Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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PQxxxY3H3ZxH Series
PQxxxY053ZxH Series

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

■ Features

1.Low power-loss (Dropout voltage: MAX. 0.5V)
2.Compact surface mount type package
(Size:10.6×13.7×3.5mm)
3.High output current type
4.Low voltage operation (Minimum supply voltage: 2.35V)
5.High-precision output type
(Output voltage precision: ± 1%)
6.Overcurrent, overheat protection functions
7.RoHS directive compliant

■ Applications

1.PC motherboard, PC peripherals
2.Power supplies for various electronic equipment such as AV, OA

■ Model Line-up

Output current (I_O)	Package type	Output voltage (V_O)		
		1.5V	2.5V	3.3V
3.5A	Taping	**PQ015Y3H3ZPH**	**PQ025Y3H3ZPH**	**PQ033Y3H3ZPH**
	Sleeve	**PQ015Y3H3ZZH**	**PQ025Y3H3ZZH**	**PQ033Y3H3ZZH**
5A	Taping	**PQ015Y053ZPH**	**PQ025Y053ZPH**	**PQ033Y053ZPH**
	Sleeve	**PQ015Y053ZZH**	**PQ025Y053ZZH**	**PQ033Y053ZZH**

■ Absolute Maximum Ratings

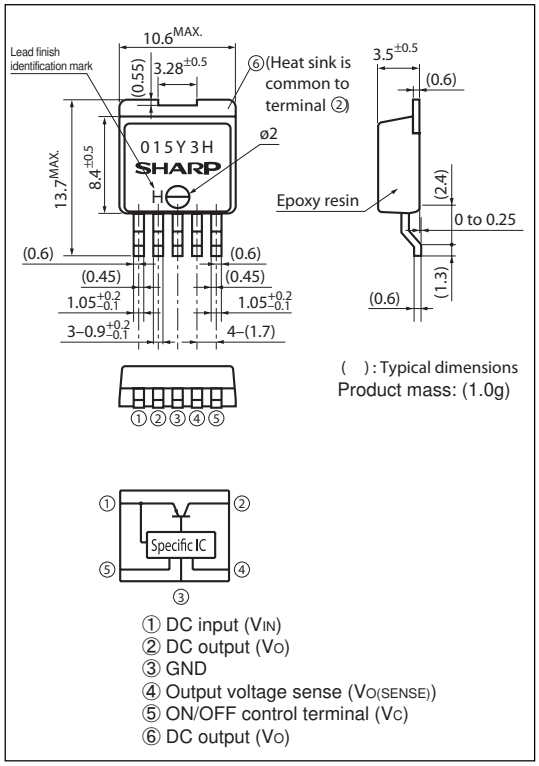
(Ta=25°C)

Parameter		Symbol	Rating	Unit
Input voltage		V_{IN}	7	V
*1 Dropout voltage		V_{I-O}	4	V
*1 ON/OFF control terminal voltage		V_C	7	V
Output current	**PQxxxY3H3ZxH Series**	I_O	3.5	A
	PQxxxY053ZxH Series		5	
*2 Power dissipation		P_D	35	W
*3 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(10s)	°C

*1 All are open except GND and applicable terminals.
*2 PD: With infinite heat sink
*3 Overheat protection may operate at Tj:125°C to 150°C

■ Outline Dimensions

(Unit : mm)



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

■ Electrical Characteristics(**PQ015Y3H3ZxH / PQ015Y053ZxH**)

(Unless otherwise specified, condition shall be V_{IN}=5V, I_O=1.75A(**PQ015Y3H3ZxH**), I_O=2.5A(**PQ015Y053ZxH**), connects $V_{O\,(sense)}$ terminal to V_O terminal,Ta=25˚C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage		V_{IN}	-	2.35	-	7	V
※4 Output voltage		V_O	Connects $V_{O(sense)}$ terminal to V_O terminal	1.485	1.5	1.515	V
Load regulation	**PQ015Y3H3ZxH**	R_{egL}	I_O=5mA to 3.5A	-	0.1	0.5	%
	PQ015Y053ZxH		I_O=5mA to 5A				
Line regulation		R_{egI}	V_{IN}=2.5 to 5.5V, I_O=5mA	-	0.05	0.1	%
Temperature coefficient of output voltage		T_CV_O	Tj=0 to 125°C,I_O=5mA	-	±1	-	%
Ripple rejection		RR	Refer to Fig.2	60	70	-	dB
※5 ON-state voltage for control		$V_{C(ON)}$	-	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
Quiescent current		I_q	I_O=0A	-	5	10	mA

