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PQ15RF15/PQ15RF16

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

■ Features

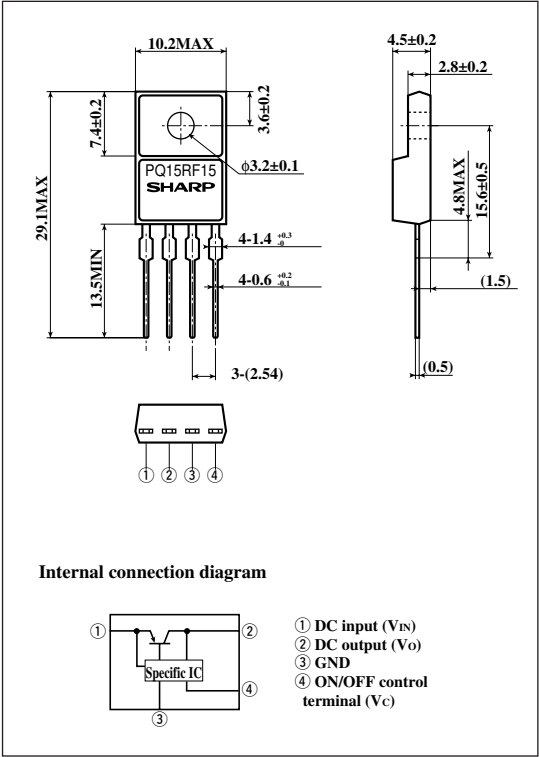
- Low power-loss (Dropout voltage : MAX. 0.5V)
- Compact resin full-mold package
- Conforming to the unified standard for BS converter
- Output voltage value (15.7V) with an allowance for voltage loss caused by reverse flow preventing diode
- Built-in ON/OFF control terminal corresponding to BS antenna 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

(Ta=25°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 | °C |
| Operating temperature | T _{opr} | -20 to +80 | °C |
| Storage temperature | T _{stg} | -40 to +150 | °C |
| Soldering temperature | T _{sol} | 260 (For 10s) | °C |

*1 All are open except GND and applicable terminals.
*2 Overheat protection may operate at 125≤T_J≤150°C

■ Electrical Characteristics

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

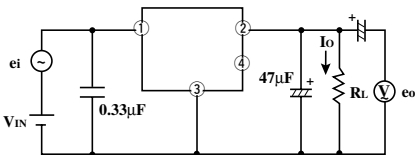
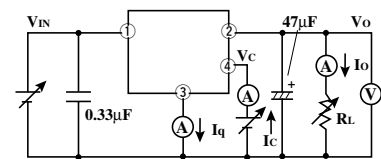
| Parameter | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|----------|------------|---------------------------|-------|------------|-------|----------------|
| Output voltage | PQ15RF15 | V_o | | 14.92 | 15.7 | 16.48 | V |
| | PQ15RF16 | | | 15.31 | 15.7 | 16.09 | |
| Load regulation | | 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 | | $T_C V_o$ | $T_j=0$ to $125^{\circ}C$ | - | ± 0.01 | - | $\%/^{\circ}C$ |
| 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.

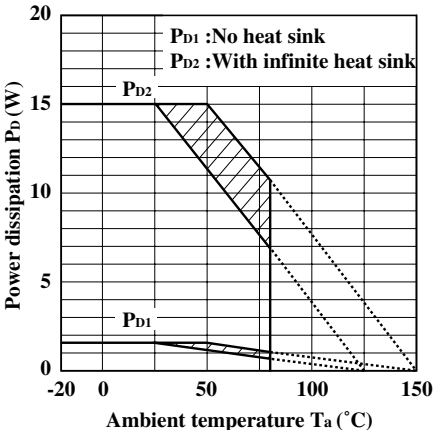
Fig.1 Test Circuit

Fig.2 Test Circuit of Ripple Rejection



f=120Hz (sine wave)
ei=0.5Vrms
RR=20 log (ei/eo)

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)

