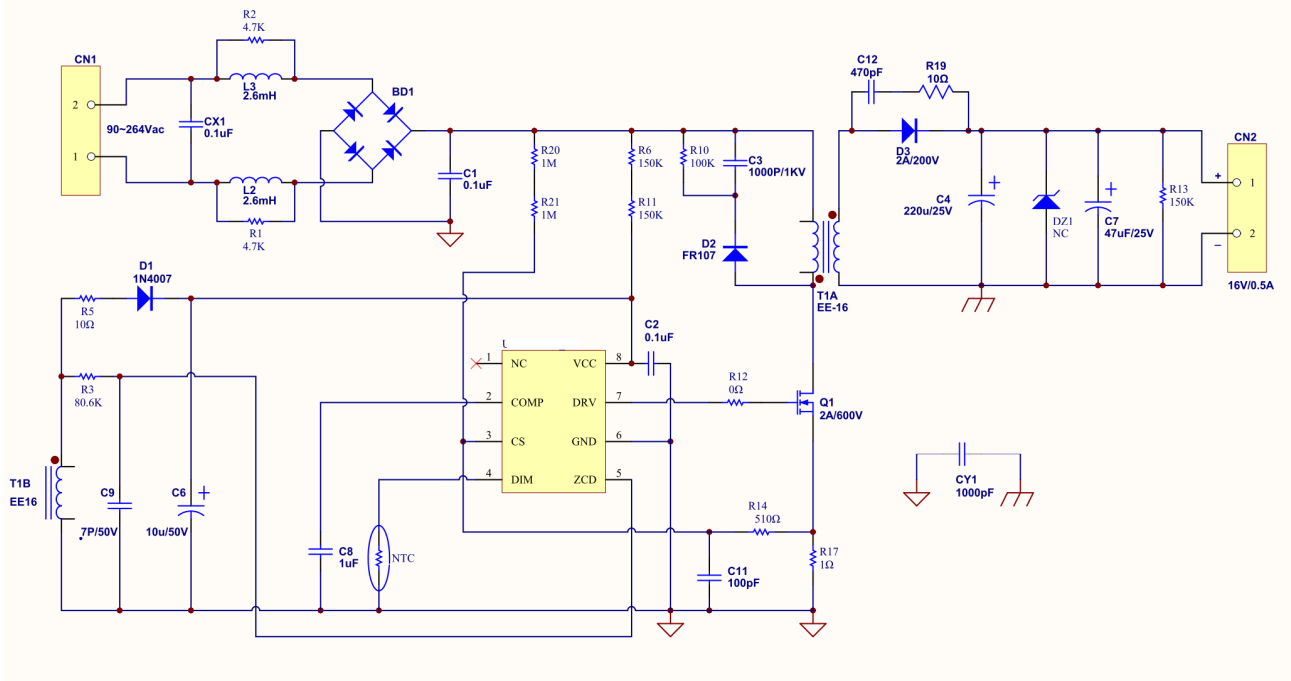
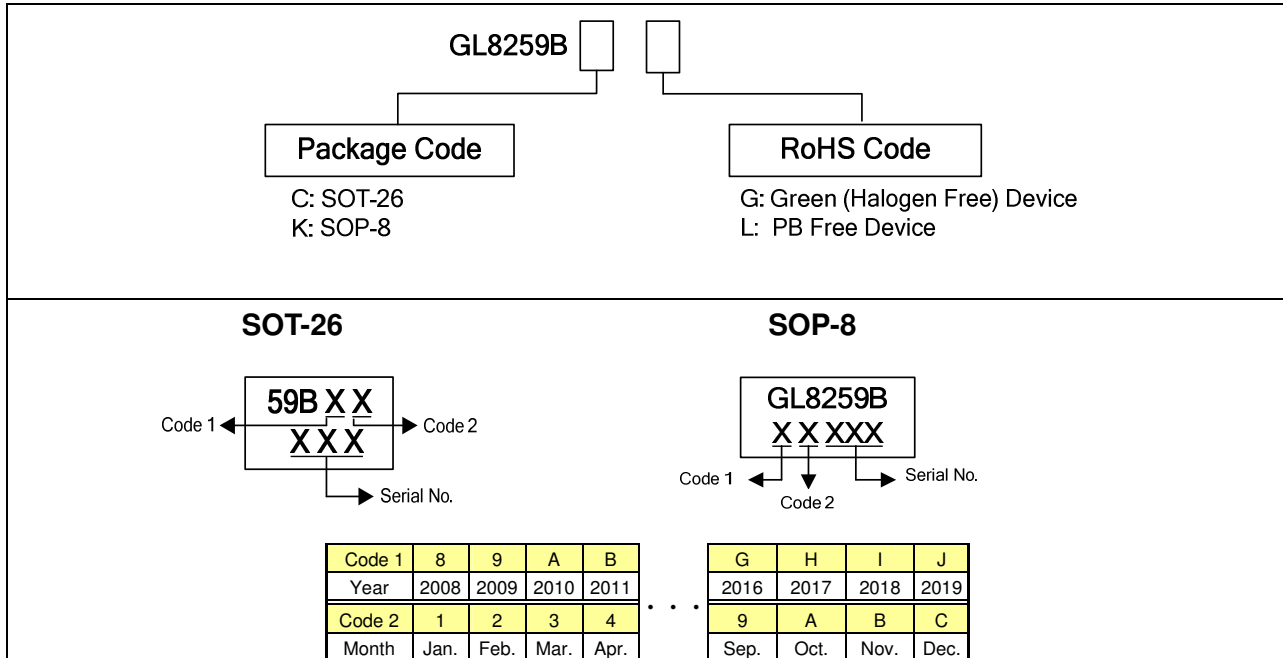
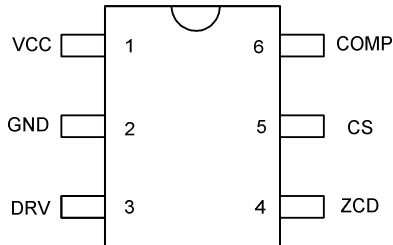
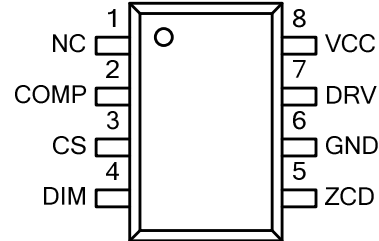


