

Primary Feedback PWM Controller for Flyback Application

Features

- Primary Sensing for Constant-Voltage(CV) and Constant-Current(CC) Regulation
- Pulse by Pulse Current Limiting (OCP)
- Low Start-Up Current (6uA)
- Fixed Frequency for Driving Power MOS
- VCC Over-Voltage Protection
- Output Over-Voltage Protection
- Cable Compensation for CV regulation
- SOT-26 Package with Few External Components Needed

Application

- LED Lighting

Description

The GL8258AN is an excellent primary side feedback control PWM IC. It's integrated constant voltage (CV) and constant current (CC) regulation functions. While it operates on CV mode, it acts as a voltage source. While it operates on CC mode, it acts as a current source. It minimizes the components counts and is available in a tiny SOT-26 package. Those make it an ideal design for low cost application.

It provides functions of low startup current, green-mode power-saving operation, VCC over-voltage protection, and FB pin abnormal conditions sensing to prevent the circuit being damaged from the abnormal conditions.

Ordering and Marking Information

GL8258AN

Package Code
 C: SOT-26

RoHS Code
 G: Green (Halogen Free) Device
 L: PB Free Device

SOT-26

58AN X
X X X X

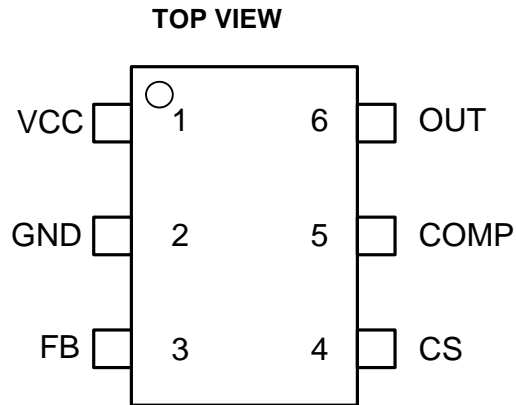
Code 1
 Code 2
 Serial No.

Code 1	8	9	A	B				
Year	2008	2009	2010	2011	...			
Code 2	1	2	3	4				
Month	Jan.	Feb.	Mar.	Apr.				

G	H	I	J
2016	2017	2018	2019
9	A	B	C
Sep.	Oct.	Nov.	Dec.

Greenergy OPTO Inc. reserves the right to make changes to improve reliability or manufacture ability without notice, and advise customers to obtain the latest version of relevant information to verify before placing orders.

Pin Configuration



Pin Description

Pin No.	Name	Function
1	VCC	Power supply pin
2	GND	Ground
3	FB	Connecting to a resistor divider from aux. winding to ground, the resistor divider ratio determines the aux. winding and secondary output voltage
4	CS	Current sense pin, connect to sense the power MOS current
5	COMP	Voltage loop Gm error amplifier output, by connecting an R series with C to GND to stabilize the control loop
6	OUT	The output driver for driving the external power MOS