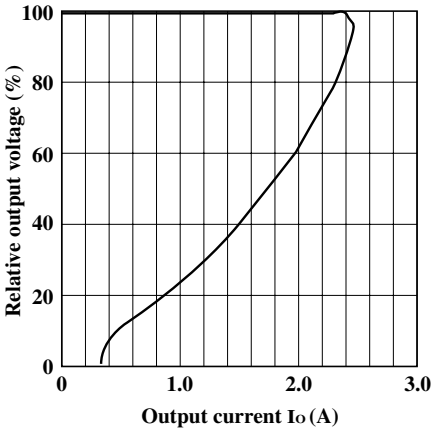


Fig.5 Output Voltage Deviation vs. Junction Temperature

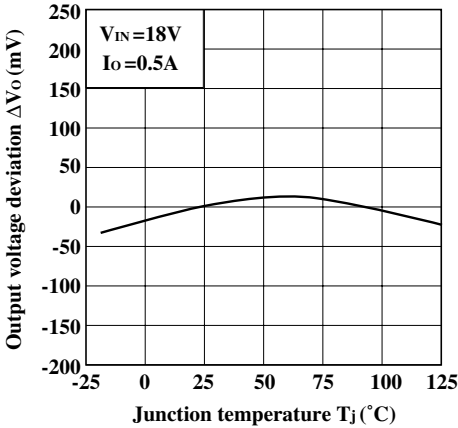


Fig.6 Output Voltage vs. Input Voltage

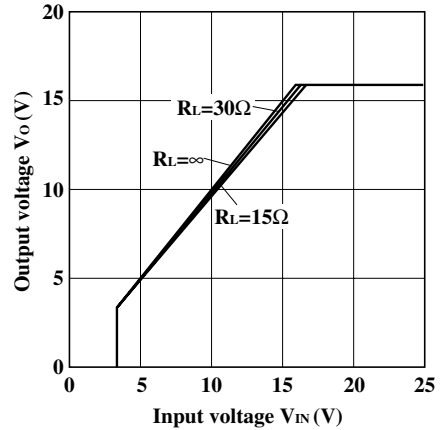


Fig.7 Circuit Operating Current vs. Input Voltage

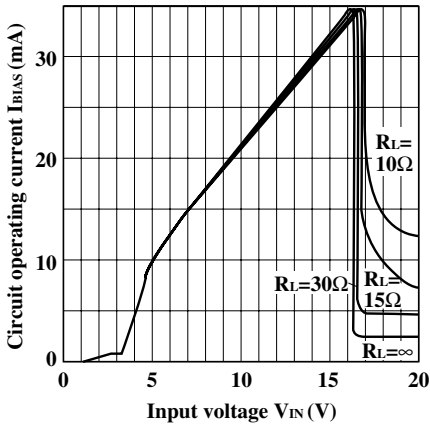


Fig.8 Dropout Voltage vs. Junction Temperature

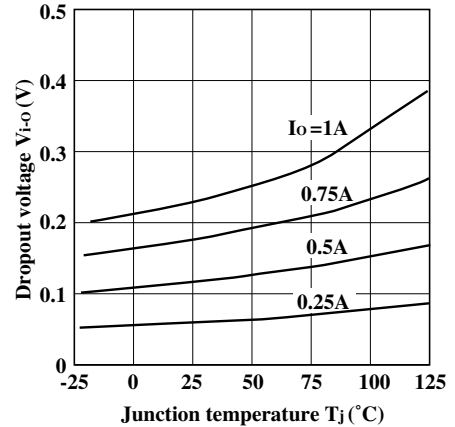


Fig.9 Quiescent Current vs. Junction Temperature

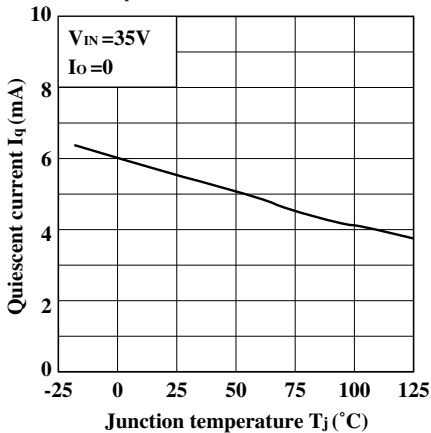


Fig.10 Ripple Rejection vs. Input Ripple Frequency

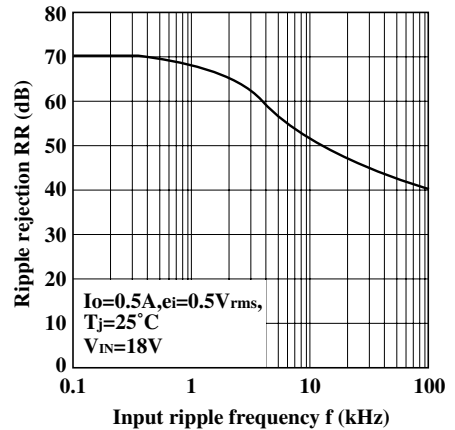


Fig.11 Ripple Rejection vs. Output Current

