

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 - (GL8258AN only)
- SOT-26 Package with Few External Components Needed

Description

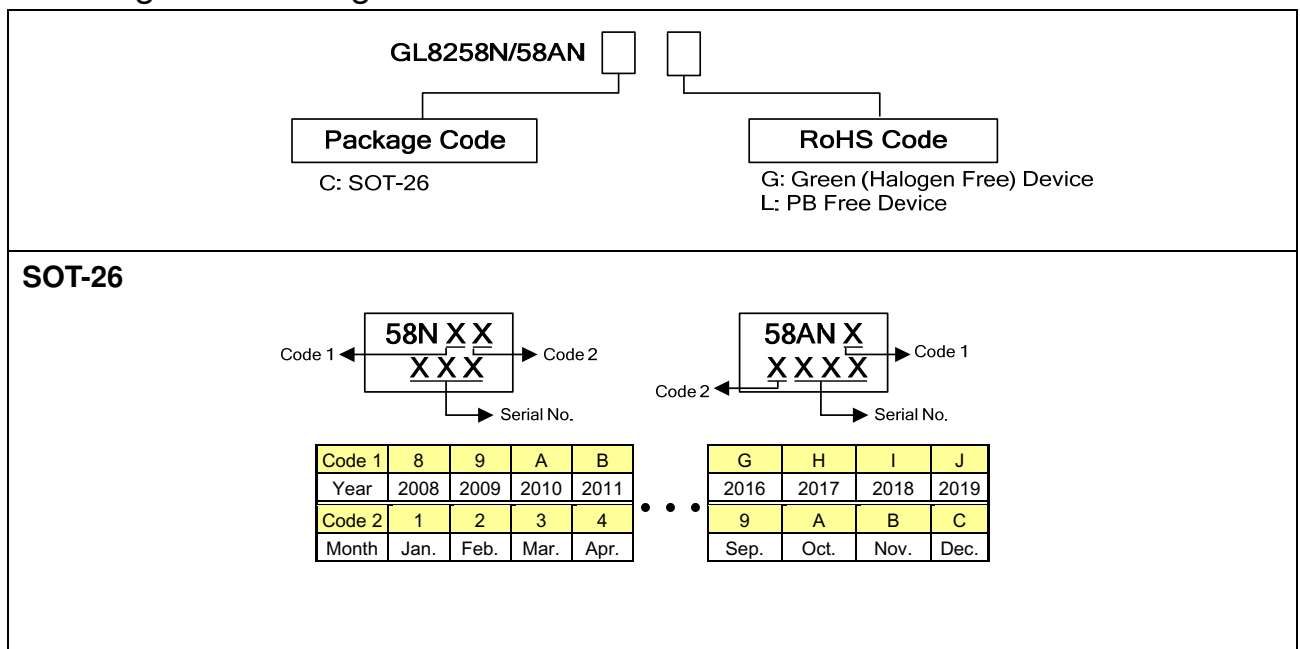
The GL8258N/58AN is an excellent primary side feedback control PWM IC. It's integrated constant voltage (CV) and constant current (CC) regulation functions. While it operates on CV mode, it acts as a voltage source. While it operates on CC mode, it acts as a current source. It minimizes the components 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.