SOP-8


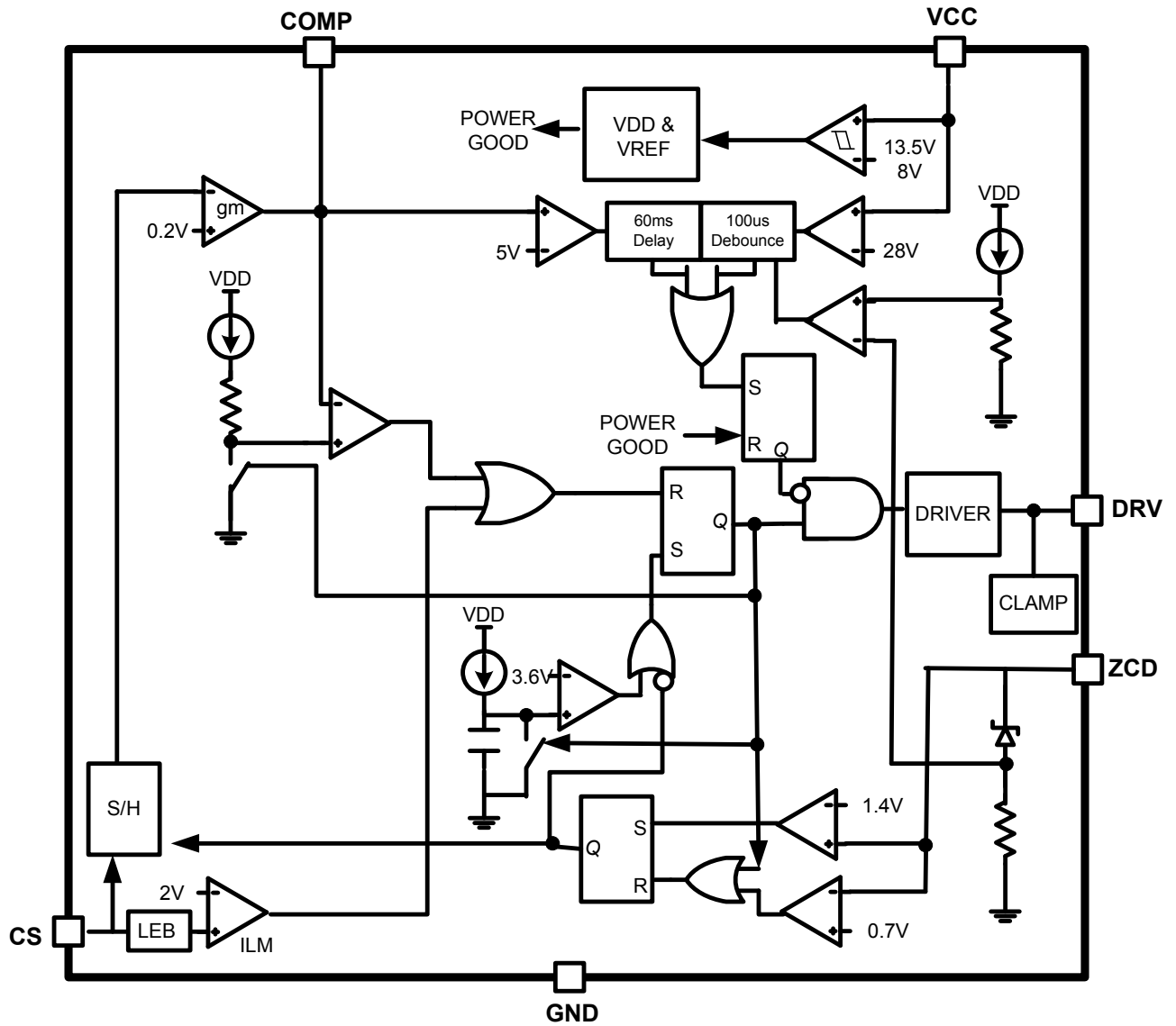
Ordering and Marking Information


Pin Configuration (Top View)
SOT26

SOP-8

Pin Description

Name	Pin No. (SOT26)	Pin No. (SOP8)	Function
VCC	1	8	Positive power supply pin.
GND	2	6	The ground pin.
DRV	3	7	The DRV pin is connected to the totem pole gate driver to drive the external power switch.
ZCD	4	5	The Zero Current Detector Input, which is connected to an auxiliary winding to monitor the zero crossing current of the inductor. When the ZCD detects that the winding has been demagnetized, it will send the set signal to turn on the external MOSFET.
CS	5	3	The Current Sense pin is connected to the input of OCP comparator, and terminates the power switch when the current sense voltage is beyond threshold.
COMP	6	2	The COMP pin is connected to the output of internal error amplifier. Adding compensation network to stabilize the control loop and get higher power factor.
DIM		4	
NC		1	

Absolute Maximum Ratings

Supply voltage VCC	-----30V
Junction temperature	----- 150°C
Operating ambient temperature	----- -20°C ~ 85°C
Storage temperature range	----- -65°C ~ 150°C
SOP-8 package thermal resistance	----- 160°C/W
Power dissipation (SOP-8, at ambient temperature = 85°C)	----- 400mW
Lead temperature (All Pb free packages, soldering, 10sec)	----- 260°C
ESD voltage protection, human body model	----- 2KV
ESD voltage protection, machine model	----- 200V

Block Diagram


Electrical Characteristics ($V_{CC} = 15V$, $T_A = 25^\circ C$, unless otherwise specified.)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
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SUPPLY SECTION

VCC Turn-On Threshold (UVLO On)	UVLO _{ON}		12.5	13.5	14.5	V
VCC Turn-Off Threshold (UVLO Off)	UVLO _{OFF}		7	8	9	V
VCC UVLO On/Off Hysteresis	UVLO _{HYST}			5.5		V
Operation Current	I _{VCC}	C _{LOAD} = 1nF, f _{sw} =70kHz		2.5	3.2	mA
		C _{LOAD} = 0F, f _{sw} =70kHz		1.6	2.5	mA
Startup Current	I _{VCCSTART}	VCC= UVLO _{ON} - 0.5V		10	50	uA
VCC Over Voltage Protection	VCC _{OV} P		26	28	30	V

ZERO CURRENT DETECTOR SECTION

Upper Clamp Voltage	V _{ZCDH}	Source 300uA	5.1	5.6	6.0	V
Lower Clamp Voltage	V _{ZCDL}	Sink 1mA	-0.4	-0.2	0	V
Arming Voltage (Positive-Going Edge)	V _{ZCDA}		1.2	1.4	1.6	V
Triggering Voltage (Negative-Going Edge)	V _{ZCDT}		0.5	0.7	0.9	V
Input Bias Current	V _{ZCDB}		1	2	3	uA
ZCD Over Voltage Current Threshold	I _{ZOVP}		270	300	330	uA
Start Timer Period	t _{ST}		75	150	300	uS

