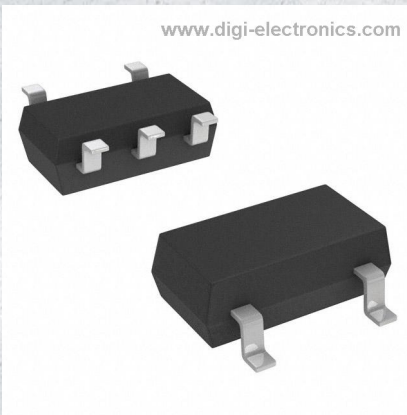


# PQ1U181M2ZP Datasheet



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DiGi Electronics Part Number	PQ1U181M2ZP-DG
Manufacturer	<a href="#">Sharp Microelectronics</a>
Manufacturer Product Number	PQ1U181M2ZP
Description	IC REG LINEAR 1.8V 150MA SOT23-5
Detailed Description	Linear Voltage Regulator IC Positive Fixed 1 Output 150mA SOT-23-5

This model PQ1U181M2ZP is available at DiGi Electronics.

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## Purchase and inquiry

Manufacturer Product Number:

PQ1U181M2ZP

Series:

-

Output Configuration:

Positive

Number of Regulators:

1

Voltage - Output (Min/Fixed):

1.8V

Voltage Dropout (Max):

-

Current - Quiescent (Iq):

200  $\mu$ A

Control Features:

Enable

Operating Temperature:

-30°C ~ 80°C

Package / Case:

SC-74A, SOT-753

Base Product Number:

PQ1U

Manufacturer:

Sharp Microelectronics

Product Status:

Obsolete

Output Type:

Fixed

Voltage - Input (Max):

16V

Voltage - Output (Max):

-

Current - Output:

150mA

PSRR:

70dB (400Hz)

Protection Features:

Over Current, Over Temperature

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-23-5

## Environmental & Export classification

RoHS Status:

RoHS non-compliant

ECCN:

EAR99

Moisture Sensitivity Level (MSL):

1 (Unlimited)

HTSUS:

8542.39.0001

# PQ1Uxx1M2ZP Series

Low Output Current, Compact Surface Mount Type Low Power-Loss Voltage Regulators

## ■ Features

- Compact surface mount package (2.9×1.6×1.1mm)
- Low power-loss (Dropout voltage: TYP. 0.11 V at I<sub>o</sub>=60mA)
- High ripple rejection (TYP. 70dB)
- Built-in ON/OFF control function  
(Dissipation current at OFF-state: MAX. 1μA)
- Built-in overcurrent, overheat protection functions

\*It is available for every 0.1V of output voltage (1.3V to 5.0V)

## ■ Applications

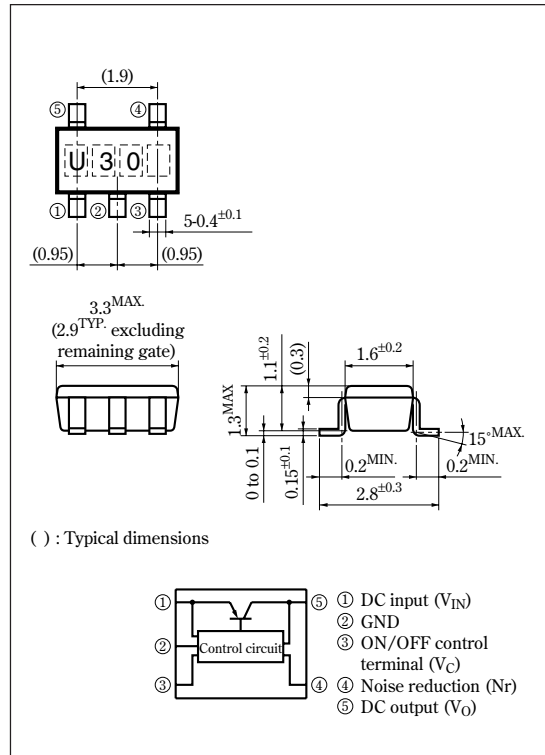
- Cellular phones
- Cordless phones
- Personal information tools (PDA)
- Cameras/Camcoders
- PCMCIA cards for notebook PCs