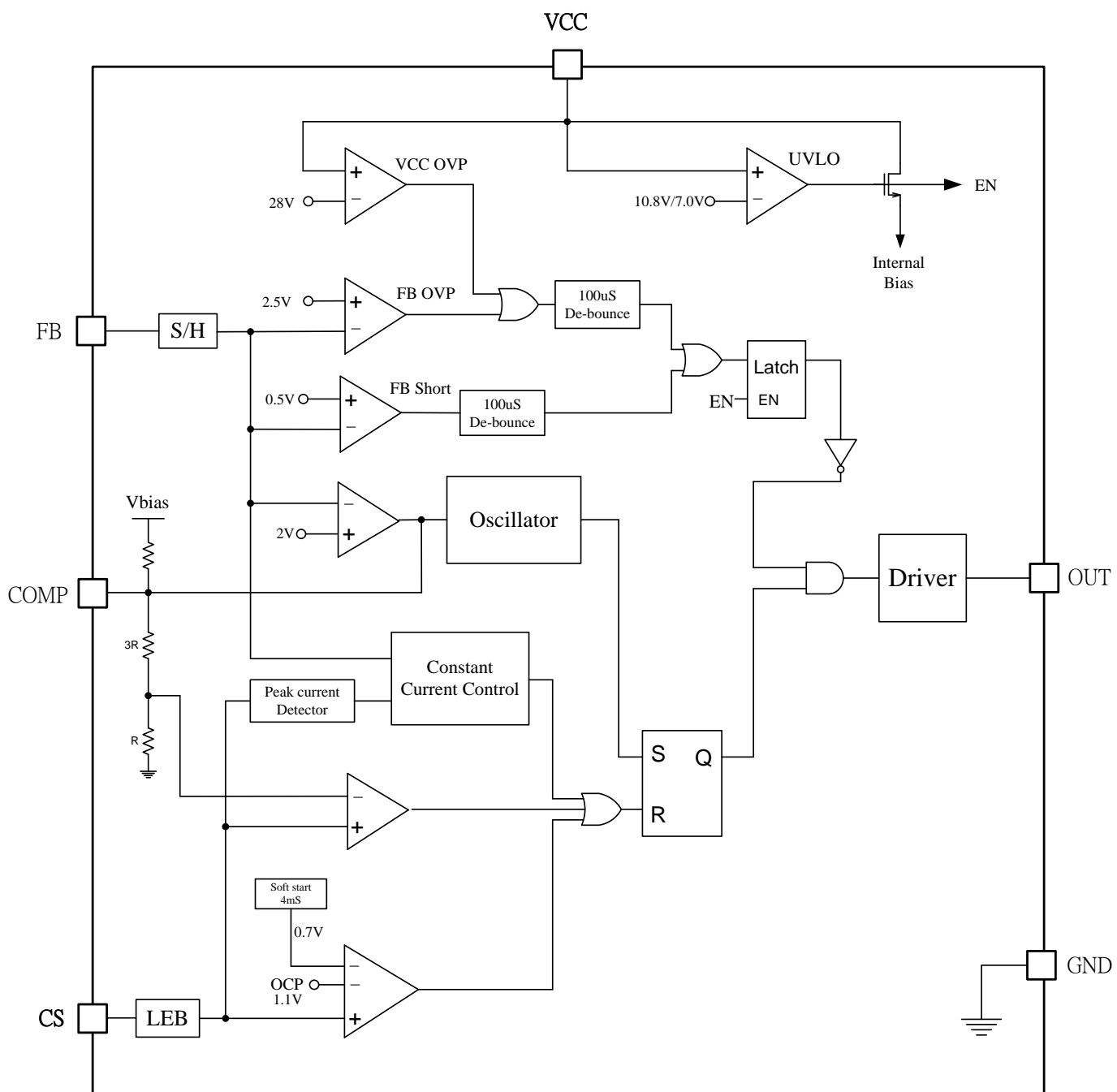
Absolute Maximum Ratings

Supply Voltage VCC	-----	28V
COMP, FB, CS	-----	-0.3 ~ 7V
OUT	-----	-0.3~13V
Junction Temperature	-----	150°C
Operating Ambient Temperature	-----	-20°C to 85°C
Storage Temperature Range	-----	-65°C to 150°C
Package Thermal Resistance (SOT-26)	-----	250°C/W
Power Dissipation (SOT-26, at ambient temperature = 85°C)	-----	250mW
Lead Temperature (Soldering, 10sec)	-----	260°C
ESD Voltage Protection, Human Body Model	-----	2.0 KV
ESD Voltage Protection, Machine Model	-----	200 V

Recommended Operating Conditions

Item	Min	Max	Unit
Supply voltage VCC	7	25	V
VCC capacitor	2.2	10	uF
COMP pin capacitor	0.1	2.2	uF
COMP pin resistor	0	100K	ohms

