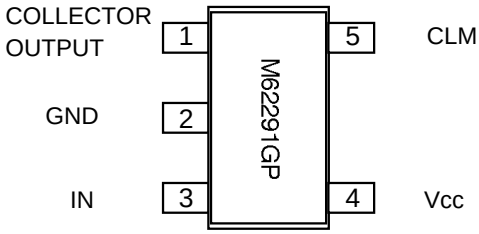
M62291GP

5-PIN SOT-23 5.0V SYSTEM FIXED OUTPUT VOLTAGE DC-DC CONVERTER

DESCRIPTION

M62291GP is an integrated circuit designed as 5V fixed output voltage general purpose DC-DC converter.
Integrating peripheral components in ultrasmall 5-pin SOT23 package allows for simplified external circuit and compact low cost design.
This IC is applicable to portable equipments due to low circuit current 570uA(typ.)
Especially this is most suitable for localized power source such as audio equipments, and so on as converter from 12 to 5V system.

PIN CONFIGURATION (TOP VIEW)



Outline 5P2X-A
(SOT-23)

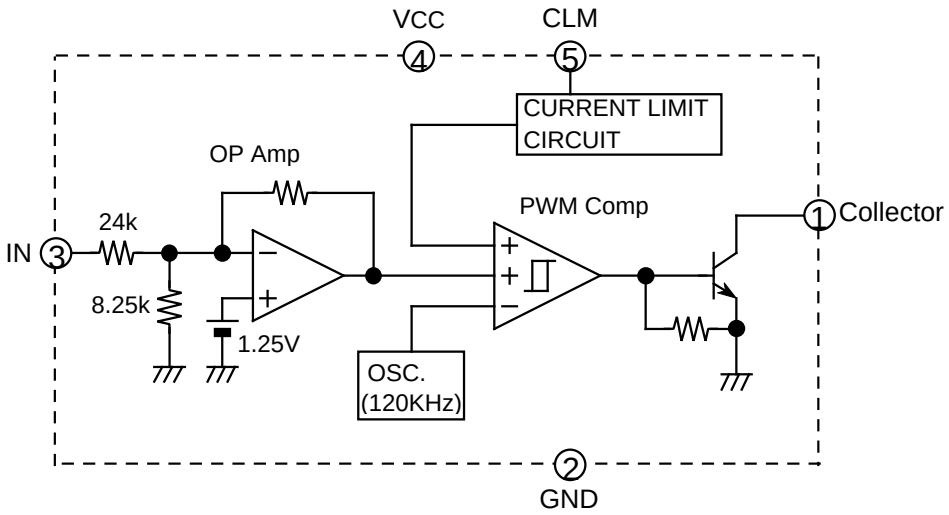
FEATURES

- Wide operation power supply voltage range -- 6V to 15V(Vcc=12V typ.)
- Low power consumption -- 570µA max.(Vcc=12V typ., at no load)
- Built-in oscillator without peripheral components (110KHz typ.)
- Built-in overcurrent protection circuit
- Ultrasmall 5-pin SOT23 package

APPLICATIONS

Localized power supply for audio, portable equipments,
and general electric products

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25C, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
Vcc	Supply Voltage		16	V
Io	Output Current		100	mA
Pd	Power Dissipation	Ta=25C	200	mW
KTHETA	Thermal Derating Ratio	Ta>25C	2.0	mW/C
Topr	Operating Ambient Temperature		-20 to +85	C
Tstg	Storage Temperature		-40 to +125	C

ELECTRICAL CHARACTERISTICS (Ta=25C, Vcc=12V, unless otherwise noted)

