MAP3524

2-CH Quasi-Resonant Mode Buck Controller for LED Backlight

General Description

MAP3524 is a 2 channel quasi-resonant mode buck controller for LED backlight application. It operates at boundary conduction mode which provides better efficiency and lower EMI.

MAP3524 features ±2% current sensing(CS) voltage accuracy and has dedicated Independent analog dimming input up to 3.3V. It can be powered from 8.5V ~ 18V supply.

MAP3524 provides MOSFET drain-source short detection for fault output, VCC over voltage protection (OVP) detection for fault output, current sense resistor short protection, short circuit protection (SCP) and VCC under voltage lockout (UVLO).

MAP3524 is available 20 leads SOIC with Halogen-free (fully RoHS compliant).

RoHS Compliant
HALOGEN-FREE

Features

- 8.5V to 18V Input Voltage Range
- Quasi-Resonant Mode
- LED Current Compensation Function
- Independent Direct PWM Dimming Input
- ±2% Current Sensing Voltage Accuracy
- Fault Output (FLT pin)
  - ▪ MOSFET Drain-Source Short Detection
  - ▪ VCC Over Voltage Protection Detection
- Short Circuit Protection
- Current Sense Resistor Short Protection
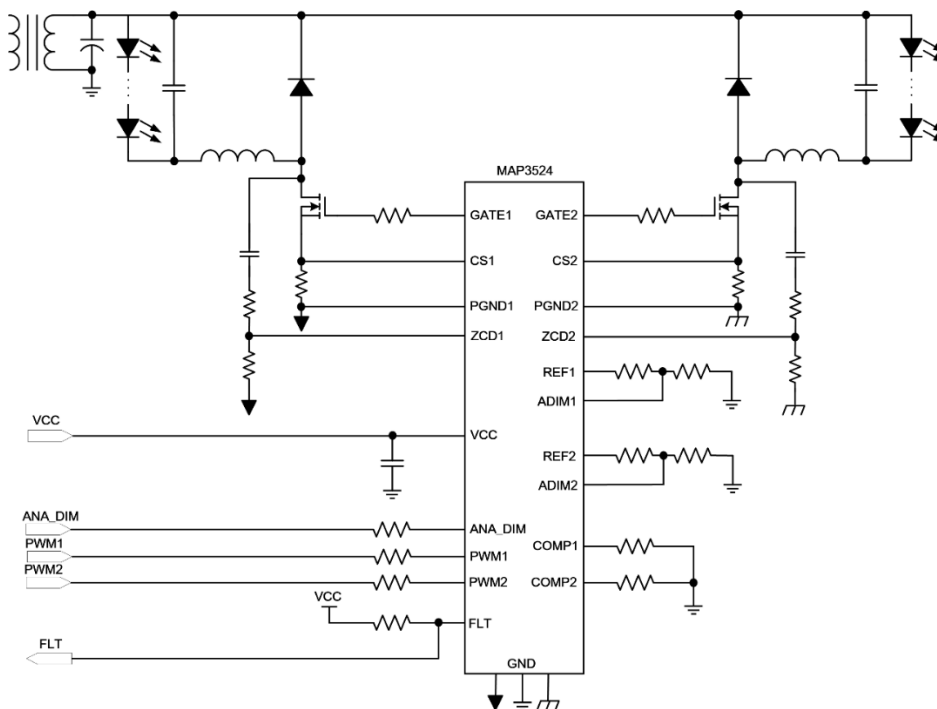- VCC Under Voltage Lock Out
- 20 Leads SOIC Package with Halogen-free

Applications

- High Brightness white LED backlighting for LCD TVs
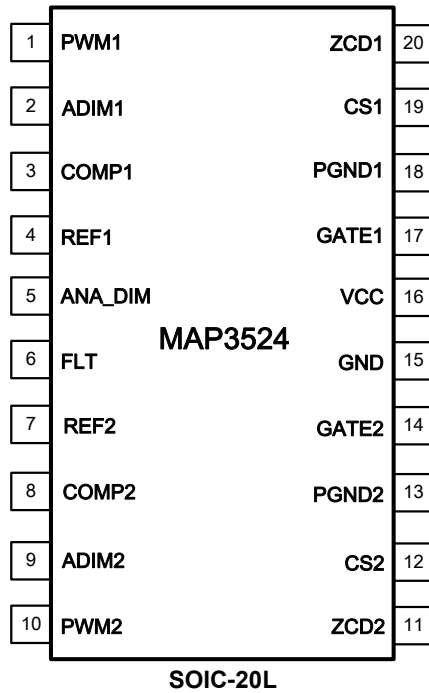- General LED lighting applications