Block Diagram



Electrical Characteristics (VCC = 15V & TA = 25°C, unless otherwise specified.)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
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VCC SECTION

Continuously Operating Voltage	V_{OP}				25	V
On Threshold Voltage	V_{TH-ON}		9.5	10.8	12	V
Off Threshold Voltage	V_{TH-OFF}		6.3	7.0	8.0	V
Start-Up Current	I_{CC-ST}	VCC = 9V		6	10	μA
Operating Supply Current	I_{CC-OP}			1.5		mA
VCC OVP	V_{OVP}		27	28	29.5	V

OSCILLATOR SECTION

Normal PWM Frequency	F_{OSC}		38	40	42	KHz
Minimum Frequency at No-Load	F_{MIN}			500		Hz

ERROR AMPLIFIER

Output Source Current	I_{EAOUT}			40		μA
Output Sink Current	I_{EAIN}			40		μA
Minimum Output Voltage	V_{EAMIN}			0.5		V
Green Mode Start Voltage	$V_{EAGREEN}$			1.7		V

CURRENT-SENSE SECTION

Input Impedance	Z_{CS}		1			MΩ
Peak Current Limitation	V_{OCP}		1.0	1.1	1.2	V
Propagation Delay	T_{PD}			150		ns

FB PIN

Feedback Input Voltage	V_{REF}		1.96	2	2.04	V
V_{FB} Variation versus VCC Deviation	ΔV_{REF}			1		%
Input Bias Current	I_{BVS}			-0.3	-2	μA
FB OVP	V_{OVP}		2.4	2.5	2.6	V

OUT SECTION

Output Low Level	V_{OL}	VCC = 15V, $I_o = 20\text{Ma}$			1	V
Output High Level	V_{OH}	VCC = 15V, $I_o = 20\text{Ma}$	8			V
Rising Time	T_R	Load Capacitance = 1000Pf		250		ns
Falling Time	T_F	Load Capacitance = 1000Pf		70		ns
Clamp Voltage	V_{CLAMP}	VCC = 25V, $C_{Load} = 1000\text{Pf}$		13		V

OTHERS

Soft Start	T_{SS}			4		ms
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Application Information

The GR8258AN is a primary feedback PWM controller for flyback converter application. It is suitable for low output wattage below 15W. It is

required only very few external components to achieve the application. The typical application circuit is shown as below Fig.1.