INTERNAL VOLTAGE REFERENCE SECTION

Reference Voltage	V _{REF}	T _A = 25°C	195	200	205	mV
Transconductance	g _m	CS=0V	20	30	40	uS
Source Current	I _{SOURCE}	CS=0V	4	6	8	uA
Sink Current	I _{SINK}	CS=1V	20	30	40	uA
COMP Output High Voltage	V _{COMPH}		4.5	5.0		V
COMP Output Low Voltage	V _{COMPL}		0.4	0.75	1	V
Over load Comp Voltage Protection Threshold	V _{OLP}		4	4.5		V

CURRENT LIMIT SECTION

Current Sense Voltage Protection Threshold	V _{ISNS}		1.8	2	2.2	V
Leading Edge Blanking Time	t _{LEB}		300	450	600	nS
Delay to Output	t _{TD}			130	220	nS

GATE DRIVER SECTION

Rising Time	t _r	C _{LOAD} = 1nF		280	500	nS
Falling Time	t _f	C _{LOAD} = 1nF		80	150	nS
Gate Clamp Voltage	V _{DRV}	VCC=18V	10	12.5	15	V

DIM INPUT SECTION

Saturation Threshold Voltage	V_{STH}		3			V
Linear Dimming Range	V_{LDIM}		0.3		3	V
LED Current Off Threshold Voltage	V_{OTH}				0.3	V
Current Source	V_{CDIM}		290	300	310	μA

