PQ035ZN01ZPH

Low Voltage Operation,Compact Surface Mount type Low Power-Loss Voltage Regulator

■ Features

1.Low voltage output
 (V_O=0.8 to 1.2V)
2.Low voltage operation: V_{IN}(MIN)=1.7V
3.Output current : 1A
4.Built-in overcurrent and overheat protection functions
5.Conform to Flow Soldering SC-63 package
6.Ceramic capacitor compatible
7.RoHS directive compliant

■ Applications

1.AV equipment
2.OA equipment

■ Absolute Maximum Ratings

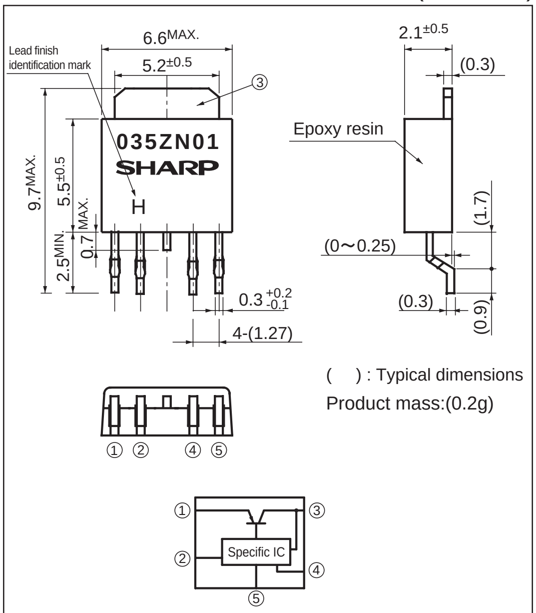
(Ta=25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V_{IN}	5.5	V
*1 Bias supply voltage	V_B	7	V
*1 Output adjustment terminal voltage	V_{adj}	5	V
Output current	I_O	1	A
*2 Power dissipation	P_D	8	W
*3 Junction temperature	T_j	150	°C
Operating temperature	T_{opr}	-40 to +85	°C
Storage temperature	T_{stg}	-40 to +150	°C
Soldering temperature	T_{sol}	260(10s)	°C

*1 All are open except GND and applicable terminals.
*2 P_D:With infinite heat sink
*3 There is case that over heat protection function operates at the temperature T_j=125°C to 150°C,this item cannot be used in this temperature range.

■ Outline Dimensions

(Unit : mm)



① DC input (V_{IN})
② Bias power supply (V_B)
③ DC output (V_O)
④ Output voltage adjustment (V_{adj})
⑤ GND

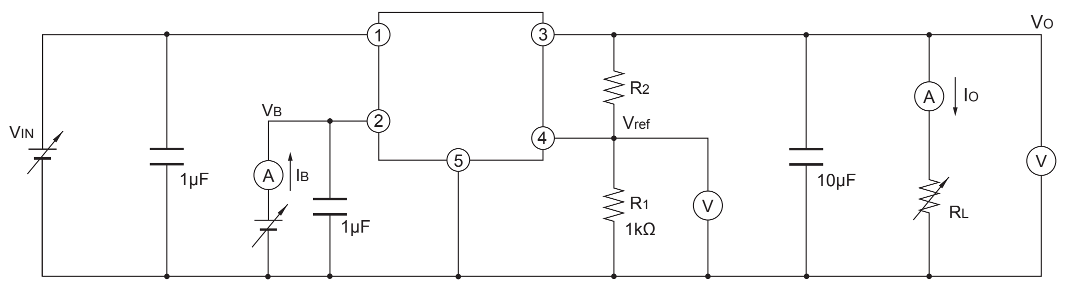
Lead finish:Lead-free solder plating
(Composition: Sn2Cu)

Electrical Characteristics

Unless otherwise specified,condition shall be V_{IN}=1.8V,V_B=3.3V,V_O=1.2V(R1=1kΩ),I_O=0.5A,Ta=25°C