## ■ Model Line-up

Output Voltage (TYP.)	Model No.	Output Voltage (TYP.)	Model No.
2.5V	PQ1U251M2ZP	3.5V	PQ1U351M2ZP
2.8V	PQ1U281M2ZP	3.6V	PQ1U361M2ZP
3.0V	PQ1U301M2ZP	3.8V	PQ1U381M2ZP
3.3V	PQ1U331M2ZP	4.0V	PQ1U401M2ZP
3.4V	PQ1U341M2ZP	5.0V	PQ1U501M2ZP

## ■ Outline Dimensions

(Unit : mm)



## ■ Absolute Maximum Ratings

(T<sub>a</sub>=25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V <sub>IN</sub>	16	V
*1 ON/OFF control terminal voltage	V <sub>C</sub>	16	V
Output current	I <sub>O</sub>	300	mA
*2 Power dissipation	P <sub>D</sub>	350	mW
*3 Junction temperature	T <sub>j</sub>	150	°C
Operating temperature	T <sub>opr</sub>	-30 to +80	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C
Soldering temperature	T <sub>sol</sub>	260 (10s)	°C

\*1 All are open except GND and applicable terminals.

\*2 At mounted on PCB

\*3 Overheat protection may operate at T<sub>j</sub>=125°C to 150°C

•Please refer to the chapter " Handling Precautions ".

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Internet Internet address for Electronic Components Group <http://sharp-world.com/ecg/>

**Electrical Characteristics**

(Unless otherwise specified,  $V_{IN}=V_O(TYP)+1.0V$ ,  $I_O=30mA$ ,  $V_C=1.8V$ ,  $T_a=25^\circ C$ )

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	$V_O$	—	Refer to the following table.1			V
*4 Output peak current	$I_{OP}$	—	180	300	—	mA
Recommended output current	—	—	—	—	150	mA
Load regulation	$R_{regL1}$	$I_O=5$ to 60mA	—	10	50	mV
	$R_{regL2}$	$I_O=5$ to 100mA	—	20	100	mV
	$R_{regL3}$	$I_O=5$ to 150mA	—	30	160	mV
Line regulation	$R_{regI}$	$V_{IN}=V_O(TYP)+1V$ to $V_O(TYP)+6V$	—	3.0	20	mV
Temperature coefficient of output voltage	$TcV_O$	$I_O=10mA$ , $T_J=-25$ to $+75^\circ C$	—	0.05	—	mV/ $^\circ C$
Ripple rejection	RR	Refer to Fig.2	—	70	—	dB
Output noise voltage	$V_{no (rms)}$	$10Hz < f < 100kHz$ , $C_n=0.1\mu F$ , $I_O=30mA$	Refer to the following table.2			$\mu V$
Dropout voltage	$V_{I-O1}$	$I_O=60mA$ *5	—	0.11	0.26	V
	$V_{I-O2}$	$I_O=150mA$ *5	—	0.20	0.4	
*6 ON-state voltage for control	$V_C(ON)$	—	1.8	—	—	V
ON-state current for control	$I_C(ON)$	$V_C=1.8V$	—	5	30	$\mu A$
OFF-state voltage for control	$V_C(OFF)$	—	—	—	0.4	V
Quiescent current	$I_q$	$I_O=0mA$	—	130	200	$\mu A$
Output OFF-state dissipation current	$I_{qs}$	$V_C=0.2V$	—	—	1	$\mu A$

\*4 Output current shall be the value when output voltage lowers 0.3V from the voltage at  $I_O=30mA$ .