Typical Performance Characteristics

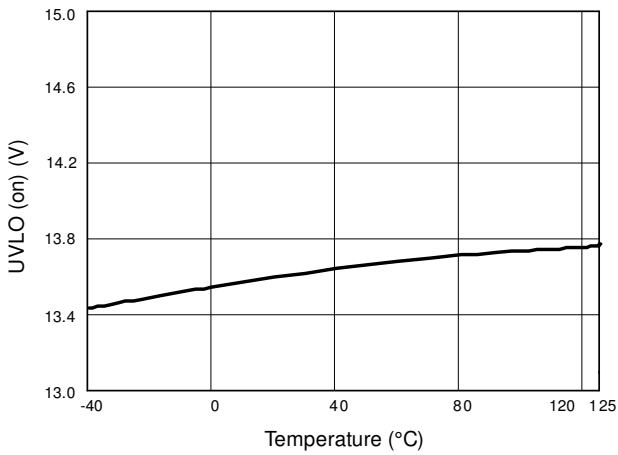


Fig. 1 UVLO (on) vs. Temperature

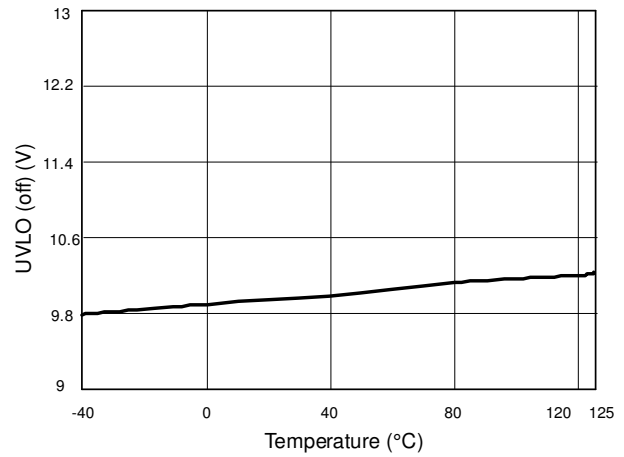


Fig. 2 UVLO (off) vs. Temperature

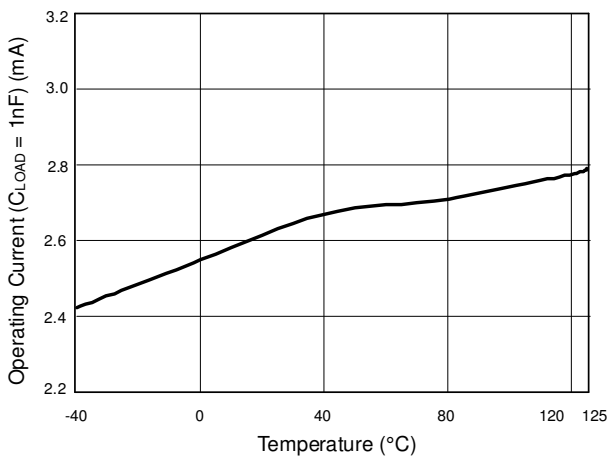


Fig. 3 Operating Current (C_{LOAD} = 1nF) vs. Temperature

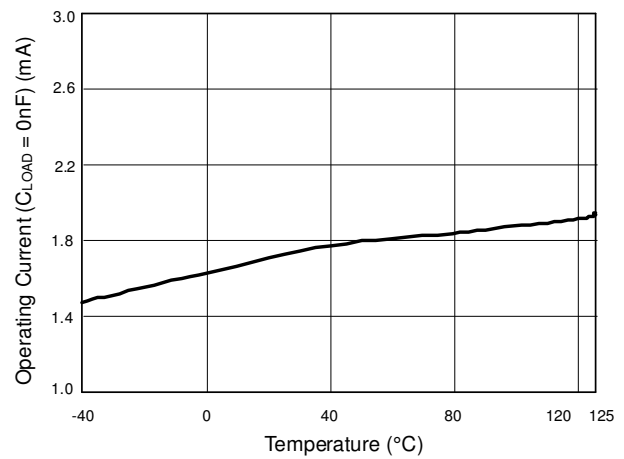


Fig. 4 Operating Current (C_{LOAD} = 0nF) vs. Temperature

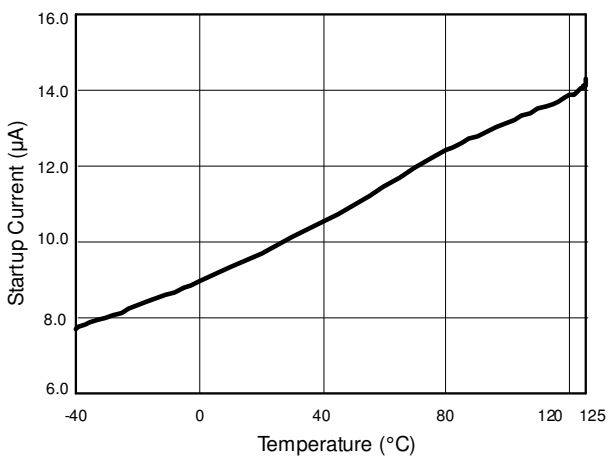


Fig. 5 Startup Current vs. Temperature

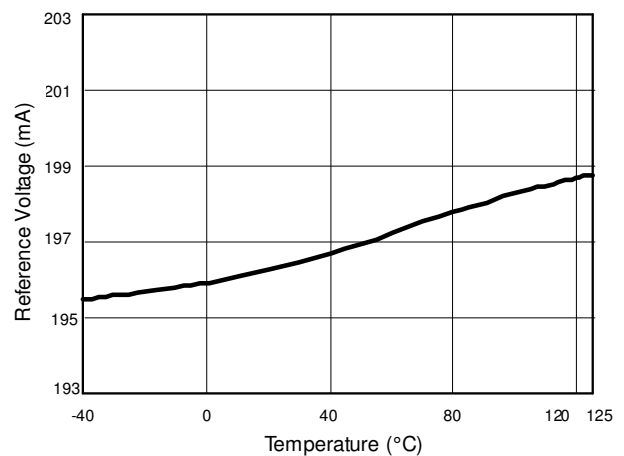


Fig. 6 Reference Voltage vs. Temperature

Application Information

Overview

The GL8259B contains a programmable timer, a transconductance error amplifier used in a feedback loop, an over current comparator, a current sense comparator, a zero current detector, a PWM and logic circuit, a totem pole MOSFET driver, an internal voltage reference, a restart timer and under voltage lockout circuit. It achieves the PFC function by using constant on time and voltage mode control.

Constant On time

The on time of pulse width to drive MOSFET is determined by the input CT pin and the error amplifier output COMP pin. The input CT pin provides the saw tooth waveform to compare with the COMP pin signal. The driver turned off when CT pin voltage reaches to COMP pin voltage. Due to the boundary mode operation of the transformer, the PFC function is implemented naturally by constant on time mode control.

Transconductance Error Amplifier

With an external capacitor between the pins COMP and GND, the transconductance error amplifier forms an active low pass filter. The low pass filter monitors the average output current over several line cycles. Typically the filter's bandwidth is set below 10Hz in order to suppress the 100Hz line ripple of the output current. The non-inverting input is biased internally at an accuracy reference voltage 0.2V. The inverting input CC pin is directly connected to the sense resistor series with LED. The gate drive is disabled when CC voltage is more than 0.35V.

Over Current Comparator

Because of the feedback loop with low bandwidth, the fast changes of the output current can't be regulated within an adequate time. Fast output changes occur during initial start-up. During this fast changes, a peak current is flowing through the external sense resistor series to LED. If this current exceeds an internal defined margin the over current comparator shut down the gate driver to reduce the output current.