■ Electrical Characteristics(**PQ025Y3H3ZxH / PQ025Y053ZxH**)

(Unless otherwise specified, condition shall be V_{IN}=5V, I_O=1.75A(**PQ025Y3H3ZxH**), I_O=2.5A(**PQ025Y053ZxH**), connects $V_{O(sense)}$ terminal to V_O terminal, Ta=25˚C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
※4 Output voltage		V_O	Connects $V_{O(sense)}$ terminal to V_O terminal	2.475	2.5	2.525	V
Load regulation	**PQ025Y3H3ZxH**	R_{egL}	I_O=5mA to 3.5A	-	0.1	0.5	%
	PQ025Y053ZxH		I_O=5mA to 5A				
Line regulation		R_{egI}	V_{IN}=3 to 6.5V, I_O=5mA	-	0.05	0.1	%
Temperature coefficient of output voltage		T_CV_O	Tj=0 to 125°C,I_O=5mA	-	±1	-	%
Ripple rejection		RR	Refer to Fig.2	60	70	-	dB
Dropout voltage	**PQ025Y3H3ZxH**	V_{I-O}	※6 I_O=3.5A	-	-	0.5	V
	PQ025Y053ZxH		※6 I_O=5A				
※5 ON-state voltage for control		$V_{C(ON)}$	-	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
Quiescent current		I_q	I_O=0A	-	5	10	mA

■ Electrical Characteristics(**PQ033Y3H3ZxH / PQ033Y053ZxH**)

(Unless otherwise specified, condition shall be V_{IN}=V_O(TYP)+1, I_O=1.75A(**PQ033Y3H3ZxH**), I_O=2.5A(**PQ033Y053ZxH**), connects $V_{O(sense)}$ terminal to V_O terminal, Ta=25˚C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
※4 Output voltage		V_O	Connects $V_{O(sense)}$ terminal to V_O terminal	3.267	3.3	3.333	V
Load regulation	**PQ033Y3H3ZxH**	R_{egL}	I_O=5mA to 3.5A	-	0.1	0.5	%
	PQ033Y053ZxH		I_O=5mA to 5A				
Line regulation		R_{egI}	V_{IN}=4 to 7V, I_O=5mA	-	0.05	0.1	%
Temperature coefficient of output voltage		T_CV_O	Tj=0 to 125°C,I_O=5mA	-	±1	-	%
Ripple rejection		RR	Refer to Fig.2	60	70	-	dB
Dropout voltage	**PQ033Y3H3ZxH**	V_{I-O}	※6 I_O=3.5A	-	-	0.5	V
	PQ033Y053ZxH		※6 I_O=5A				
※5 ON-state voltage for control		$V_{C(ON)}$	-	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
Quiescent current		I_q	I_O=0A	-	5	10	mA

※4 Connects $V_{O(sense)}$ terminal ④ to V_O terminal ②
※5 Incase of opening control terminal ⑤ , output voltage turns ON.
※6 Input voltage shall be the value when output voltage is 95% in comparison with the initial value.