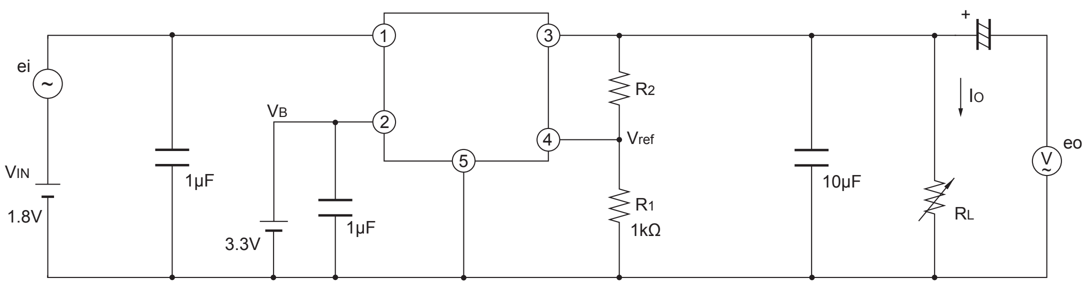
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	V_{IN}	0.8V≤V_O≤1.2V	1.7	-	5.5	V
		1.2V<V_O≤3.5V	V_O+0.5	-	5.5	V
Bias supply voltage	V_B	-	2.35	-	7.0	V
Output voltage	V_O	-	0.8	-	3.5	V
Load regulation	RegL	I_O=5mA to 1A	-	0.2	0.5	%
Line regulation	RegI	V_{IN}=1.7V to 5.5V,V_B=2.35 to 7V , I_O=5mA	-	0.3	0.7	%
Reference voltage	V_{ref}	-	0.57	0.6	0.63	V
Temperature coefficient of reference voltage	T_CV_{ref}	Tj=0 to +125°C, I_O=5mA	-	±0.5	-	%
Ripple rejection	RR1	Refer to Fig.2	-	65	-	dB
	RR2	Refer to Fig.3	-	53	-	dB
Bias power supply input current	I_B	I_O=0A	-	1.5	2	mA

Fig.1 Test Circuit



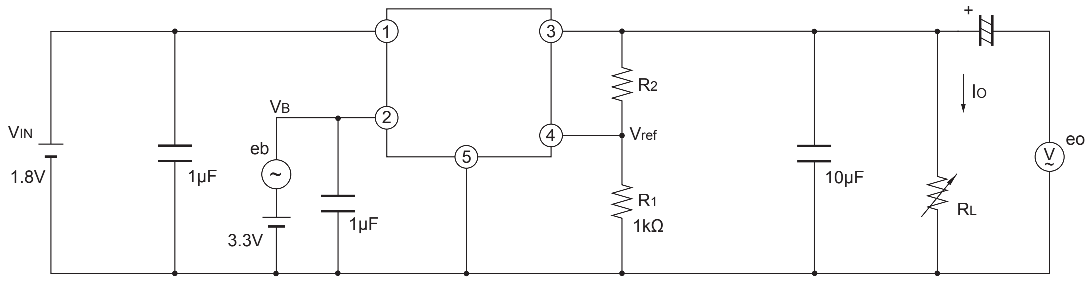
V_O=V_{ref} × (1+R_2/R_1)
[R_1=1kΩ, V_{ref}≒0.6V]

Fig.2 Test Circuit for Ripple Rejection (1)



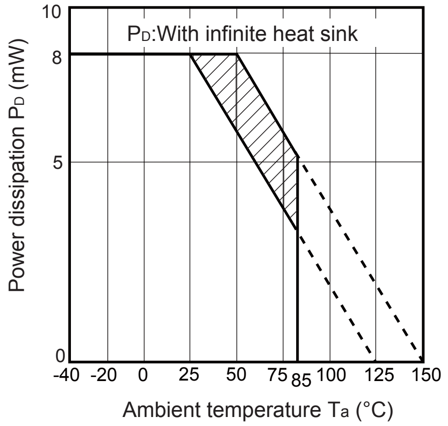
f=120Hz(sine wave)
ei(rms)=0.1V
V_{IN}=1.8V
V_B=3.3V
V_O=1.2V(R1=1kΩ)
I_O=0.3A
RR=20log(ei(rms)/eo(rms))