Current Sense Comparator

An external sense resistor connected to the MOSFET source and ground transfers the source current of the MOSFET into a sense voltage. The signal is compared with internal reference voltage 0.8V. The switch-on peak current of the MOSFET is blanked out via a leading edge blanking circuit with a blanking time of typically 450ns.

Zero Current Detector

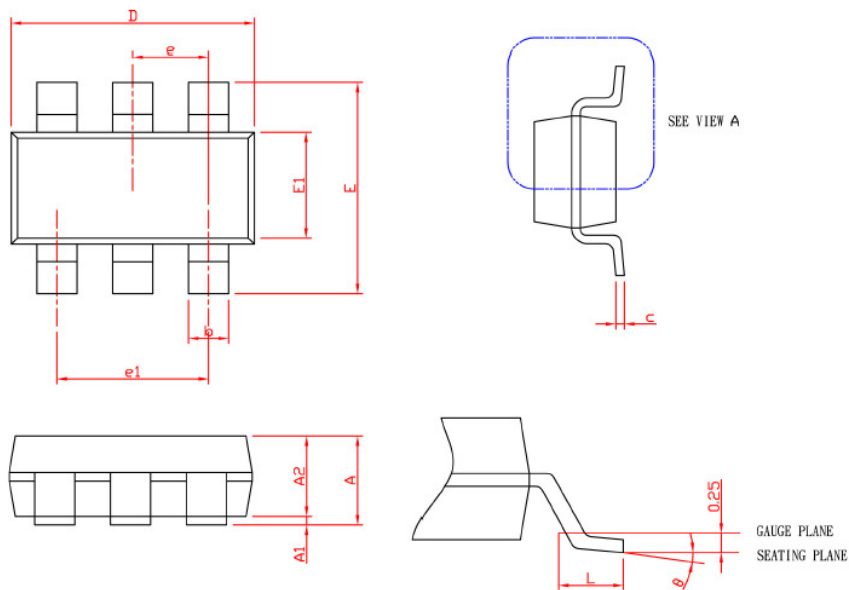
The zero current detector senses the inductor current via an auxiliary winding and ensures that the next on-time of the MOSFET is initiated immediately when the inductor current has reached zero. This diminishes the reverse recovery losses of the flyback converter diode. The MOSFET is switched off when the voltage of the CT pin reaches the voltage level of the error amplifier output. So the inductor current waveform has a triangular shape and there are no dead-time gaps between the cycles. This leads to an AC line current proportional to line voltage. To prevent false tripping the zero current detector is designed as a Schmitt-Trigger with a hysteresis of 0.7V. An internal 4.8V clamp protects the input from overvoltage breakdown. An external resistor has to be used in series with the auxiliary winding to limit the current through the clamps.

Restart Timer

The restart timer function eliminates the need of a oscillator. The timer starts or restarts the GL8259B when the drive output has been off for more than 160us after the inductor current reaches zero.

Under-Voltage Lockout

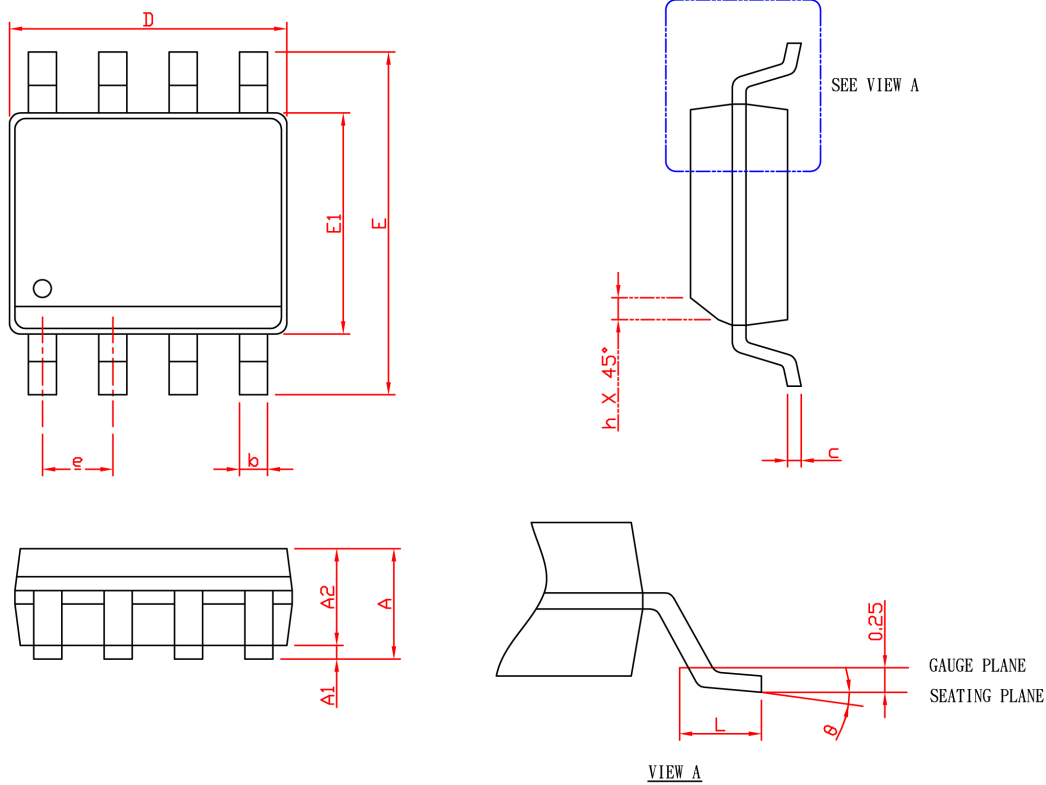
An under voltage lockout circuit switches the IC on when Vcc reaches the UVLO(ON) threshold and switches the IC off when Vcc is falling below the UVLO(OFF) threshold. During star up the supply current is less than 50uA. An internal voltage clamp has been added to protect the IC from Vcc over voltage.

