

### General Description

CM1602 is a high performance synchronous rectifier, used to emulate the diode rectifier at the secondary side of the flyback converter to reduce conduction lose, so that it can greatly improve the system efficiency.

CM1602 can operate in multi-mode applications including discontinuous conduction mode (DCM) and quasi-resonant (QR) mode. It is highly integration, so that it can minimize the external component count, simplify PCB design and lower the total BOM cost.

### Features

- Supports DCM and QR flyback converter
- Integrated 45V 10mR Power NMOS
- Green-mode operation at Light load & no-load
- Up to 100KHZ Switch Frequency
- SOP8 Package

### Applications

- Travel Charger & Adaptor
- Flyback Converter

### Typical application

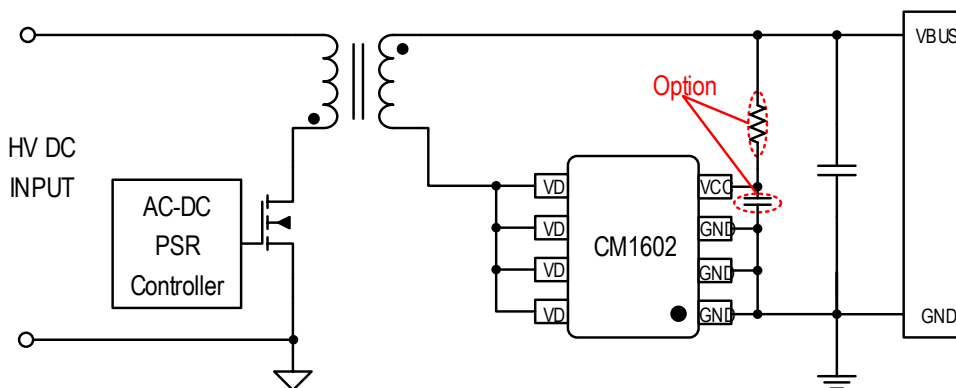


Figure1 : CM1602 Typical Application Circuit1

### Ordering Information

Part Number	Package	Recommend
CM1602	SOP8	5V/3.1A

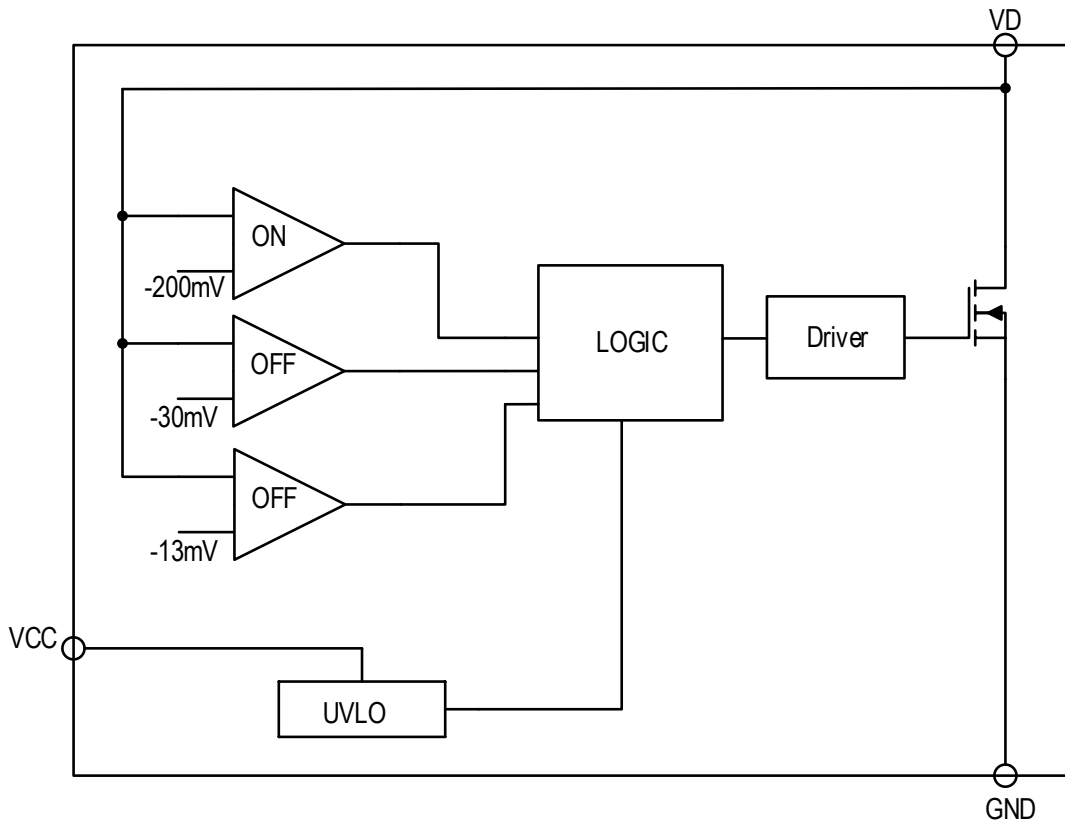
**Block Diagram**


Figure2 : CM1602 Functional Block Diagram

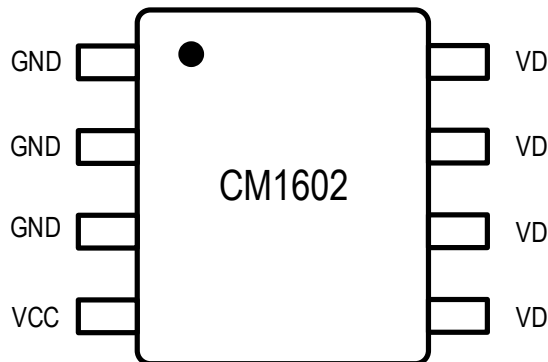
**Package Type**


Figure3: CM1602 Pin Configuration

**Pin Description**

Pin Num	Pin Name	Description
1,2,3	GND	Power and Signal Ground
4	VCC	Power Supply
5,6,7,8	VD	Power MOSFET Drain

## Absolute Maximum Ratings

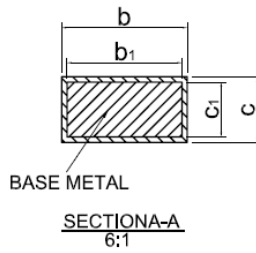
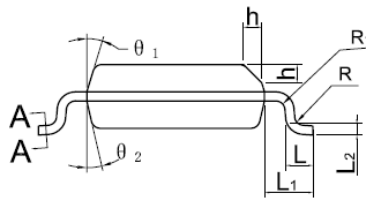
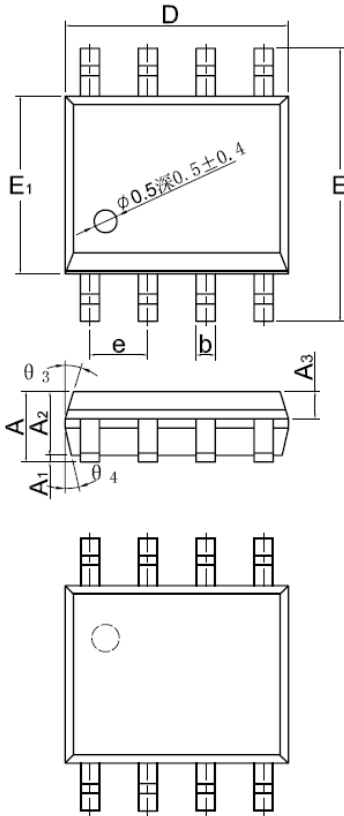
Parameter	Description	Value	Unite
VCC	VCC to GND Voltage	-0.3~+7	V
VD	VD to GND Voltage	-0.7~+45	V
FMAX	Maximum Operating Frequency	100	KHz
PTR1	Thermal Resistance (SOP8)	150	°C/W