Fig.3 Test Circuit for Ripple Rejection (2)



f=120Hz(sine wave)
eb(rms)=0.1V
VIN=1.8V
VB=3.3V
VO=1.2V(R1=1kΩ)
IO=0.3A
RR=20log(eb(rms)/eo(rms))

Fig.4 Power Dissipation vs. Ambient Temperature



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

Fig.5 Overcurrent Protection Characteristics

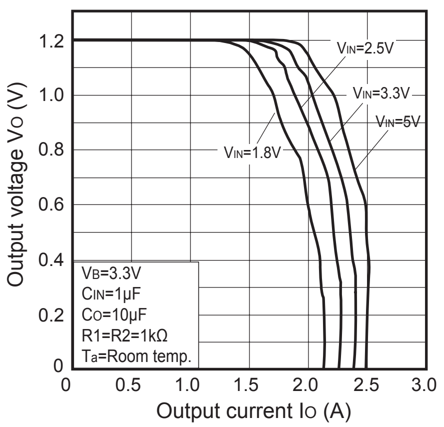


Fig.6 Reference Voltage vs. Ambient Temperature

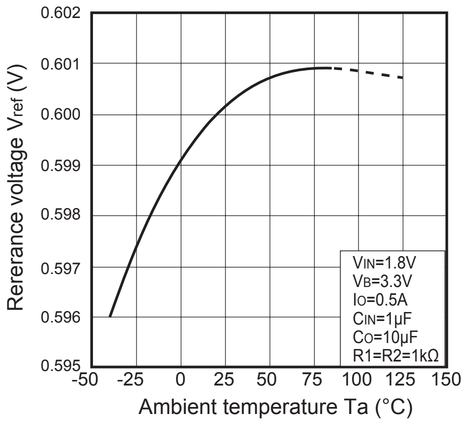


Fig.7 Load Regulation vs. Ambient Temperature

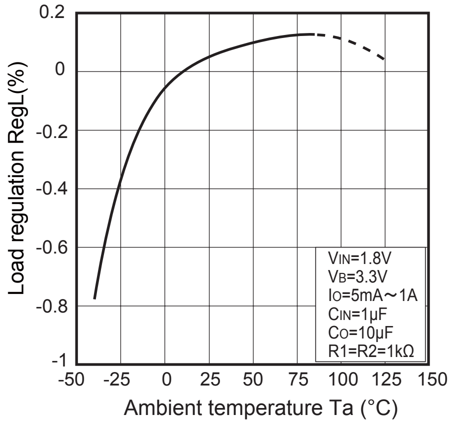


Fig.8 Line Regulation vs. Ambient Temperature

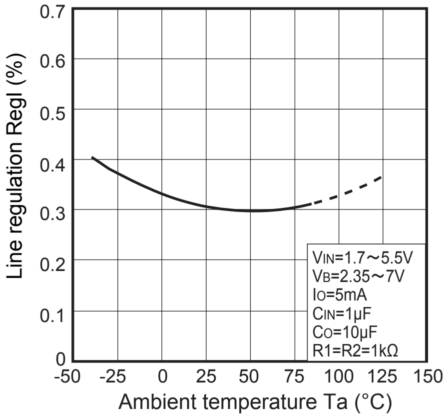


