

# PQ2CF1 Datasheet



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	PQ2CF1-DG
Manufacturer	<a href="#">Sharp Microelectronics</a>
Manufacturer Product Number	PQ2CF1
Description	IC REG BST FLYBCK ADJ 2.5A TO220
Detailed Description	Boost, Flyback Switching Regulator IC Positive Adjustable 4.5V 1 Output 2.5A (Switch) TO-220-5 Formed Leads

This model PQ2CF1 is available at DiGi Electronics.

DiGi Electronics offers a global database of semiconductor and electronic component datasheets.

We welcome your inquiries regarding pricing, lead time, or other product-related questions.

 [Request a Quote](#)

 [Datasheet Search](#)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.

## Purchase and inquiry

Manufacturer Product Number:

PQ2CF1

Series:

-

Function:

Step-Up, Step-Up/Step-Down

Topology:

Boost, Flyback

Number of Outputs:

1

Voltage - Input (Max):

10V

Voltage - Output (Max):

35V (Switch)

Frequency - Switching:

50kHz

Operating Temperature:

-20°C ~ 80°C (TA)

Package / Case:

TO-220-5 Formed Leads

Base Product Number:

PQ2CF1

Manufacturer:

Sharp Microelectronics

Product Status:

Obsolete

Output Configuration:

Positive

Output Type:

Adjustable

Voltage - Input (Min):

3.5V

Voltage - Output (Min/Fixed):

4.5V

Current - Output:

2.5A (Switch)

Synchronous Rectifier:

No

Mounting Type:

Through Hole

Supplier Device Package:

TO-220

## Environmental & Export classification

RoHS Status:

RoHS non-compliant

ECCN:

EAR99

Moisture Sensitivity Level (MSL):

1 (Unlimited)

HTSUS:

8542.39.0001



Electrical Characteristics

(Unless otherwise specified, conditions shall be  $V_{IN}=5V, I_O=0.2A, V_C=12V, T_a=25^{\circ}C$ )

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output saturation voltage	$V_{SAT}$	$I_{SW}=2A$	—	0.6	1.2	V
Reference voltage	$V_{ref}$	—	1.235	1.26	1.285	V
Reference voltage temperature fluctuation	$\Delta V_{ref}$	$T_j=0$ to $125^{\circ}C$	—	$\pm 0.5$	—	%
Load regulation	$R_{egL}$	$I_O=70$ to $570mA$	—	0.1	1.5	%
Line regulation	$R_{egI}$	$V_{IN}=3.5$ to $10V$	—	0.2	1.5	%
Efficiency	$\eta$	$I_O=0.5A$	—	85	—	%
Oscillation frequency	$f_o$	—	40	50	60	kHz
Oscillation frequency temperature fluctuation	$\Delta f_o$	$T_j=0$ to $125^{\circ}C$	—	$\pm 5$	—	%
Maximum duty	$D_{MAX}$	⑤ terminal is open	90	—	—	%
Over current detecting level	$I_L$	Duty=50%,	2.7	4.4	5.8	A
Charge current 1	$I_{CHG1}$	④ terminal=0V, ④ terminal	-80	-50	-20	$\mu A$
Charge current 2	$I_{CHG2}$	④ terminal=0.5V, ④ terminal	-150	-100	-50	$\mu A$
Input threshold voltage	$V_{THL}$	Duty=0%, ④ terminal	0.55	0.75	0.95	V
Vc terminal low level voltage	$V_{CH}$	① terminal is open, ⑤ terminal=1.1V	1.65	1.85	2.05	V
Vc terminal high level voltage	$V_{CL}$	① terminal is open, ⑤ terminal=1.4V	0.3	0.45	0.6	V
On threshold voltage	$V_{THON}$	① terminal is open, ④ terminal	0.1	0.2	0.3	V
Stand-by current	$I_{SD}$	$V_{IN}=35V$ , ④ terminal=0V, No L, Co, D, R1, R2	—	270	400	$\mu A$
Output OFF-state consumption current	$I_{QS}$	$V_{IN}=35V$ , ④ terminal=0.5V, No L, Co, D, R1, R2	—	4.0	12	mA