Fig.1 Test Circuit

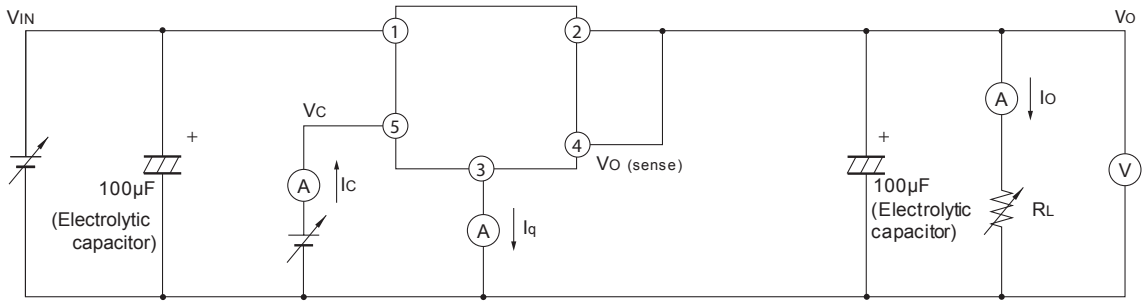
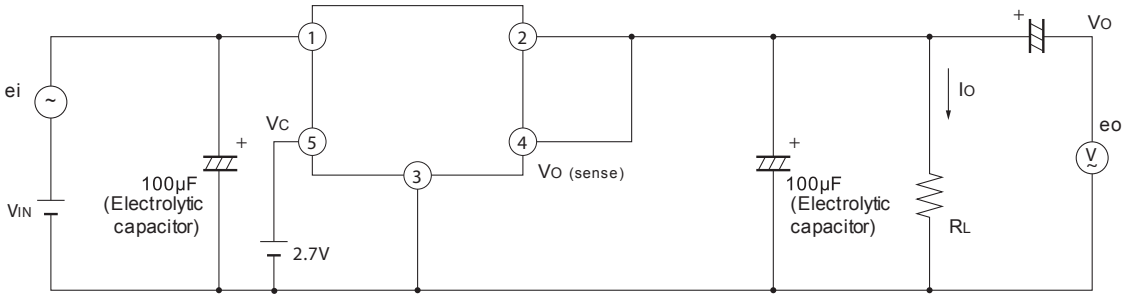
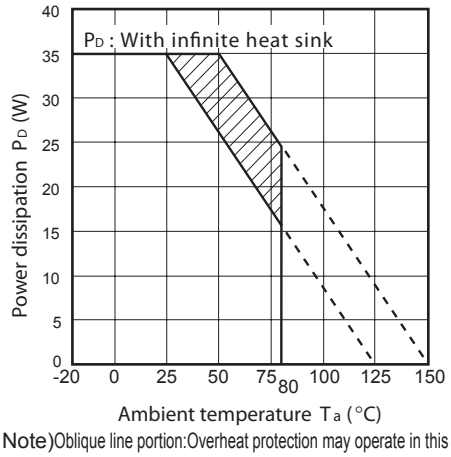


Fig.2 Test Circuit for Ripple Rejection



f=120Hz(sine wave)
ei(rms)=0.5V
VIN=3.3V(**PQ015Y3H3ZxH**)
=3.3V(**PQ025Y3H3ZxH**)
=5V(**PQ033Y3H3ZxH**)
Io=0.5A
RR=20log(ei(rms)/eo(rms))

Fig.3 Power Dissipation vs. Ambient Temperature



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

Fig.4 Overcurrent Protection Characteristics
(**PQ015Y3H3ZxH** / **PQ025Y3H3ZxH** / **PQ033Y3H3ZxH**)

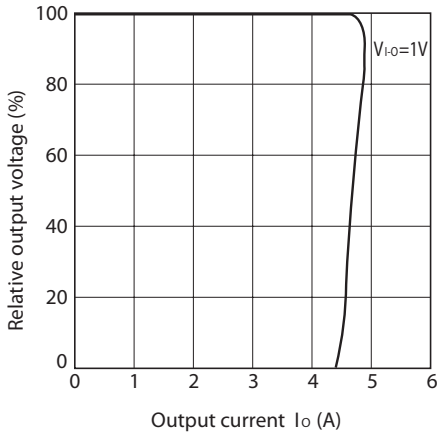


Fig.5 Overcurrent Protection Characteristics
(**PQ015Y053ZxH** / **PQ025Y053ZxH** / **PQ033Y053ZxH**)

