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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# PQ033ES1MWP/PQ050ES1MWP

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

## Features

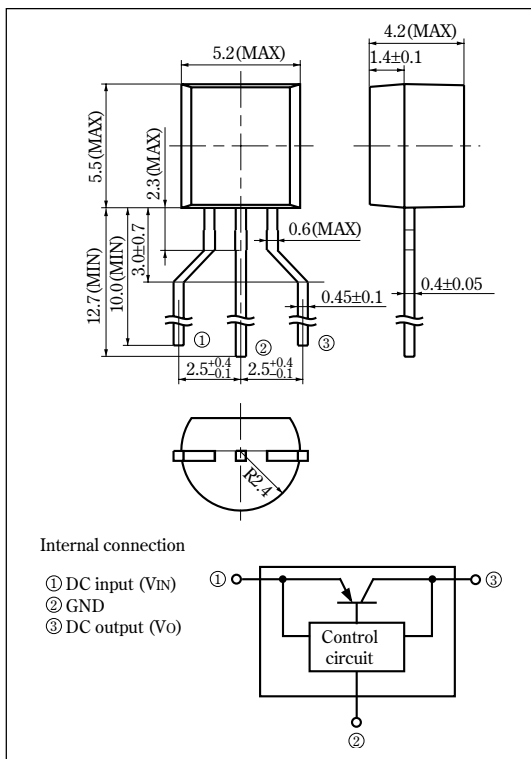
- Compact package: TO-92 type  
(Size (mold part): 5.2×5.5×4.2 mm)
- Small current output: MAX. 150mA
- Low dissipation current:  
Quiescent current  $I_q$  = MAX. 350μA
- Low power-loss:  
Dropout voltage: MAX. 0.26 V at  $I_o$  = 60 mA  
Dropout voltage: MAX. 0.4 V at  $I_o$  = 150 mA
- Built-in overcurrent, overheat protection functions
- Taped package

## Applications

- TV, VCR
- Air conditioners
- DVD players
- Audio equipment

## Outline Dimensions

(Unit : mm)



## Absolute Maximum Ratings

( $T_a$  = 25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	$V_{IN}$	16	V
Output current	$I_o$	150	mA
*2 Power dissipation	$P_D$	520	mW
*3 Junction temperature	$T_j$	150	°C
Operating temperature	$T_{opr}$	-30 to +80	°C
Storage temperature	$T_{stg}$	-55 to +150	°C
Soldering temperature	$T_{sol}$	260 (For 10s)	°C

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

\*2 No heat sink

\*3 Overheat protection may operate at  $125 \leq T_j \leq 150$ °C.

•Please refer to the chapter " Handling Precautions ".

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Electrical Characteristics

(Unless otherwise specified, V<sub>IN</sub>=V<sub>O</sub>(TYP.)+1.0V, I<sub>O</sub>=30mA, T<sub>a</sub>=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	V <sub>O</sub>	—	Refer to the table below.			V
Load regulation	R <sub>eg</sub> L1	I <sub>O</sub> =5mA to 60mA	—	10	50	mV
	R <sub>eg</sub> L2	I <sub>O</sub> =5mA to 100mA	—	20	100	mV
	R <sub>eg</sub> L3	I <sub>O</sub> =5mA to 150mA	—	30	160	mV
Line regulation	R <sub>eg</sub> I	V <sub>IN</sub> =V <sub>O</sub> (TYP.)+1V to V <sub>O</sub> (TYP.)+6V	—	3.0	20	mV
Temperature coefficient of output voltage	T <sub>c</sub> V <sub>O</sub>	I <sub>O</sub> =10mA, T <sub>J</sub> =25 to 75°C	—	0.05	—	mV/°C
Ripple rejection	RR	—	—	55	—	dB
Dropout voltage	V <sub>I-O</sub>	I <sub>O</sub> =60mA, V <sub>IN</sub> =※4	—	0.11	0.26	V
	V <sub>I-O</sub>	I <sub>O</sub> =150mA, V <sub>IN</sub> =※4	—	0.2	0.4	V
Quiescent current	I <sub>q</sub>	I <sub>O</sub> =0mA	—	170	350	μA

※4 Dropout voltage when output voltage lowers 0.1V from the voltage at V<sub>IN</sub>=V<sub>O</sub>+1V.

Output Voltage Line-up

(V<sub>IN</sub>=V<sub>O</sub>(TYP.)+1.0V, I<sub>O</sub>=30mA, T<sub>a</sub>=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	PQ033ES1MWP	V <sub>O</sub>	—	3.234	3.3	3.366	V
	PQ050ES1MWP			4.900	5.0	5.100	

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    - Audio visual equipment
    - Consumer electronics
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    - Gas leakage sensor breakers
    - Alarm equipment
    - Various safety devices, etc.
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