Block Diagram

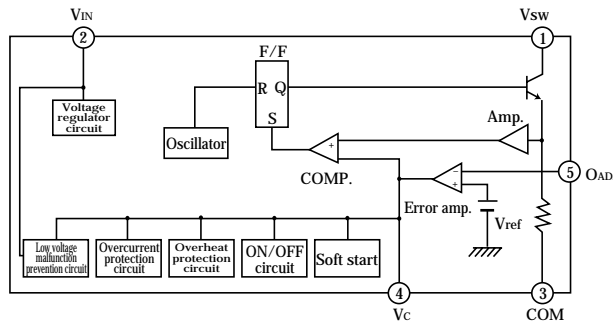
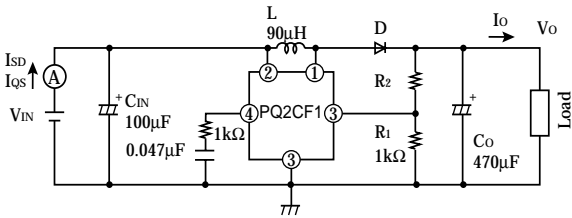
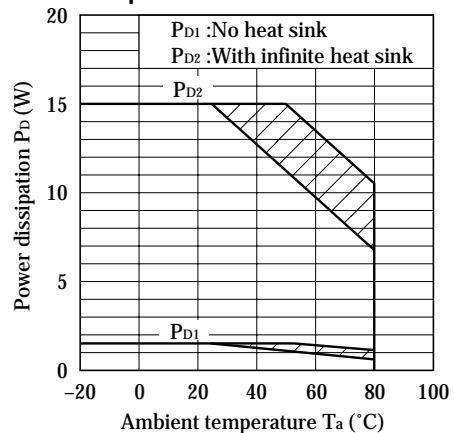


