

PQ15RF15/PQ15RF16

1A Output, Low Power-Loss Voltage Regulators Considering Power Line Voltage Drop

■ Features

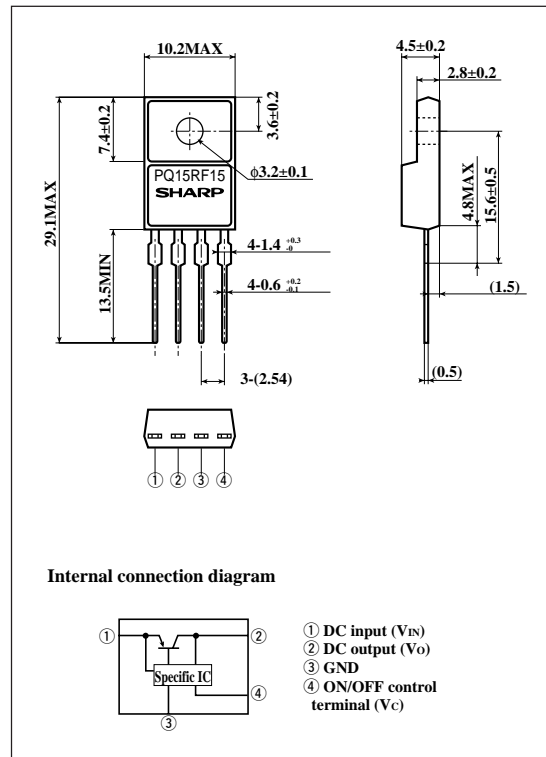
- Low power-loss (Dropout voltage : MAX. 0.5V)
- Compact resin full-mold package
- Conforming to the unified standard for BS converter
- Output voltage value (15.7V) with an allowance for voltage loss caused by reverse flow preventing diode
- Built-in ON/OFF control terminal corresponding to BS antenna power supply selecting switch
- High-precision output type (**PQ15RF16**) (Output voltage precision : $\pm 2.5\%$)

■ Applications

- TVs and VCRs with built-in BS tuners
- BS tuners

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

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

Parameter	Symbol	Rating	Unit
*1 Input voltage	V_{IN}	35	V
*1 ON/OFF control terminal voltage	V_C	35	V
Output current	I_O	1	A
Power dissipation (No heat sink)	P_{D1}	1.5	W
Power dissipation (With infinite heat sink)	P_{D2}	15	
*2 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 Overheat protection may operate at $125 < T_j < 150^\circ\text{C}$

· Please refer to the chapter "Handling Precautions".

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■ Electrical Characteristics

(Unless otherwise specified, condition shall be $V_{IN}=18V$, $I_o=0.5A$, $T_a=25^{\circ}C$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output voltage	PQ15RF15	V_o	14.92	15.7	16.48	V
	PQ15RF16		15.31	15.7	16.09	
Load regulation	R_{eL}	$I_o=5mA$ to 1.0A	-	0.2	2.0	%
Line regulation	R_{eI}	$V_N=17$ to 27V	-	0.2	2.5	%
Temperature coefficient of output voltage	T_cV_o	$T_j=0$ to 125°C	-	± 0.01	-	%/°C
Ripple rejection	RR	Refer to Fig. 2	45	65	-	dB
Dropout voltage	V_{i-o}	^{*3} $I_o=0.5A$	-	0.2	0.5	V
ON-state voltage for control	$V_C(ON)$	^{*4}	2.0	-	-	V
ON-state current for control	$I_C(ON)$	$V_C=2.7V$	-	-	20	μA
OFF-state voltage for control	$V_C(OFF)$		-	-	0.8	V
OFF-state current for control	$I_C(OFF)$	$V_C=0.4V$	-	-	-0.4	mA
Output OFF-state consumption current	I_{qs}	$I_o=0A$	-	6	10	mA

^{*3} Input voltage shall be the value when output voltage is 95% in comparison with the initial value.

^{*4} In case of opening control terminal ④, output voltage turns on.

Fig.1 Test Circuit

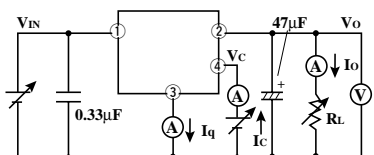
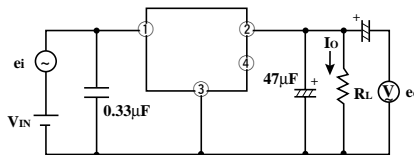
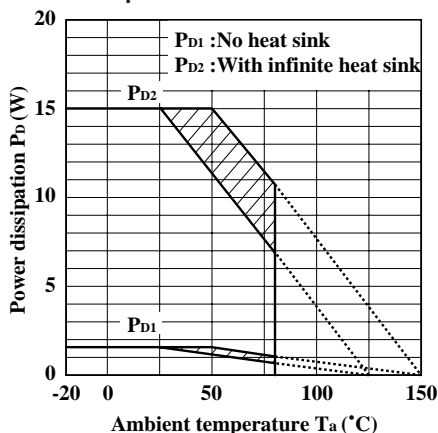