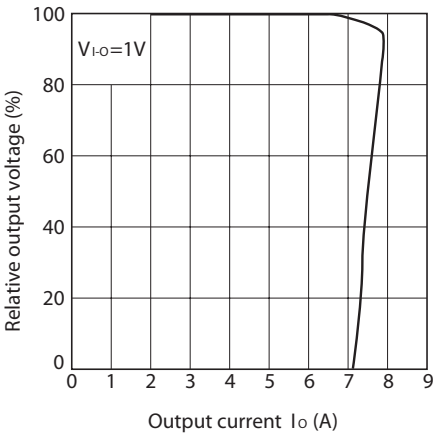


Fig.6 Output Voltage Fluctuation vs. Ambient Temperature

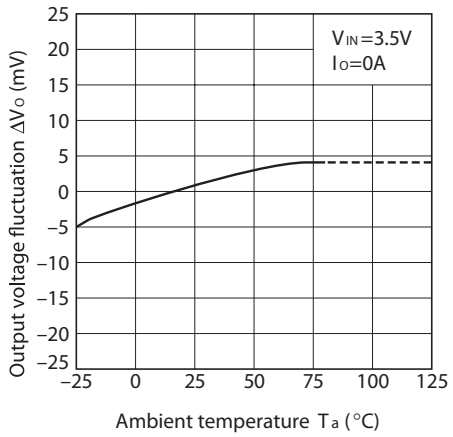


Fig.7 Output Voltage vs. Input Voltage
(**PQ015Y3H3ZxH**)

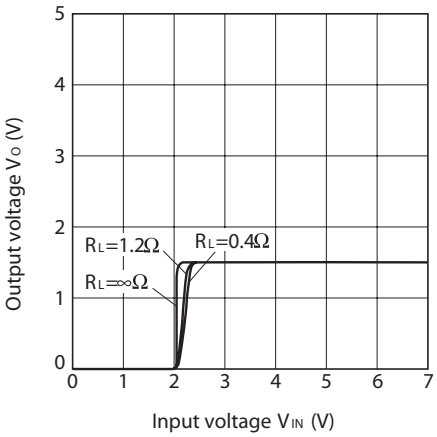


Fig.8 Output Voltage vs. Input Voltage
(**PQ015Y053ZxH**)

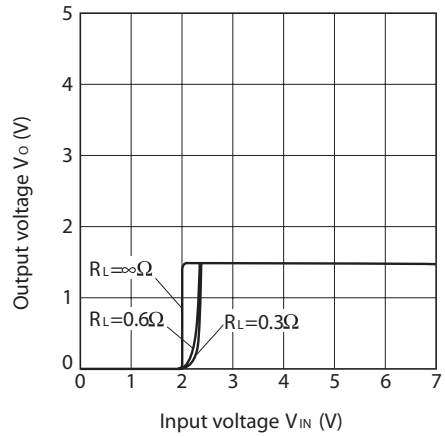


Fig.9 Output Voltage vs. Input Voltage
(**PQ025Y3H3ZxH**)

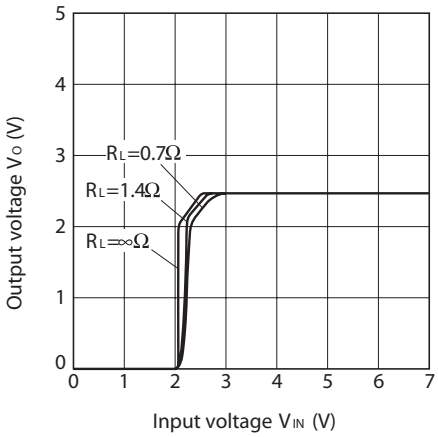


Fig.10 Output Voltage vs. Input Voltage (**PQ025Y053ZxH**)

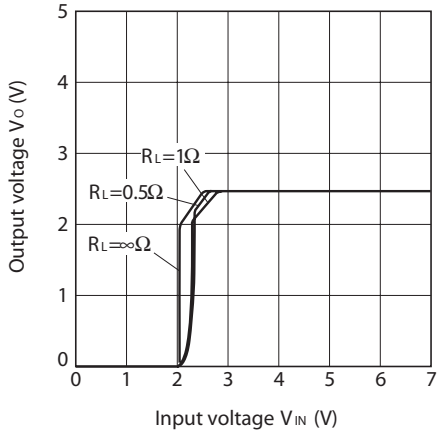


Fig.11 Output Voltage vs. Input Voltage (**PQ033Y3H3ZxH**)

