

# PQ2TZ55/PQ2TZ15

2.5V Output, Surface Mount Type Low Power-Loss Voltage Regulators

## ■ Features

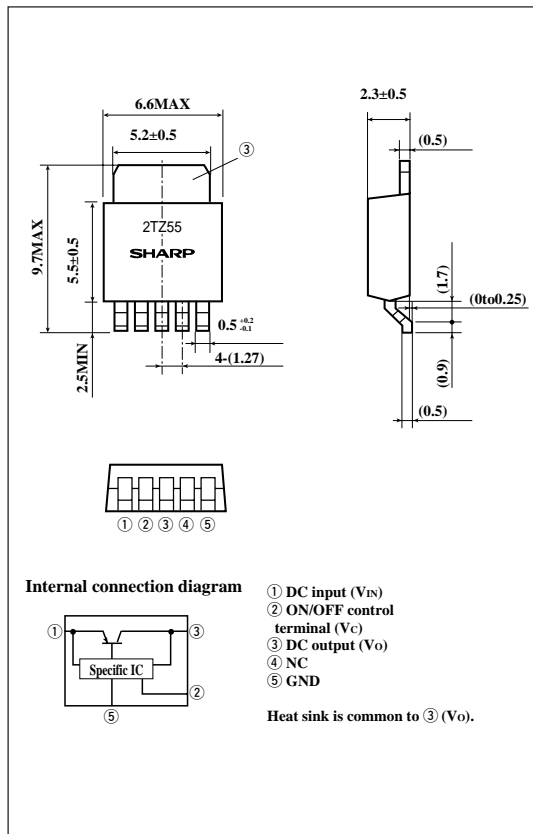
- Low power-loss (Dropout voltage : MAX 0.5V)
- Surface mount type package (Equivalent to EIAJ SC-63)
- Output voltage : 2.5V
- Minimum input voltage : 3.0V
- Output current : (0.5A : PQ2TZ55)  
(1.0A : PQ2TZ15)
- Output voltage precision :  $\pm 2.5\%$
- Built-in ON/OFF control function
- Low dissipation current at OFF-state ( $I_{qs}$  : MAX.5 $\mu$ A)
- Tape packaged type is also available.  
( $\phi$ 330mm reel : 3 000pcs., PQ2TZ55U/PQ2TZ15U)

## ■ Applications

- Personal computers
- Personal information tools(PDA)
- Various OA equipment

## ■ Outline Dimensions

(Unit : mm)



## ■ Absolute Maximum Ratings

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

Parameter	Symbol	Rating	Unit
*1 Input voltage	$V_{IN}$	10	V
*1 ON/OFF control terminal voltage	$V_C$	10	V
Output current	PQ2TZ55	0.5	A
	PQ2TZ15	1	
*2 Power dissipation	$P_D$	8	W
*3 Junction temperature	$T_j$	150	$^{\circ}\text{C}$
Operating temperature	$T_{opr}$	-20 to +80	$^{\circ}\text{C}$
Storage temperature	$T_{stg}$	-40 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  $P_D$ : With infinite heat sink.

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

· Please refer to the chapter " Handling Precautions ".

**SHARP**

" In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device. "

■ Electrical Characteristics

(Unless otherwise specified, conditions shall be  $I_o=0.3A$  [PQ2TZ55]/ $I_o=0.5A$  [PQ2TZ15]  $V_{IN}=3.3V$ ,  $V_C=2.7V$ ,  $T_a=25^\circ C$ )

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	$V_{IN}$	-	3.0	-	10	V
Output voltage	$V_O$	-	2.438	2.5	2.562	V
Load regulation	RegL	$I_o=5mA$ to 0.5A	-	0.2	2.0	%
		$I_o=5mA$ to 1.0A	-	-	-	-
Line regulation	RegI	$V_{IN}=3.0$ to 10V, $I_o=5mA$	-	0.1	2.5	%
Temperature coefficient of output voltage	$TcV_O$	$I_o=5mA$ , $T_j=0$ to 125°C	-	$\pm 0.01$	-	%/°C
Ripple rejection	RR	-	45	60	-	dB
Dropout voltage	$V_{i-o}$	$V_{IN}=3V$ , $I_o=0.5A$	-	-	0.5	V
		$V_{IN}=3V$ , $I_o=1.0A$	-	-	-	-
ON-state voltage for control	$V_{C(ON)}$	*4	2.0	-	-	V
ON-state current for control	$I_{C(ON)}$	-	-	-	200	$\mu A$
OFF-state voltage for control	$V_{C(OFF)}$	-	-	-	0.8	V
OFF-state current for control	$I_{C(OFF)}$	$V_C=0.4V$	-	-	2	$\mu A$
Quiescent current	$I_q$	$I_o=0A$	-	-	10	mA
Output OFF-state consumption current	$I_{qs}$	$I_o=0A$ , $V_C=0.4V$	-	-	5	$\mu A$

\*4 In case of opening control terminal ②, output voltage turns off.