Fig.2 Test Circuit of Ripple Rejection



$f=120Hz$ (sine wave)
 $e_i=0.5V_{rms}$
 $RR=20 \log (e_i/e_o)$

Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics (Typical Value)

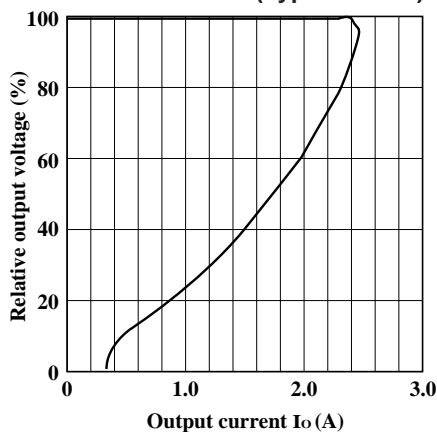


Fig.5 Output Voltage Deviation vs. Junction Temperature

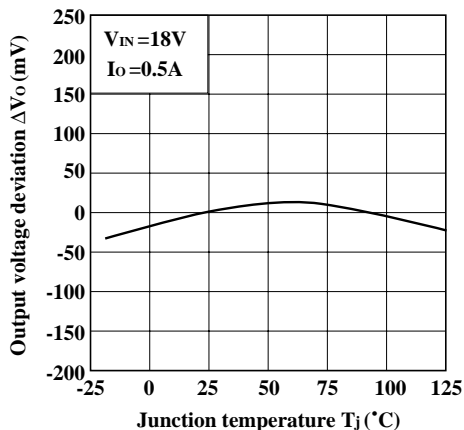


Fig.6 Output Voltage vs. Input Voltage

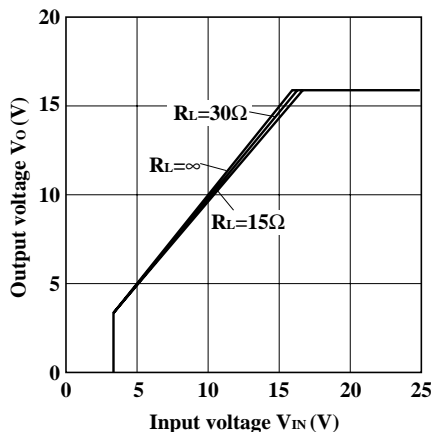


Fig.7 Circuit Operating Current vs. Input Voltage

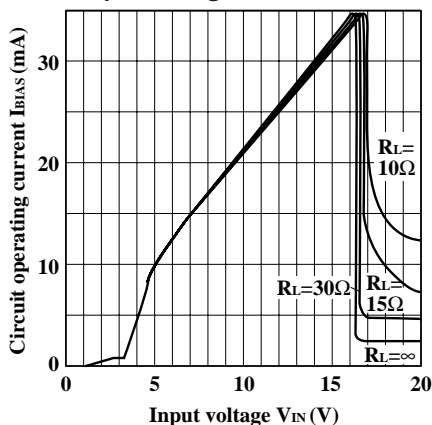


Fig.8 Dropout Voltage vs. Junction Temperature

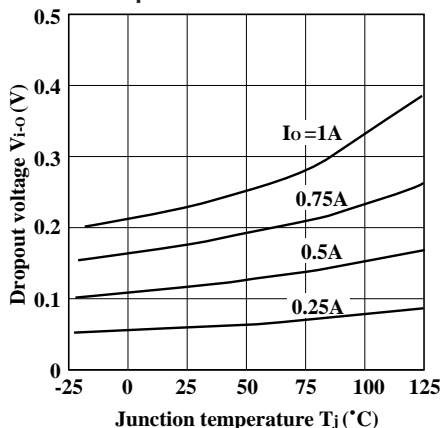


Fig.9 Quiescent Current vs. Junction Temperature