Block	Symbol	Parameter	Conditions	Limits			Units
				Min	Typ	Max	
Error Amp.	Vcc	Supply Voltage		6.0		15	V
	Icc	Supply Current	No load	-	570	800	µA
	Vo	Output Voltage		4.75	5.0	5.25	V
	Vreg-L	REF Line Regulation	Vcc= 4 to 12V		5	30	mV
	Iin	IN Input Current		-	160	300	µA
Oscillator	fosc	Oscillator Frequency		70	120	175	KHz
CLM	VTHCLM	Current Limit Voltage	Vcc - CLM	110	140	170	mV
Output	TDUTY	Maximum ON Duty			90		%
	ICL	Output Leakage Current	Vcc = 15V, Vc = 15V	-1	-	1	µA
	Vsat	Output Saturation Voltage	Io = 100mA	-	1.2	2.0	V

1. Application Circuit (5.0V Output DC-DC Converter; M62291GP)

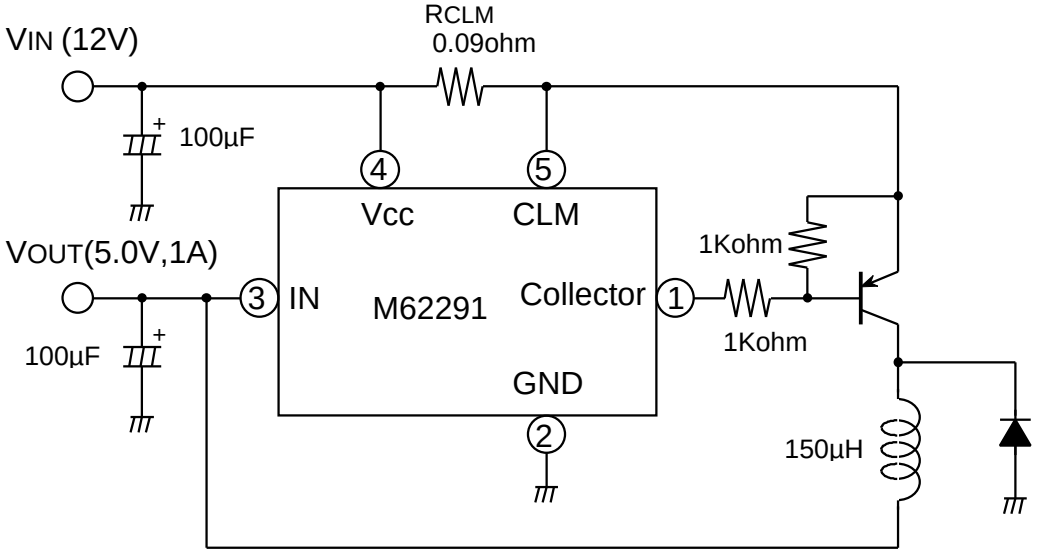


Fig.1 Example of application circuit of M62270GP

Current Limit Detction:

When the voltage drop between 4pin and 5pin becomes 140mV or more, Current Limit Detection circuit starts to operate. In the example of application (fig.1), the current is limited to 1.5A.

2. THE EXPRESSION OF CIRCUIT CONSTANTS

CONSTANTS	EXPRESSIONS
$\frac{TON}{TOFF}$	$\frac{VO+VF}{VIN - VCE(sat) - VO}$
(TON+TOFF)MAX	$\frac{1}{fosc}$ fosc:110KHz(Vcc=5V)
TOFF(MIN)	$(TON + TOFF) / (1 + \frac{TON}{TOFF})$
TON(MAX)	$\frac{1}{fosc} - TOFF$
L(MIN)	$\frac{(VIN - VCE(sat) - VO) TON(MAX)}{\Delta Io}$
Ipk	$Io + \frac{1}{2} \Delta Io$
RCLM	$\frac{0.15}{Ipk}$ ΔVCLM:150mV(Vcc=5V)

- VF : Forward voltage drop of an external diode.
- Vsat : Output saturation voltage of an external switching transistor.
- ΔIo :Set to 1/3 to 1/5 of maximum output current
- Choose an external transistor, diode and inductor with peak current rating greater than "Ipk".