Fig.9 Bias Inflow Current vs. Ambient Temperature

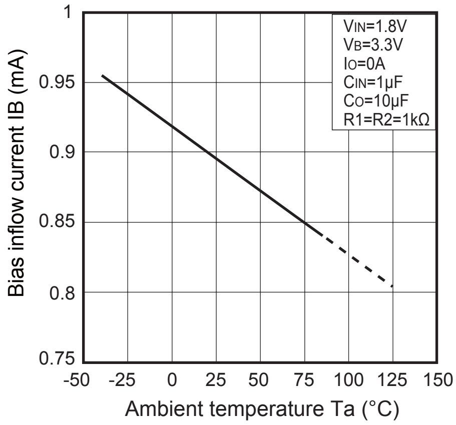


Fig.10 Short circuit Current vs. Ambient Temperature

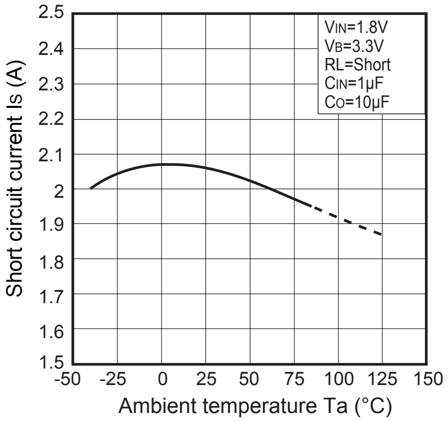


Fig.11 Output Voltage vs. Input Voltage

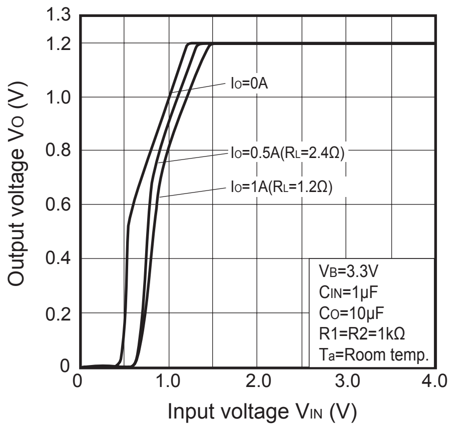


Fig.12 Output Voltage vs. Bias Supply Voltage

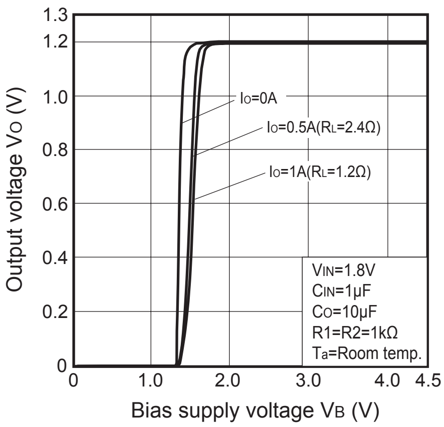


Fig.13 Dropout Voltage vs. Ambient Temperature

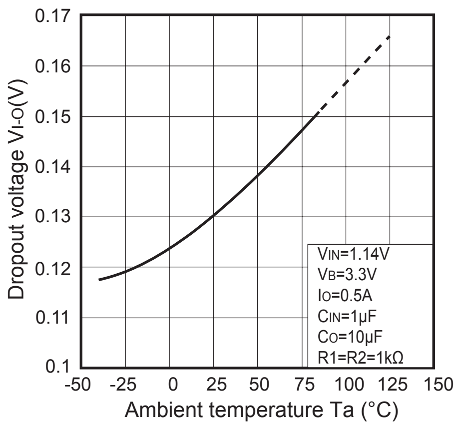


Fig.14 Output Voltage Deviation vs. Output Current

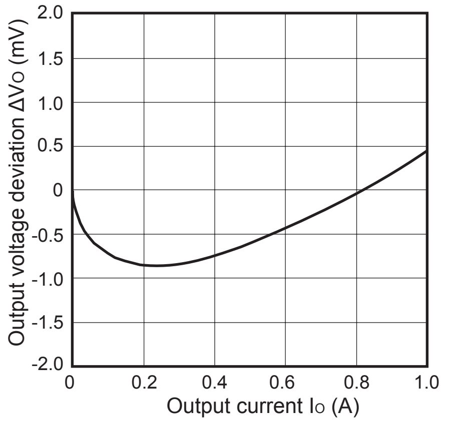


Fig.15 Output Voltage Deviation vs. Input Voltage / Bias Supply Voltage

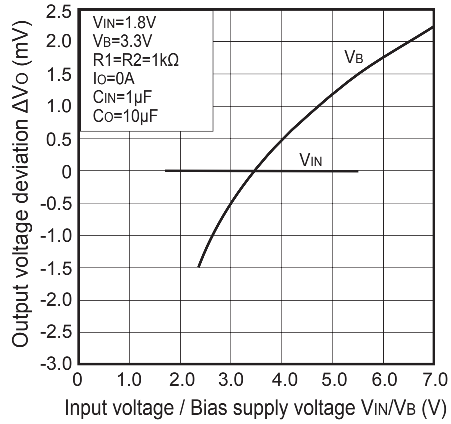