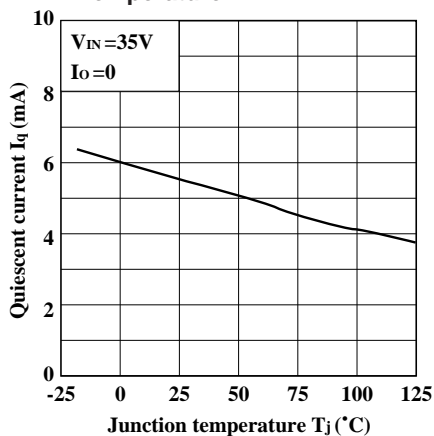


Fig.10 Ripple Rejection vs. Input Ripple Frequency

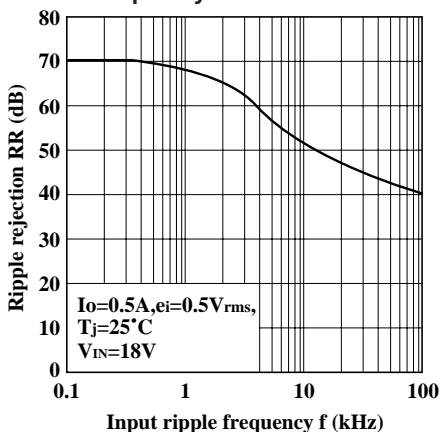


Fig.11 Ripple Rejection vs. Output Current

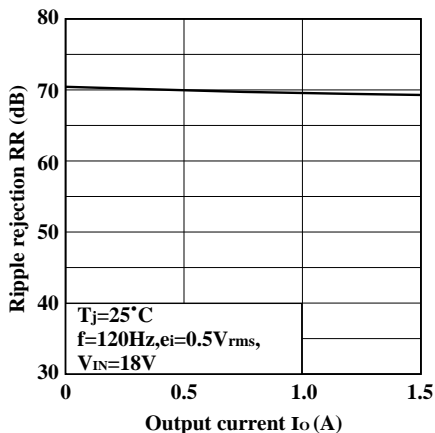
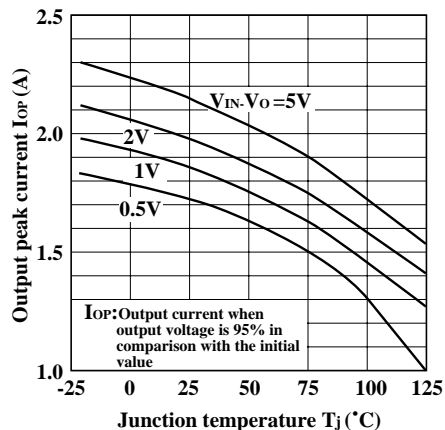


Fig.12 Output Peak Current vs. Junction Temperature

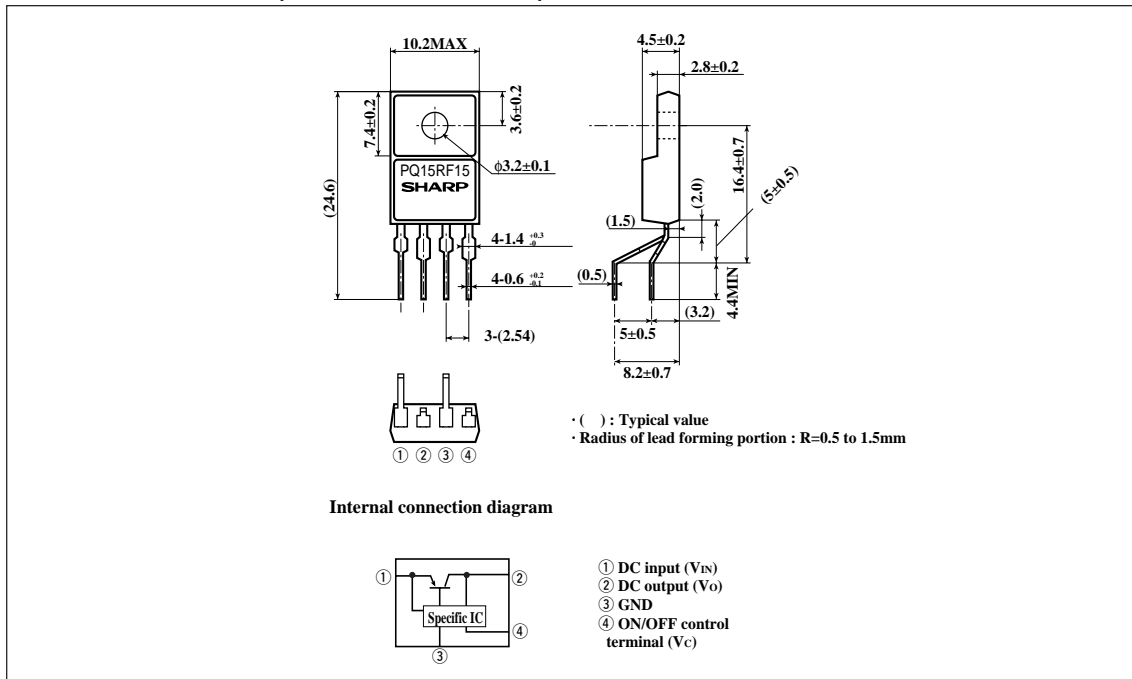


Model Line-ups for Lead Forming Type

Output voltage	15.7V output
Output voltage precision:±5%	PQ15RF1F
Output voltage precision:±2.5%	PQ15RF1G

Outline Dimensions (PQ15RF1F/PQ15RF1G)

(Unit : mm)



Note) The value of absolute maximum ratings and electrical characteristics is same as ones of PQ15RF15/16 series.