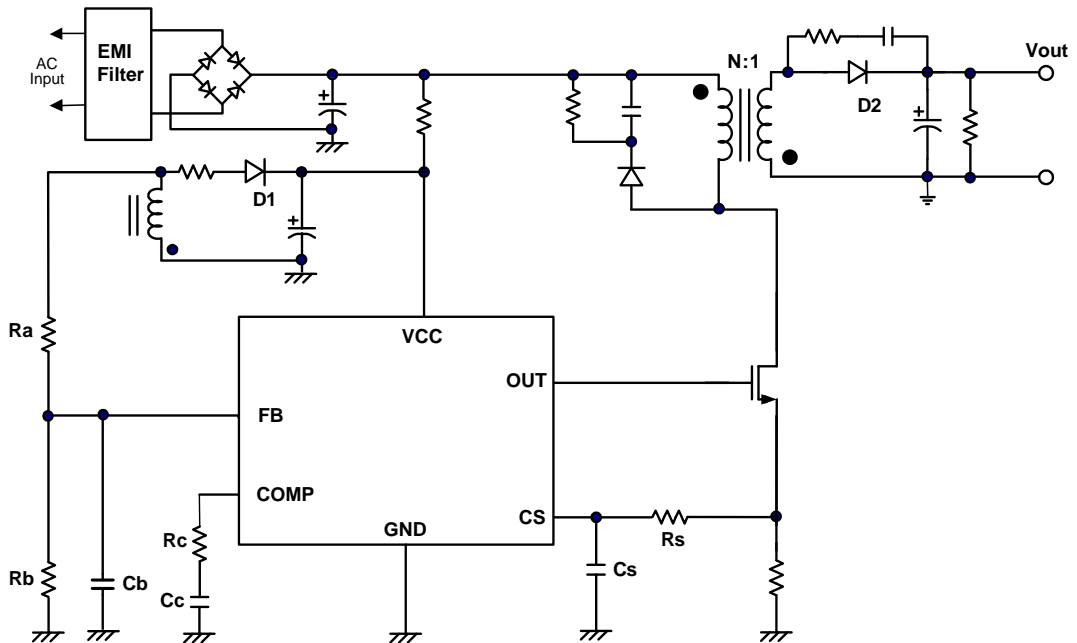
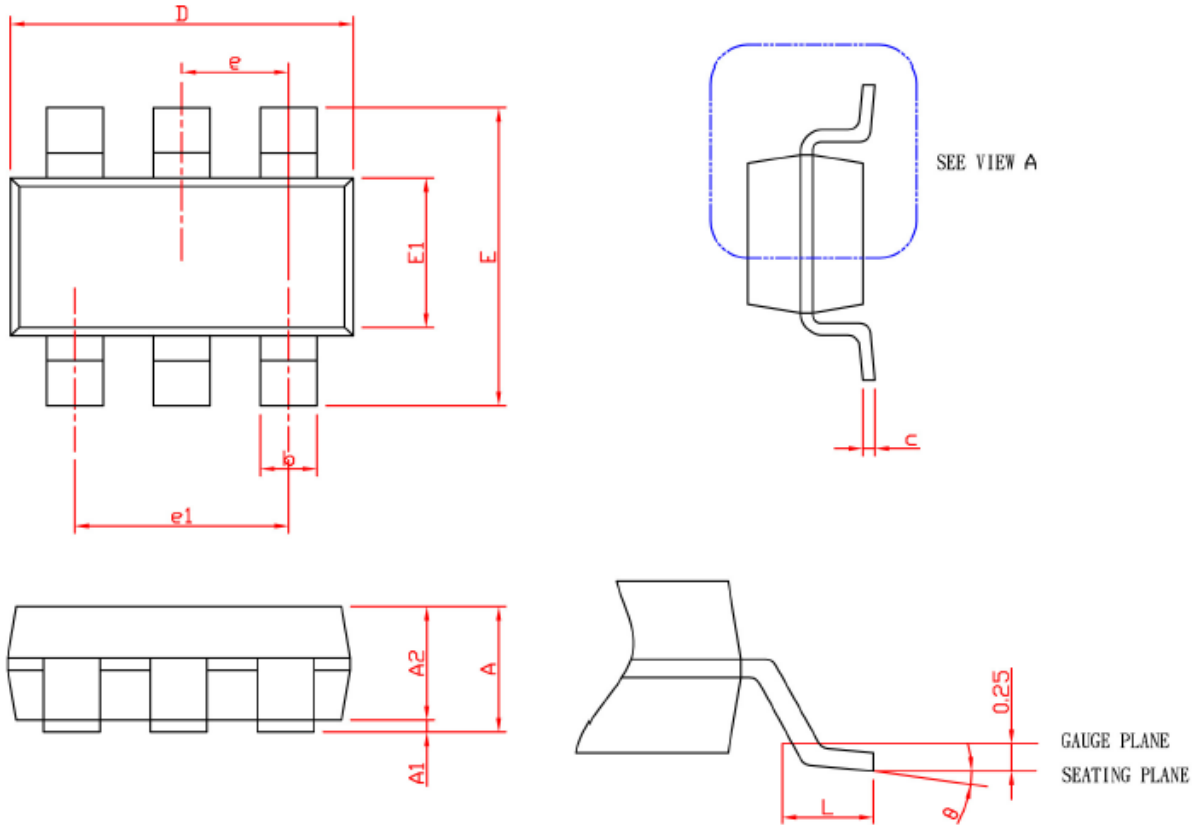