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 MO-178 AB.

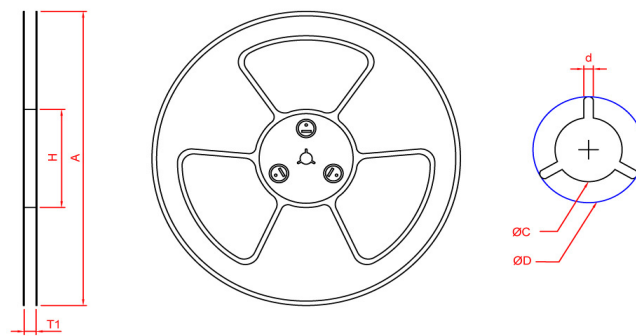
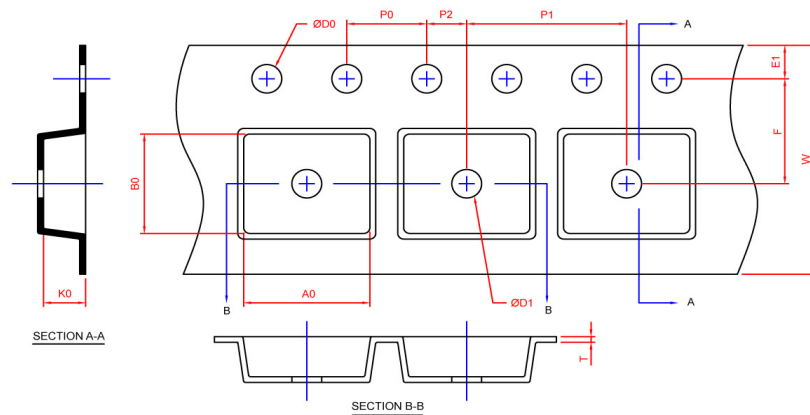
2. Dimension D and E1 do not include mold flash, protrusions or gate burrs. Mold flash, protrusions or gate burrs shall not exceed 10 mil per side.

Package Information
SOP-8


SYMBOL	SOP-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A		1.75		0.069
A1	0.10	0.25	0.004	0.010
A2	1.25		0.049	
b	0.31	0.51	0.012	0.020
c	0.17	0.25	0.007	0.010
D	4.80	5.00	0.189	0.197
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
h	0.25	0.50	0.010	0.020
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

Note: 1. Dimension "D" does not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 6 mil per side.

2. Dimension "E" does not include inter-lead flash or protrusions. Inter-lead flash and protrusions shall not exceed 10 mil per side.