\*5 Input voltage when output voltage falls 0.1V from that at  $V_{IN}=V_O(TYP)+1.0V$ .

\*6 In case that the control terminal (Ⓞ pin) is open, output voltage should be OFF state.

\*7 In case of PQ1U181M2ZP,  $V_{IN}$  minimum=2.3V.

**Table.1 Output Voltage Line-up**

( $V_{IN}=V_O(TYP)+1.0V$ ,  $I_O=30mA$ ,  $V_C=1.8V$ ,  $T_a=25^\circ C$ )

Model No.	Symbol	MIN.	TYP.	MAX.	Unit
PQ1U181M2ZP	V <sub>O</sub>	1.740	1.8	1.860	V
PQ1U251M2ZP		2.440	2.5	2.560	
PQ1U281M2ZP		2.740	2.8	2.860	
PQ1U291M2ZP		2.840	2.9	2.960	
PQ1U301M2ZP		2.940	3.0	3.060	
PQ1U331M2ZP		3.234	3.3	3.366	
PQ1U341M2ZP		3.332	3.4	3.468	
PQ1U351M2ZP		3.430	3.5	3.570	
PQ1U361M2ZP		3.528	3.6	3.672	
PQ1U381M2ZP		3.724	3.8	3.876	
PQ1U401M2ZP		3.920	4.0	4.080	
PQ1U501M2ZP		4.900	5.0	5.100	

**Table.2 Output Noise Voltage Line-up**

( $V_{IN}=V_O(TYP)+1.0V$ ,  $I_O=30mA$ ,  $V_C=1.8V$ ,  $C_n=0.1\mu F$ ,  $10Hz < f < 100kHz$ ,  $T_a=25^\circ C$ )

Model No.	Symbol	MIN.	TYP.	MAX.	Unit
PQ1U181M2ZP	V <sub>no(rms)</sub>	—	15	—	$\mu V$
PQ1U251M2ZP		—	25	—	
PQ1U281M2ZP		—	25	—	
PQ1U291M2ZP		—	25	—	
PQ1U301M2ZP		—	30	—	
PQ1U331M2ZP		—	30	—	
PQ1U341M2ZP		—	30	—	
PQ1U351M2ZP		—	35	—	
PQ1U361M2ZP		—	35	—	
PQ1U381M2ZP		—	35	—	
PQ1U401M2ZP		—	40	—	
PQ1U501M2ZP		—	50	—	