Fig. 1 Test Circuit



L : HK-12S100-9000 (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

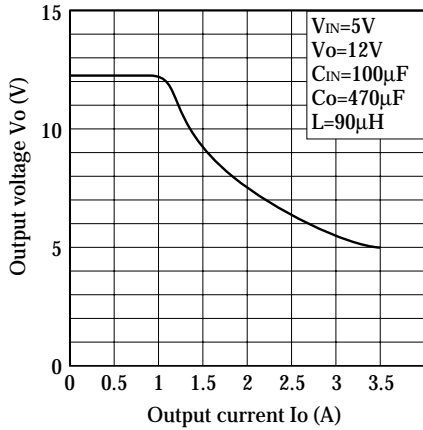


Fig. 4 Efficiency vs. Input Voltage

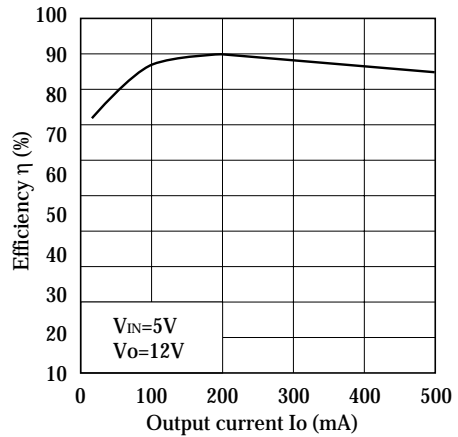


Fig. 5 Reference Voltage Fluctuation vs. Junction Temperature

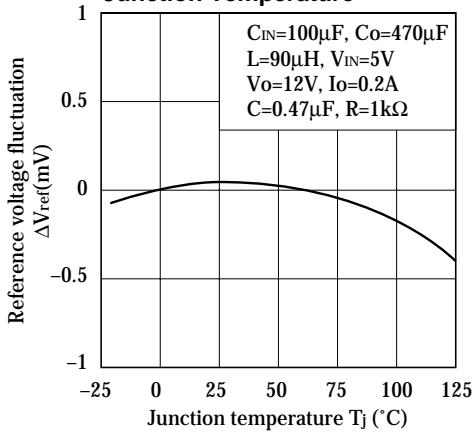


Fig. 6 Load Regulation vs. Output current

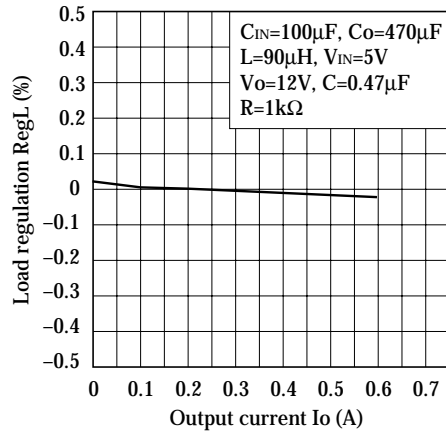


Fig. 7 Line Regulation vs. Input Voltage

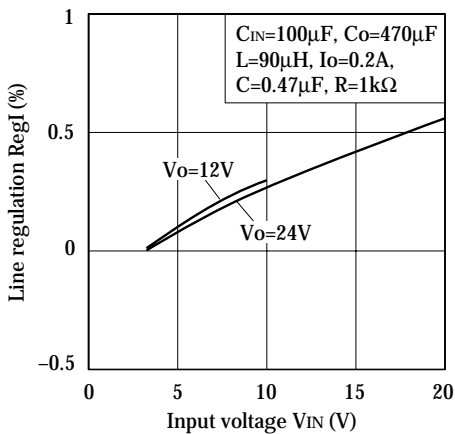
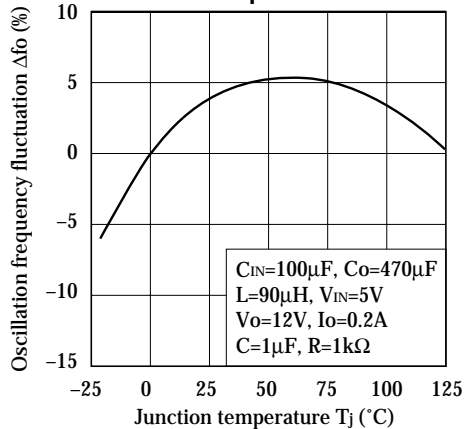
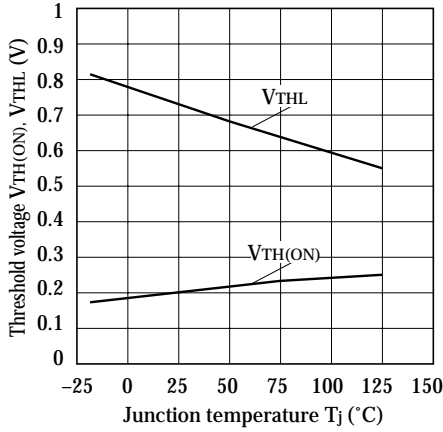


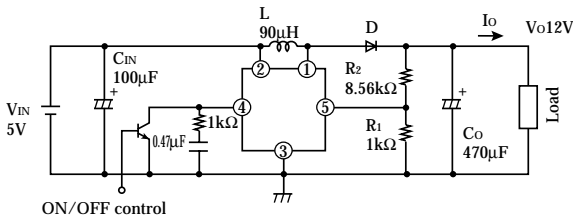
Fig. 8 Oscillation Frequency Fluctuation vs. Junction Temperature



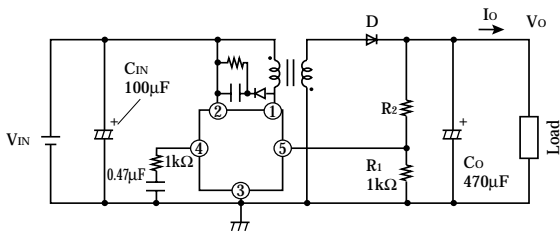
**Fig. 9 Threshold Voltage vs. Junction Temperature**



■ **Step - Up Type Circuit Diagram (12V Output)**



■ **Flyback Method Circuit Diagram**



**NOTICE**

- The circuit application examples in this publication are provided to explain representative applications of SHARP devices and are not intended to guarantee any circuit design or license any intellectual property rights. SHARP takes no responsibility for any problems related to any intellectual property right of a third party resulting from the use of SHARP's devices.
- Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device. SHARP reserves the right to make changes in the specifications, characteristics, data, materials, structure, and other contents described herein at any time without notice in order to improve design or reliability. Manufacturing locations are also subject to change without notice.
- Observe the following points when using any devices in this publication. SHARP takes no responsibility for damage caused by improper use of the devices which does not meet the conditions and absolute maximum ratings to be used specified in the relevant specification sheet nor meet the following conditions:
  - (i) The devices in this publication are designed for use in general electronic equipment designs such as:
    - Personal computers
    - Office automation equipment
    - Telecommunication equipment [terminal]
    - Test and measurement equipment
    - Industrial control
    - Audio visual equipment
    - Consumer electronics
  - (ii) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when SHARP devices are used for or in connection with equipment that requires higher reliability such as:
    - Transportation control and safety equipment (i.e., aircraft, trains, automobiles, etc.)
    - Traffic signals
    - Gas leakage sensor breakers
    - Alarm equipment
    - Various safety devices, etc.
  - (iii) SHARP devices shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as:
    - Space applications
    - Telecommunication equipment [trunk lines]
    - Nuclear power control equipment
    - Medical and other life support equipment (e.g., scuba).
- Contact a SHARP representative in advance when intending to use SHARP devices for any "specific" applications other than those recommended by SHARP or when it is unclear which category mentioned above controls the intended use.
- If the SHARP devices listed in this publication fall within the scope of strategic products described in the Foreign Exchange and Foreign Trade Control Law of Japan, it is necessary to obtain approval to export such SHARP devices.
- This publication is the proprietary product of SHARP and is copyrighted, with all rights reserved. Under the copyright laws, no part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, in whole or in part, without the express written permission of SHARP. Express written permission is also required before any use of this publication may be made by a third party.
- Contact and consult with a SHARP representative if there are any questions about the contents of this publication.

## OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we stricly control the quality of products and services. Welcome your RFQ to

Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.