Tstg	Storage Temperature	-55 to 150	°C
Tsolder	Package Lead Soldering Temperature	260°C(10s)	°C
ESD	HBM (Human Body Mode)	4	KV

**Attention:** Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

## Electrical Characteristic

( $T_A = 25^\circ\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>VCC Section</b>						
VCC UVLO Rising	VUVLO1	VCC raising	2.95	3.1	3.3	V
VCC UVLO Hysteresis	VUVLO2			0.3		V
Quiescent Current	IQ	VCC=SR=6V	200	400	600	$\mu\text{A}$
<b>Controller Section</b>						
Turn-on Threshold (VD-VS)	VON_TH		-300	-200	-100	mV
Turn-on Delay				80		ns
Turn-off Threshold (VD-VS)	VOFF_TH		-20	-13	-4	mV
Turn-off Delay				50		ns
Driver Regulation Voltage	VREG(DRV)		-55	-30	-20	mV
Minimum ON Time	TON_MIN		500	640	900	ns
Minimum OFF Time	TOFF_MIN		1.3	1.8	2.5	us
Primary-side On Detection Voltage	VPS_ON_DET		5.5	6	6.5	V
Primary-side On Detection Blank Time	TPS_ON_DET		200	300	500	ns
<b>Power MOS Section</b>						
Drain-to-Source Breakdown Voltage	BVDSS		45			V
On-State Resistor	RDSON			10		m $\Omega$

**Package Outline**
**SOP8**


SYMBOL	MIN	NOM	MAX
A	1.35	1.55	1.75
A <sub>1</sub>	0.10	—	0.25
A <sub>2</sub>	1.25	1.40	1.65
A <sub>3</sub>	0.50	0.60	0.70
b	0.39	—	0.49
b <sub>1</sub>	0.28	—	0.48
c	0.10	—	0.25
c <sub>1</sub>	0.10	—	0.23
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E <sub>1</sub>	3.80	3.90	4.00
e	1.27BSC		
L	0.45	—	1.00
L <sub>1</sub>	1.04REF		
L <sub>2</sub>	0.25BSC		
R	0.07	—	—
R <sub>1</sub>	0.07	—	—
h	0.3	0.4	0.5
	0°	—	8°
$\theta_1$	11°	17°	19°
$\theta_2$	11°	13°	15°
$\theta_3$	15°	17°	19°
$\theta_4$	11°	13°	15°