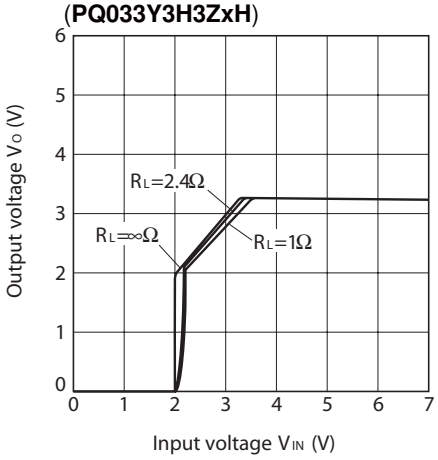


Fig.12 Circuit Operating Current vs. Input Voltage (**PQ015Y3H3ZxH**)

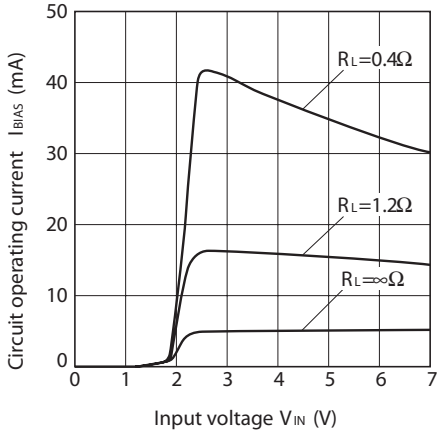


Fig.13 Circuit Operating Current vs. Input Voltage (**PQ015Y053ZxH**)

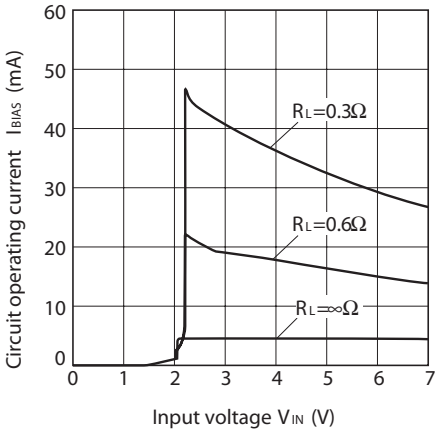


Fig.14 Circuit Operating Current vs. Input Voltage (**PQ025Y3H3ZxH**)

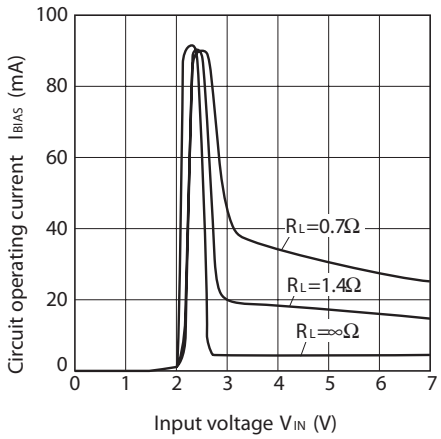


Fig.15 Circuit Operating Current vs. Input Voltage (**PQ025Y053ZxH**)

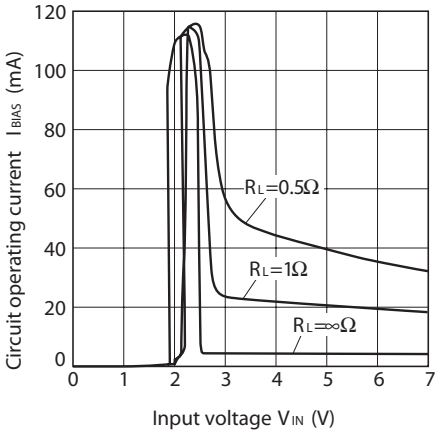


Fig.16 Circuit Operating Current vs. Input Voltage (**PQ033Y3H3ZxH**)