Ordering Information

Part Number	Top Marking	Ambient Temperature Range	Package	RoHS Status
MAP3524SIRH	MAP3524	-40℃ to +85℃	20Leads SOIC	Halogen Free

Typical Application

Pin Configuration

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        ┌────────────────────────┐
  1  ──┤ PWM1              ZCD1  ├── 20
  2  ──┤ ADIM1              CS1  ├── 19
  3  ──┤ COMP1            PGND1  ├── 18
  4  ──┤ REF1             GATE1  ├── 17
  5  ──┤ ANA_DIM            VCC  ├── 16
  6  ──┤ FLT     MAP3524    GND  ├── 15
  7  ──┤ REF2             GATE2  ├── 14
  8  ──┤ COMP2            PGND2  ├── 13
  9  ──┤ ADIM2             CS2   ├── 12
 10  ──┤ PWM2             ZCD2   ├── 11
        └────────────────────────┘
                SOIC-20L
```

Pin Description

Pin	Name	Description
1	PWM1	PWM Dimming for Ch1
2	ADIM1	Internal Analog Dimming for Ch1
3	COMP1	LED Current Accuracy Compensation for Ch1
4	REF1	ADIM Buffer output for Ch1
5	ANA_DIM	External Analog Dimming input
6	FLT	Fault output
7	REF2	ADIM Buffer output for Ch2
8	COMP2	LED Current Accuracy Compensation for Ch2
9	ADIM2	Internal Analog Dimming for Ch2