Fig.16 Input Current vs. Input Voltage

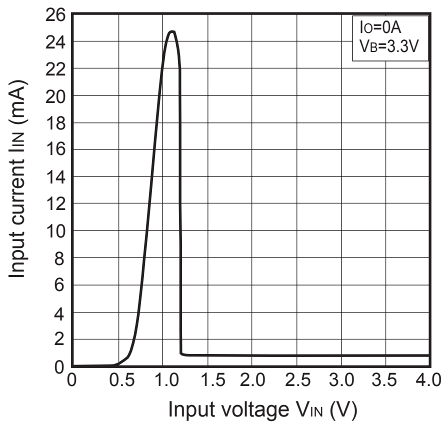


Fig.17 Bias Inflow Current vs. Input Voltage

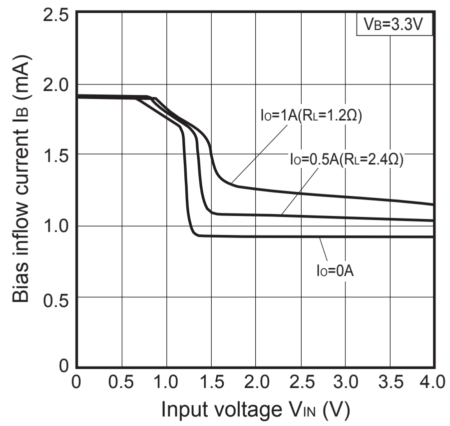


Fig.18 Bias Inflow Current vs. Bias Supply Voltage

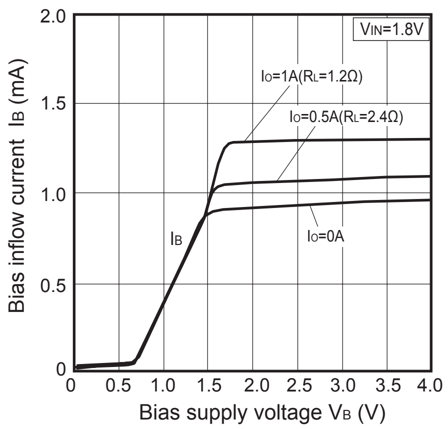


Fig.19 Output Voltage Adjustment Characteristics(Typical Value)

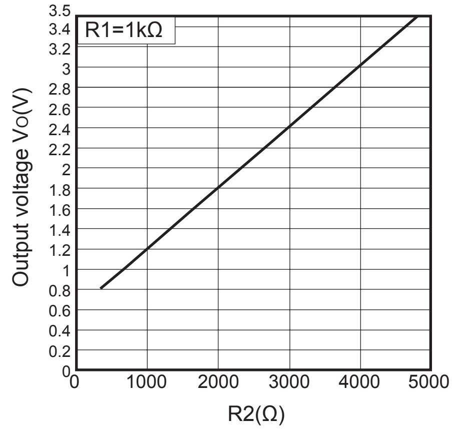
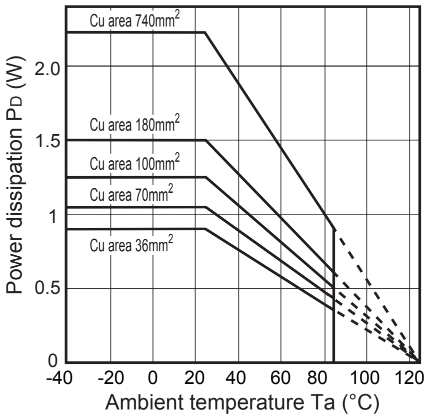
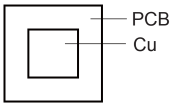


Fig.20 Power Dissipation vs. Ambient Temperature (Typical Value)



Mounting PCB



Material : Glass-cloth epoxy resin
Size : 50×50×1.6mm
Cu thickness : 35μm