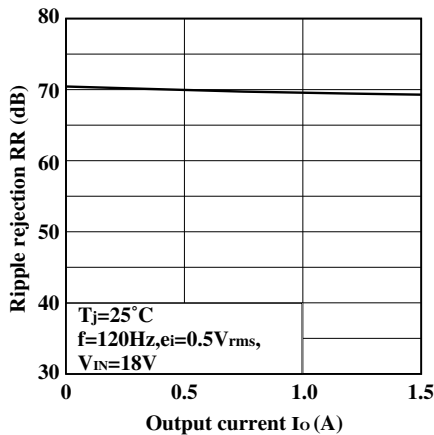
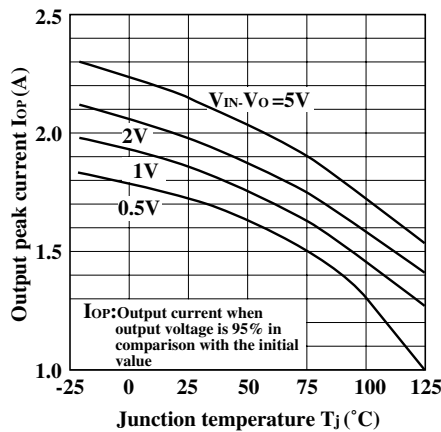


Fig.12 Output Peak Current vs. Junction Temperature

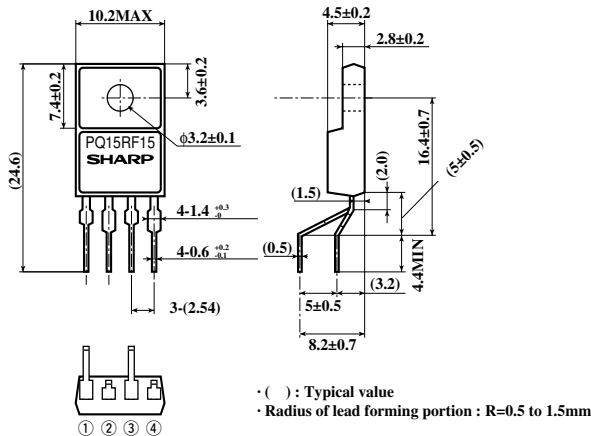


Model Line-ups for Lead Forming Type

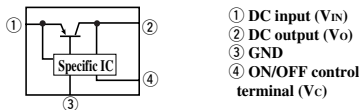
| Output voltage | 15.7V output |
|--------------------------------|--------------|
| Output voltage precision:±5% | PQ15RF1F |
| Output voltage precision:±2.5% | PQ15RF1G |

Outline Dimensions (PQ15RF1F/PQ15RF1G)

(Unit : mm)



Internal connection diagram



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

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