Fig.1 Test Circuit

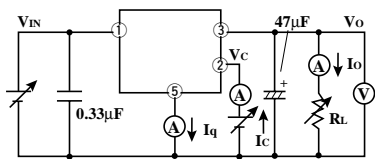
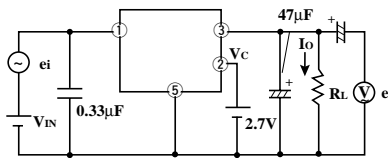
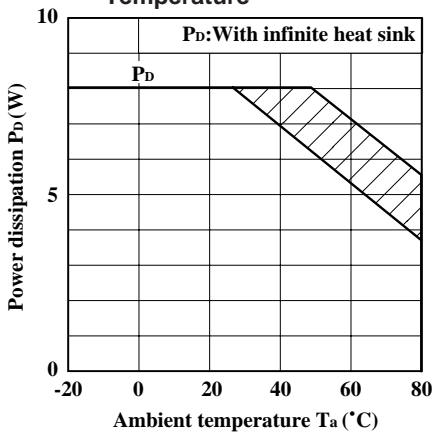


Fig.2 Test Circuit for Ripple Rejection



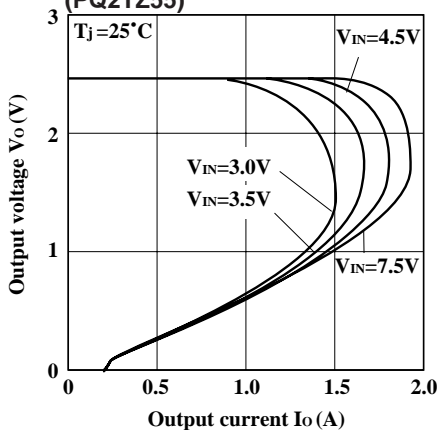
$f=120Hz$  (sine wave)  
 $e_i=0.5V_{rms}$   
 $V_{IN}=3.3V$   
 $I_o=0.5A$  (PQ2TZ15)  
 $I_o=0.3A$  (PQ2TZ55)  
 $RR=20 \log (e_i/e_o)$

Fig.3 Power Dissipation vs. Ambient Temperature

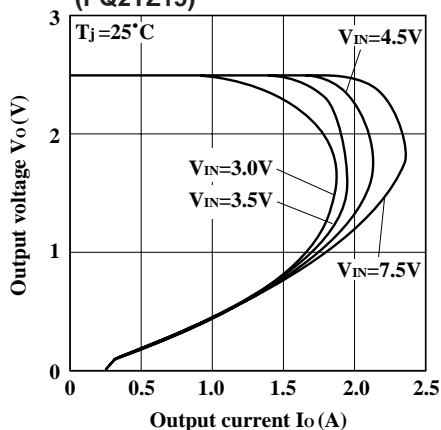


Note) Oblique line portion: Overheat protection may operate in this area.

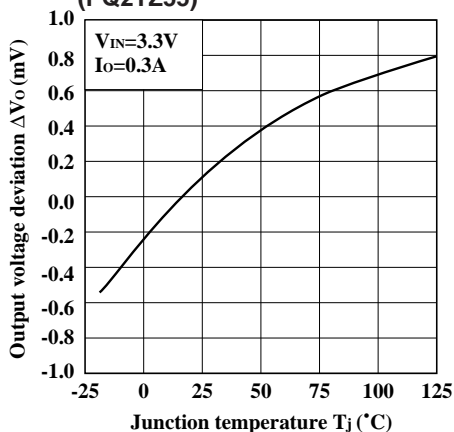
**Fig.4 Overcurrent Protection Characteristics (PQ2TZ55)**



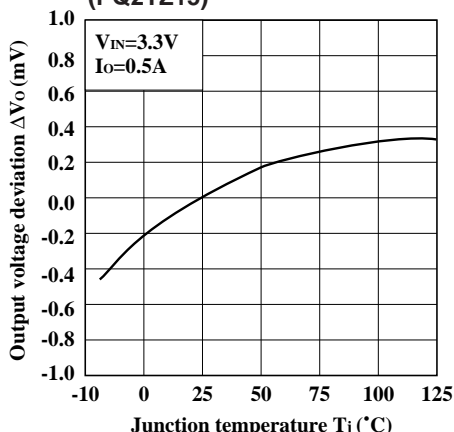
**Fig.5 Overcurrent Protection Characteristics (PQ2TZ15)**