Application

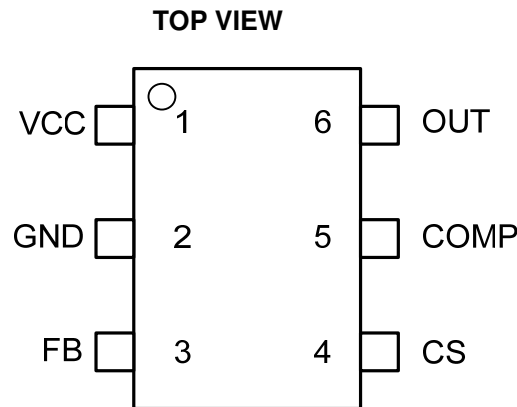
- LED Lighting

Ordering and Marking Information



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

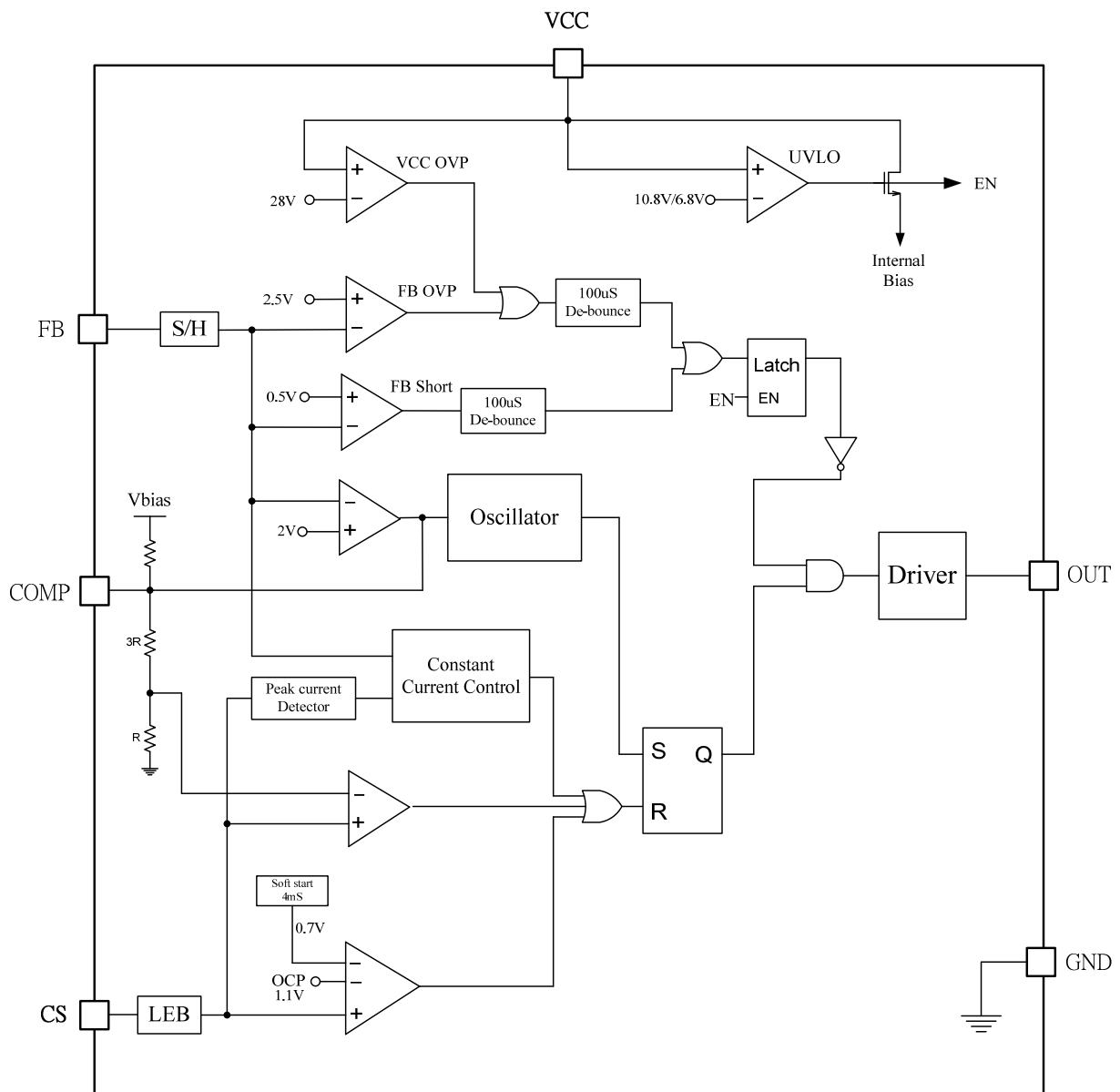
Absolute Maximum Ratings

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 = 20Ma			1	V
Output High Level	V _{OH}	VCC = 15V, I _o = 20Ma	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} = 1000Pf		13		V

OTHERS

Soft Start	T _{SS}			4		ms
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Note: GL8258AN with cable compensation function.