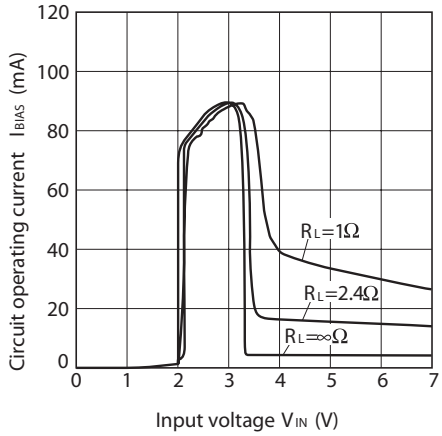


Fig.17 Ripple Rejection vs. Input Ripple Frequency (**PQ025Y3H3ZxH**)

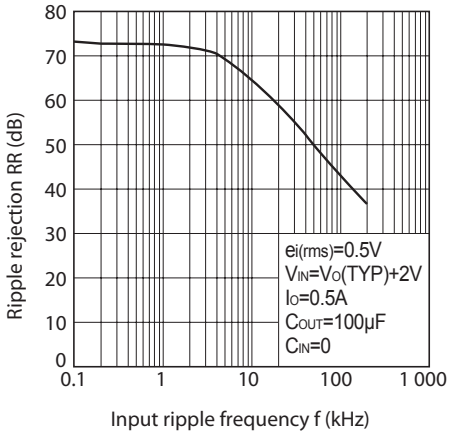
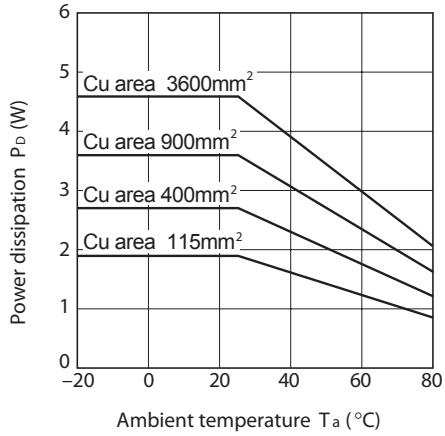


Fig.18 Power Dissipation vs. Ambient Temperature (Typical Value)



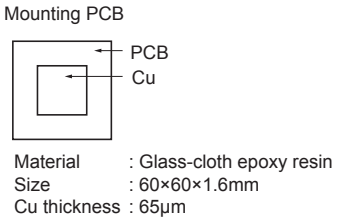
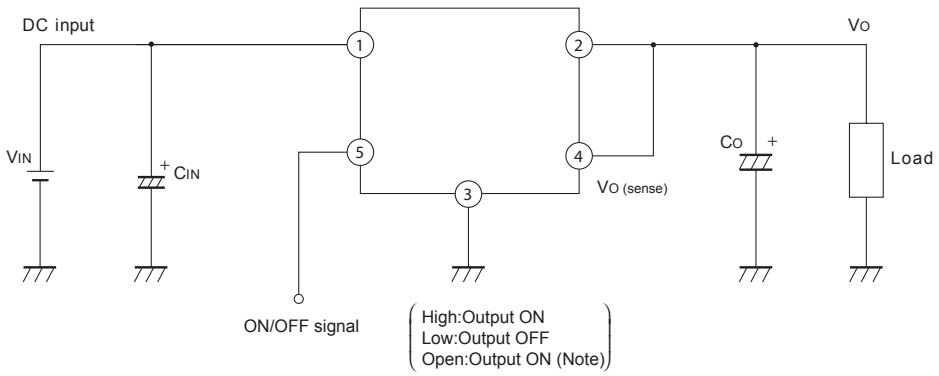


Fig.19 Typical Application



Please make sure to use this device,pulling up to the power supply with less than 7V at the resistor less than 50kΩ in swithing ON/OFF with open collector output or in not using ON/OFF function (in keeping “ON”),because input impedance is high in ON/OFF terminals.