Carrier Tape & Reel Dimensions
SOT-26


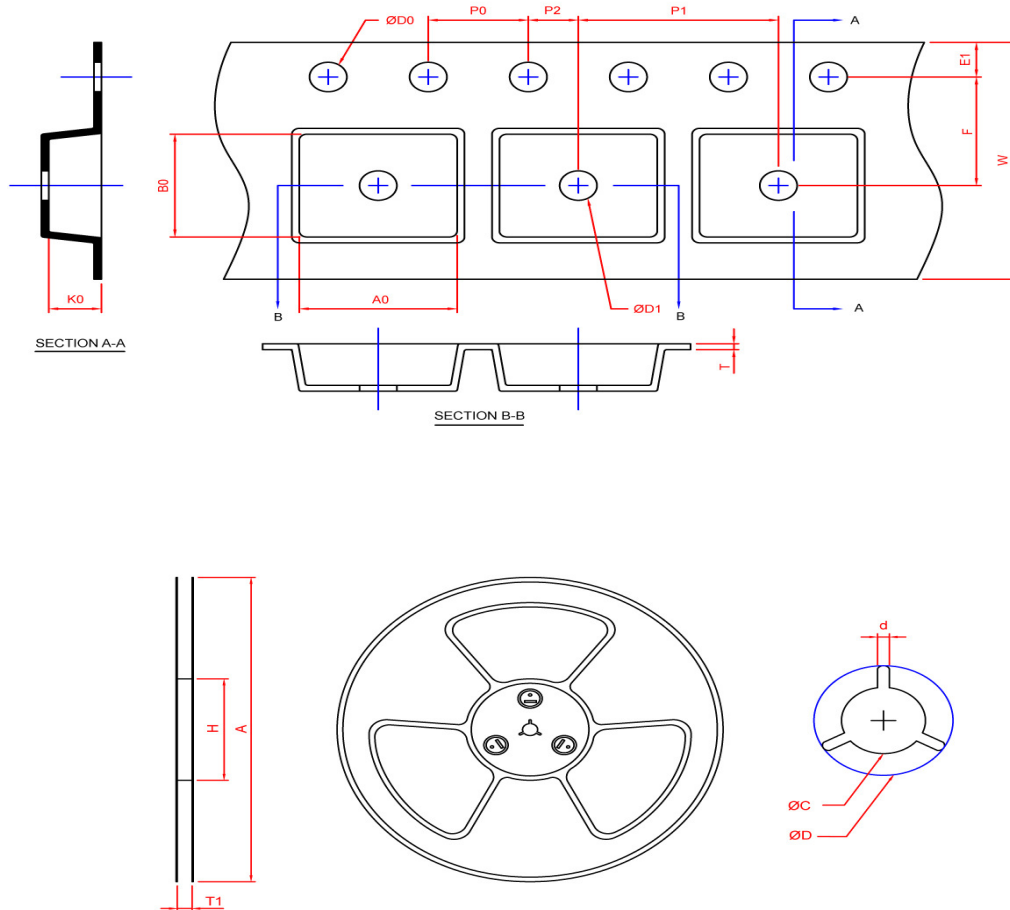
Application	A	H	T1	C	d	D	W	E1	F
SOT-26	178.0±2.00	50 MIN.	8.4+2.00 -0.00	13.0+0.50 -0.20	1.5 MIN.	20.2 MIN.	8.0±0.30	1.75±0.10	3.5±0.05
	P0	P1	P2	D0	D1	T	A0	B0	K0
	4.0±0.10	4.0±0.10	2.0±0.05	1.5+0.10 -0.00	1.0 MIN.	0.6+0.00 -0.40	3.20±0.20	3.10±0.20	1.50±0.20

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

(mm)

Carrier Tape & Reel Dimensions

SOP-8



Application	A	H	T1	C	d	D	W	E1	F
SOP-8	330.0±2.0	50 MIN.	12.4+2.00 -0.00	13.0+0.50 -0.20	1.5 MIN.	20.2 MIN.	12.0±0.30	1.75±0.10	5.5±0.05
	P0	P1	P2	D0	D1	T	A0	B0	K0
	4.0±0.10	8.0±0.10	2.0±0.05	1.5+0.10 -0.00	1.5 MIN.	0.6+0.00 -0.40	6.40±0.20	5.20±0.20	2.10±0.20

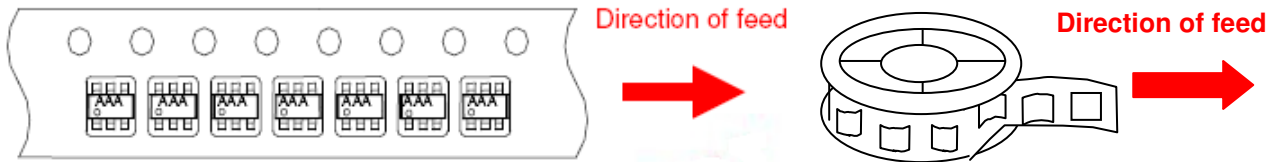
(mm)

Devices Per Unit

Application	Carrier Width	Cover Tape Width	Devices Per Reel
SOP-8	12	-	2500

Tape and Specification Reel

SOT 26



SOP-8



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