Application Information

The GR8258N/58AN is a primary feedback PWM controller for flyback converter application. It is suitable for low output wattage below 15W and small size AC/DC converter. It is required only

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

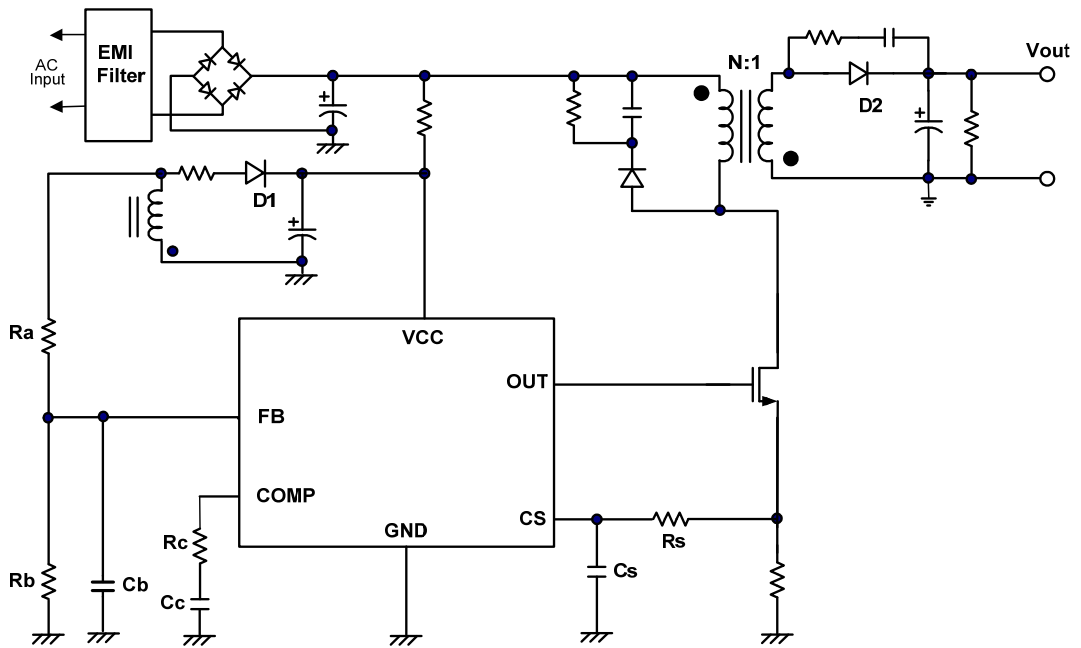
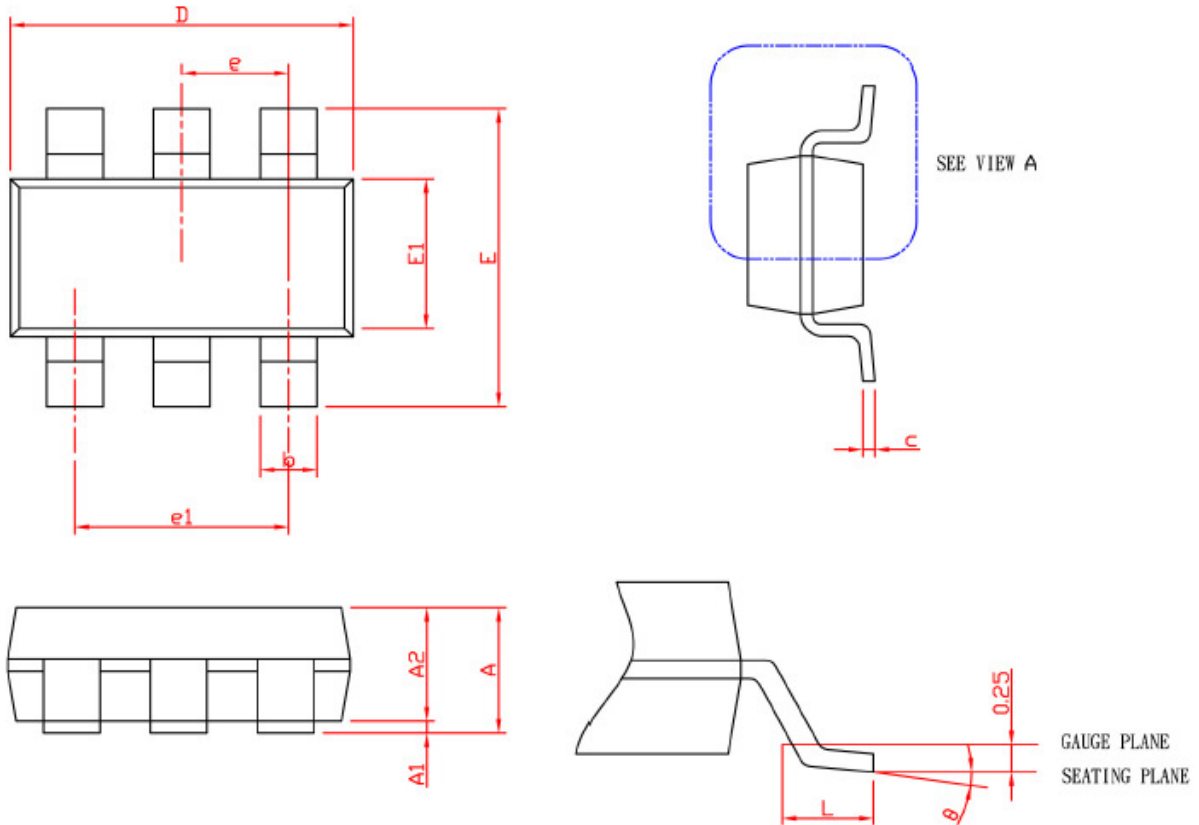