**Fig.1 Test Circuit**

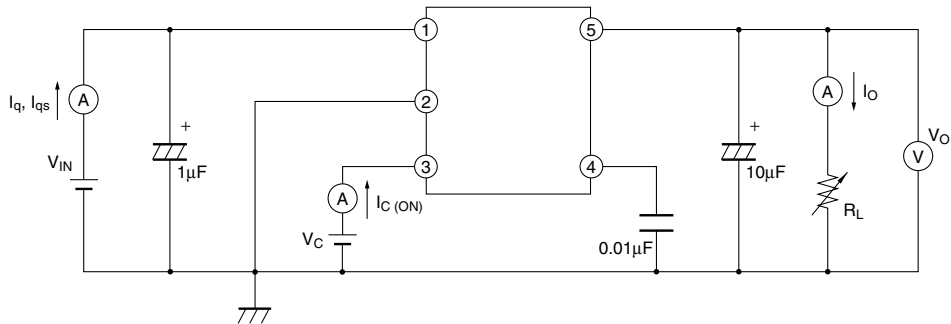


Fig.2 Test Circuit for Ripple Rejection

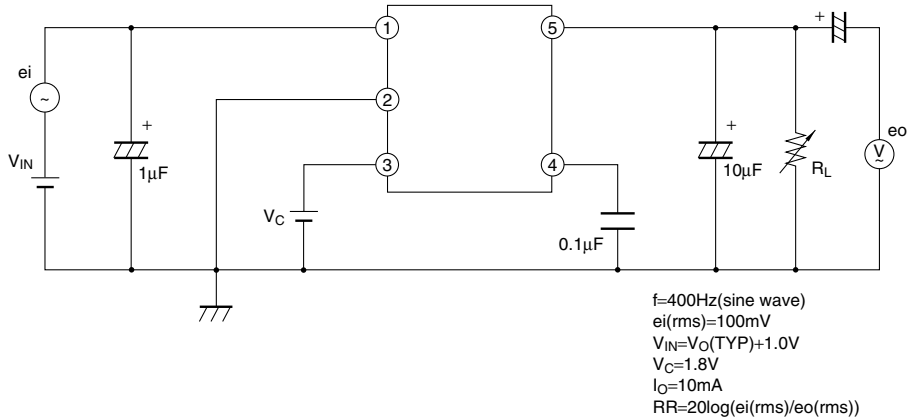
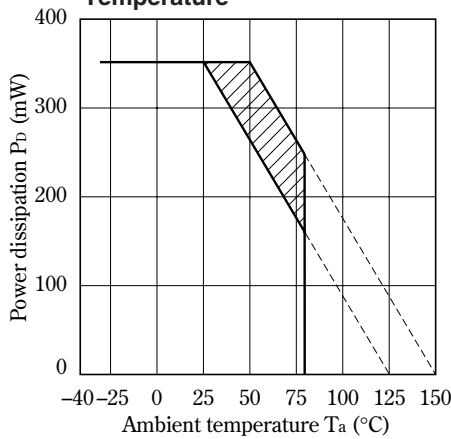


Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.5 Output Voltage Fluctuation vs. Junction Temperature (PQ1U281M2ZP)(Typical Value)

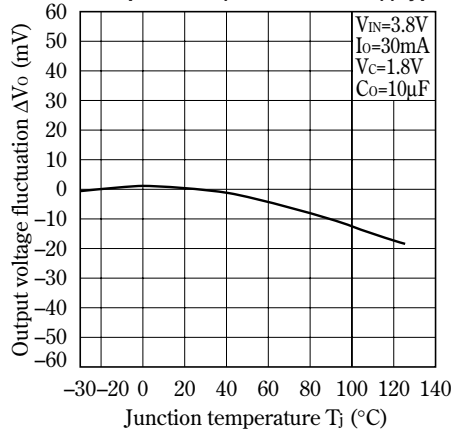


Fig.4 Overcurrent Protection Characteristics (Typical Value)

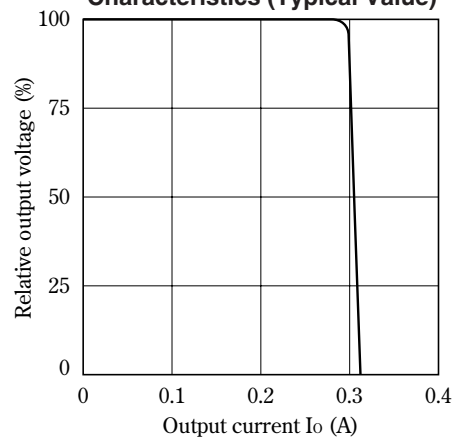
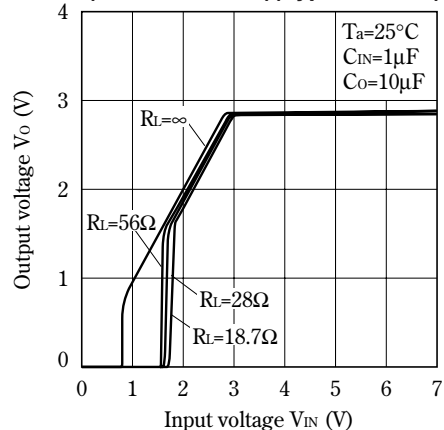
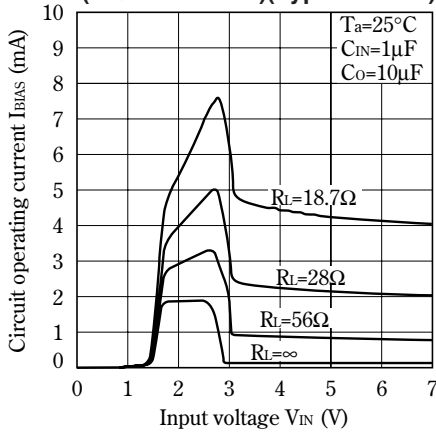


