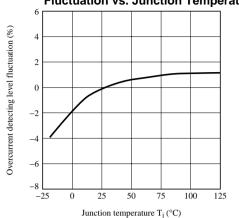


Fig.13 Operating Dissipation Current vs. Input Voltage

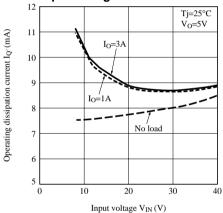


Fig.14 Block Diagram

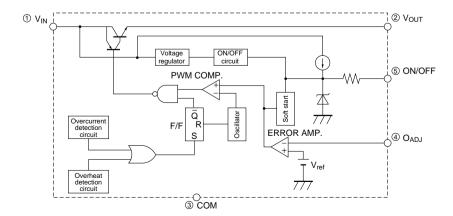


Fig.15 Step Down Type Circuit Diagram

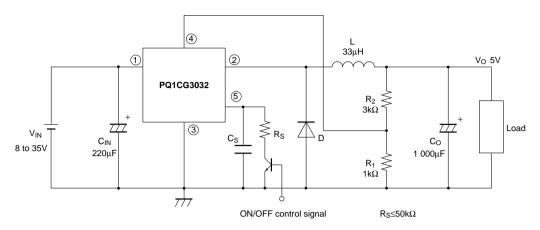
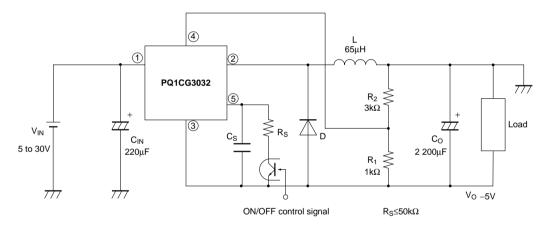


Fig.16 Polarity Inversion Type Circuit Diagram



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