Fig.1

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°

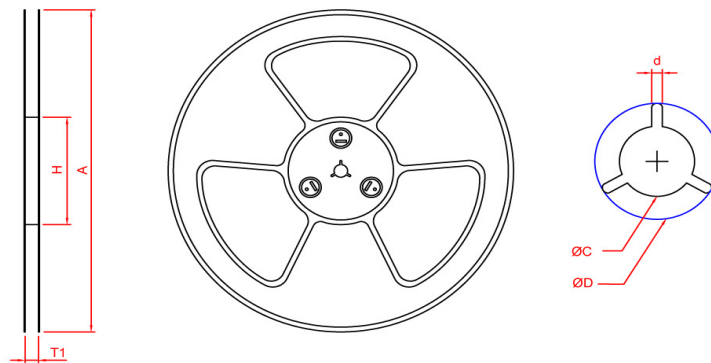
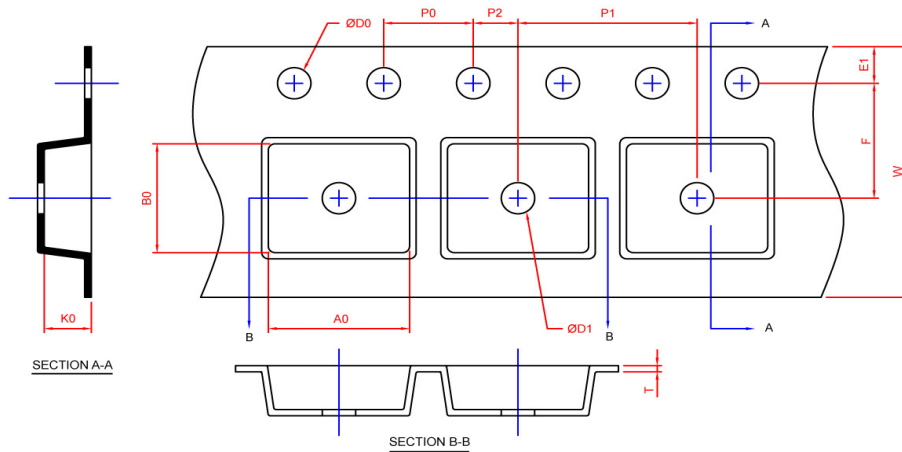
Note: 1. Followed from JEDEC TO-178 AB.

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