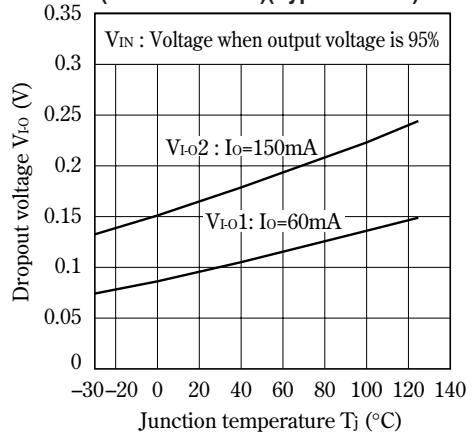
Fig.6 Output Voltage vs. Input Voltage (PQ1U281M2ZP)(Typical Value)



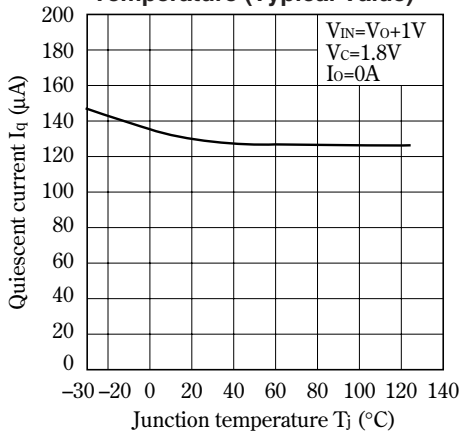
**Fig.7 Circuit Operating Current vs. Input Voltage (PQ1U281M2ZP)(Typical Value)**



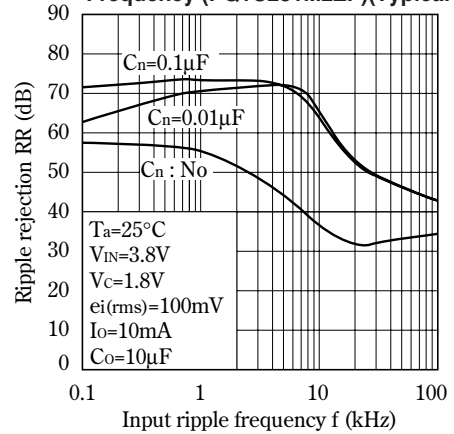
**Fig.8 Dropout Voltage vs. Junction Temperature (PQ1U281M2ZP)(Typical Value)**



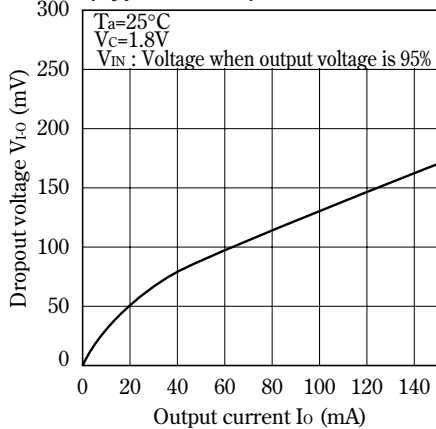
**Fig.9 Quiescent Current vs. Junction Temperature (Typical Value)**



**Fig.10 Ripple Rejection vs. Input Ripple Frequency (PQ1U281M2ZP)(Typical Value)**



**Fig.11 Dropout Voltage vs. Output Current (Typical Value)**



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