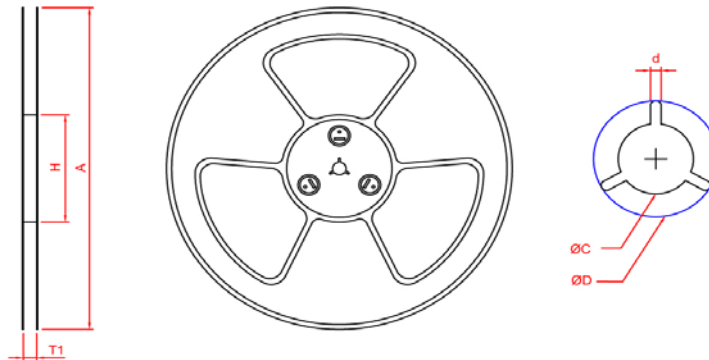
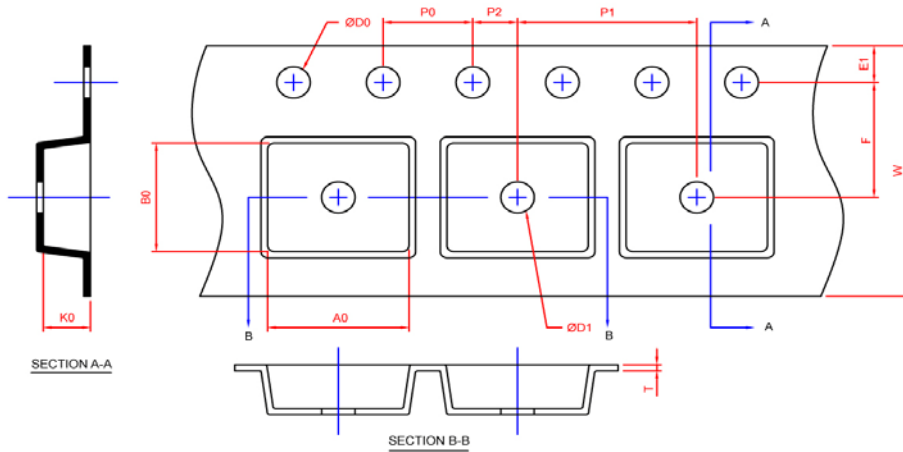
Fig.1

Package Information
SOT-26


SYMBOL	SOT-26			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A		1.45		0.057
A1	0.00	0.15	0.000	0.006
A2	0.90	1.30	0.035	0.051
b	0.30	0.50	0.012	0.020
c	0.08	0.22	0.003	0.009
D	2.70	3.10	0.106	0.122
E	2.60	3.00	0.102	0.118
E1	1.40	1.80	0.055	0.071
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

Note: 1. Followed from JEDEC TO-178 AB.

2. Dimension D and E1 do not include mold flash, protrusions or gate burrs. Mold flash, protrusions or gate burrs shall not exceed 10 mil per side

Carrier Tape & Reel Dimensions
SOT-26


Application	A	H	T1	C	d	D	W	E1	F
SOT-26	178.0±2.00	50 MIN.	8.4+2.00 -0.00	13.0+0.50 -0.20	1.5 MIN.	20.2 MIN.	8.0±0.30	1.75±0.10	3.5±0.05
	P0	P1	P2	D0	D1	T	A0	B0	K0
	4.0±0.10	4.0±0.10	2.0±0.05	1.5+0.10 -0.00	1.0 MIN.	0.6+0.00 -0.40	3.20±0.20	3.10±0.20	1.50±0.20

Application	Carrier Width	Cover Tape Width	Devices Per Reel
SOT -26	8	5.3	3000

Tape and Specification Reel

SOT 26

