

# PQ033ES1MWP/PQ050ES1MWP

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

## ■ Features

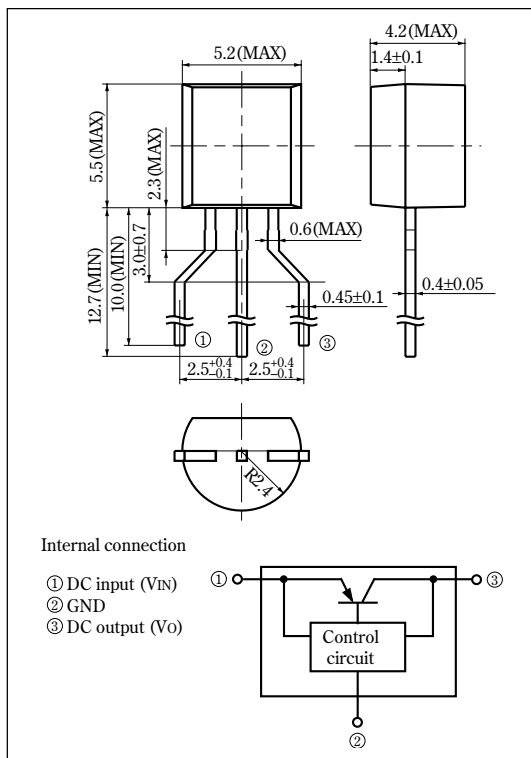
- Compact package: TO-92 type  
(Size (mold part): 5.2×5.5×4.2 mm)
- Small current output: MAX. 150mA
- Low dissipation current:  
Quiescent current  $I_q$ =MAX. 350 $\mu$ A
- Low power-loss:  
Dropout voltage: MAX. 0.26 V at  $I_o$ =60 mA  
Dropout voltage: MAX. 0.4 V at  $I_o$ =150 mA
- Built-in overcurrent,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

## ■ Applications

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

## ■ Outline Dimensions

(Unit : mm)



## ■ Absolute Maximum Ratings

( $T_a=25^\circ\text{C}$ )

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	$^\circ\text{C}$
Operating temperature	$T_{opr}$	-30 to +80	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$
Soldering temperature	$T_{sol}$	260 (For 10s)	$^\circ\text{C}$

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

\*2 No heat sink

\*3 Overheat protection may operate at  $125 \leq T_j \leq 150^\circ\text{C}$ .

•Please refer to the chapter " Handling Precautions ".

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■ **Electrical Characteristics**

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

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	$V_O$	–	Refer to the table below.			V
Load regulation	$R_{egL1}$	$I_O=5mA$ to 60mA	–	10	50	mV
	$R_{egL2}$	$I_O=5mA$ to 100mA	–	20	100	mV
	$R_{egL3}$	$I_O=5mA$ to 150mA	–	30	160	mV
Line regulation	$R_{egI}$	$V_{IN}=V_O(TYP.)+1V$ to $V_O(TYP.)+6V$	–	3.0	20	mV
Temperature coefficient of output voltage	$T_cV_O$	$I_O=10mA$ , $T_j=25$ to $75^\circ C$	–	0.05	–	mV/ $^\circ C$
Ripple rejection	RR	–	–	55	–	dB
Dropout voltage	$V_{I0}$	$I_O=60mA$ , $V_{IN}=\#4$	–	0.11	0.26	V
	$V_{I0}$	$I_O=150mA$ , $V_{IN}=\#4$	–	0.2	0.4	V
Quiescent current	$I_q$	$I_O=0mA$	–	170	350	$\mu A$

#4 Dropout voltage when output voltage lowers 0.1V from the voltage at  $V_{IN}=V_O+1V$ .

■ **Output Voltage Line-up**

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

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	PQ033ES1MWP	$V_O$	–	3.234	3.3	3.366	V
	PQ050ES1MWP			4.900	5.0	5.100	

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