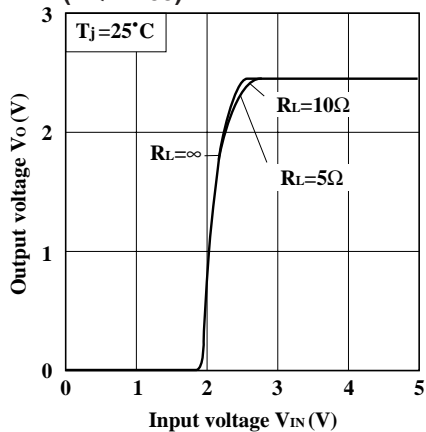
**Fig.6 Output Voltage Deviation vs. Junction Temperature (PQ2TZ55)**



**Fig.7 Output Voltage Deviation vs. Junction Temperature (PQ2TZ15)**



**Fig.8 Output Voltage vs. Input Voltage (PQ2TZ55)**



**Fig.9 Output Voltage vs. Input Voltage (PQ2TZ15)**

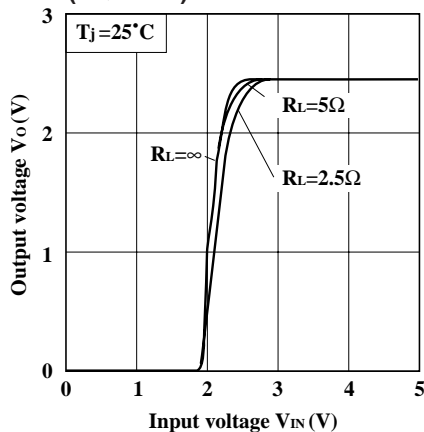


Fig.10 Circuit Operating Current vs. Input Voltage (PQ2TZ55)

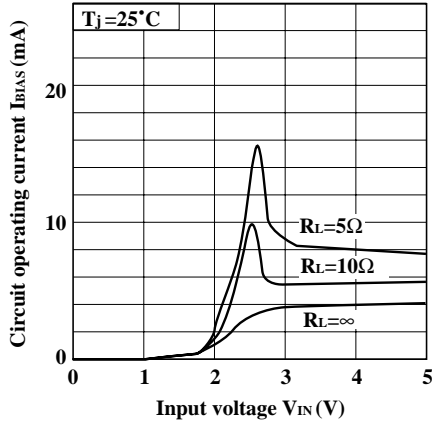


Fig.11 Circuit Operating Current vs. Input Voltage (PQ2TZ15)

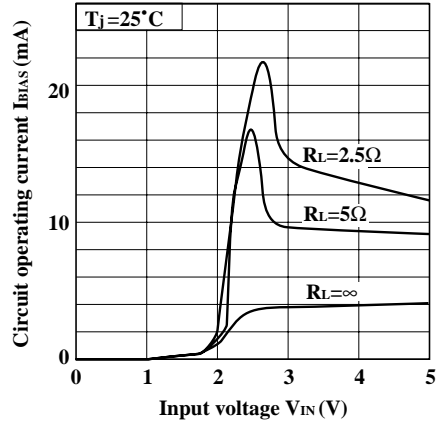


Fig.12 Quiescent Current vs. Junction Temperature (PQ2TZ55)

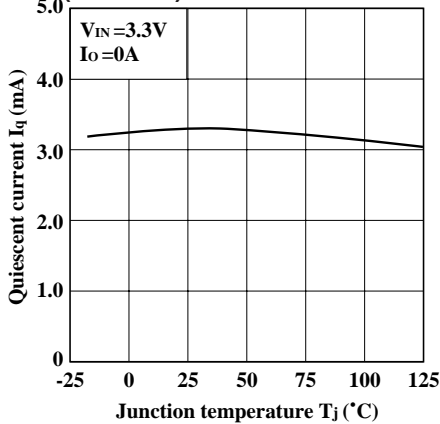
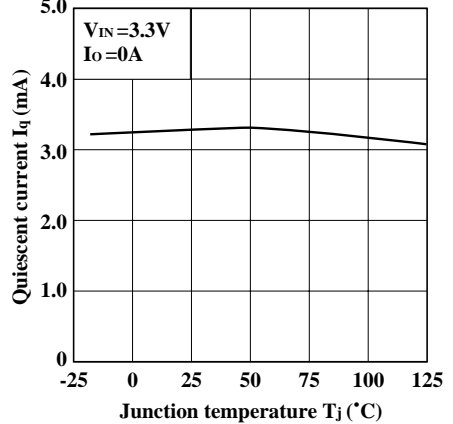


Fig.13 Quiescent Current vs. Junction Temperature (PQ2TZ15)



■ Model Line-ups for Tape-packaged Products

Output current	Sleeve-packaged products		Tape-packaged products	
	Standard type	High-precision output type	Standard type	High-precision output type
0.5A output	-	PQ2TZ55	-	PQ2TZ55U
1.0A output	-	PQ2TZ15	-	PQ2TZ15U