10	PWM2	PWM Dimming for Ch2
11	ZCD2	Zero Current Detection for Ch2
12	CS2	Current Sense for Ch2
13	PGND2	Power Ground for Ch2
14	GATE2	GATE drive output for Ch2
15	GND	Ground
16	VCC	Power supply input
17	GATE1	GATE drive output for Ch1
18	PGND1	Power Ground for Ch1
19	CS1	Current Sense for Ch1
20	ZCD1	Zero Current Detection for Ch1

Note 1: Connect external resistor to PGNDx to sense the external power MOSFETx source current as shown in typical application
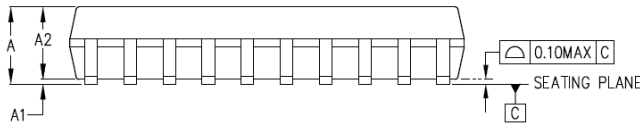
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Functional Block Diagram

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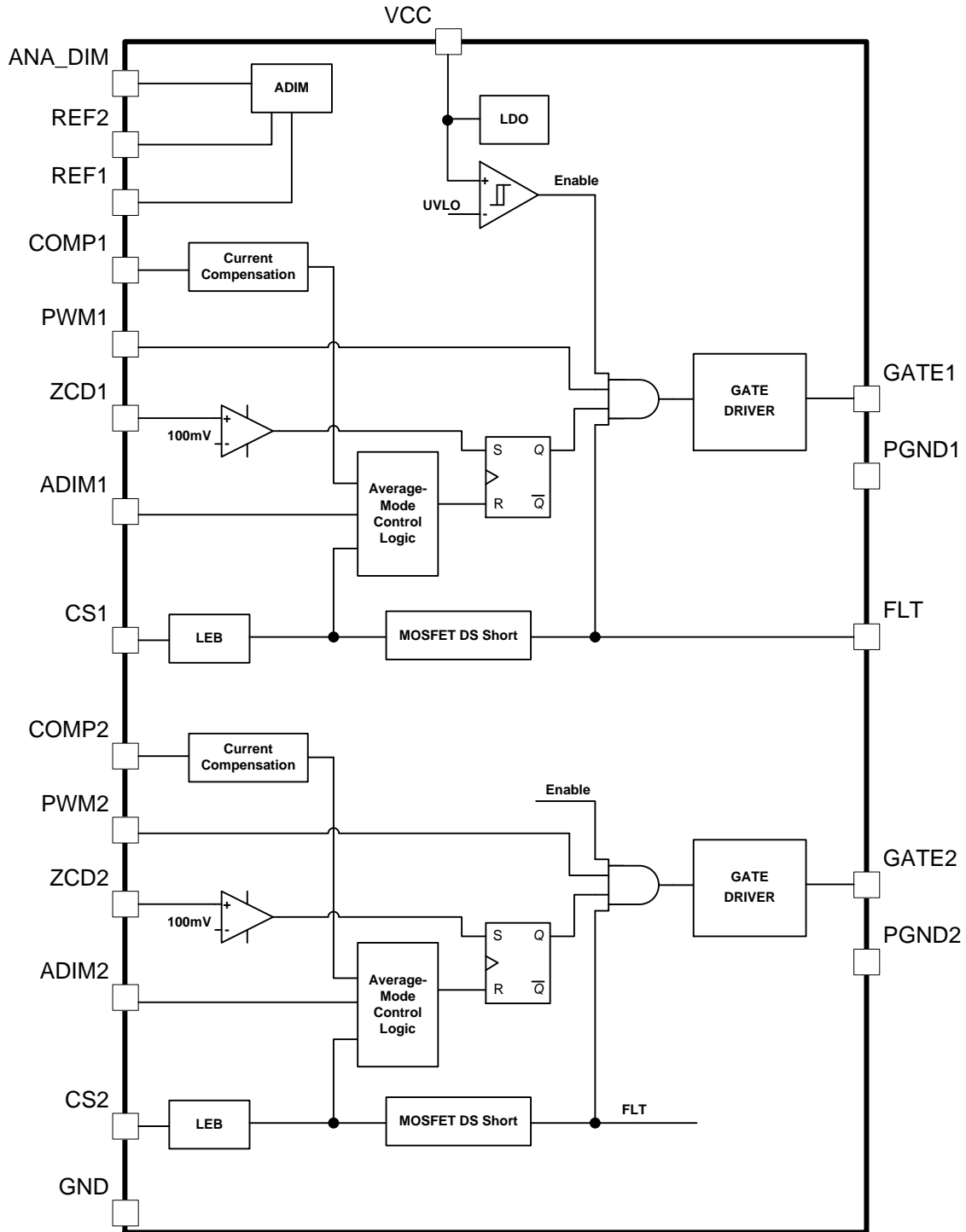
Physical Dimensions
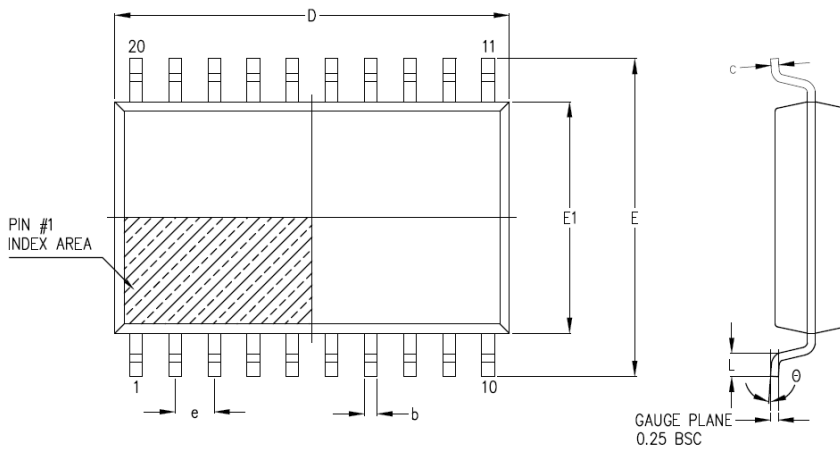
Symbol	Dimension (mm)		
	Min	Nom	Max
A	–	–	2.65
A1	0.10	–	0.30
A2	2.05	–	–
b	0.31	–	0.51
c	0.10	–	0.33
D	12.80 BSC		
E	10.30 BSC		
E1	7.50 BSC		
e	1.27 BSC		
L	0.40	–	1.27
Θ	0°	–	8°

NOTES :

1. Reference JEDEC MS−013(AC)
2. Package length and width do not include mold flash, protrusions or gate burrs.
3. The configuration of PIN #1 identifier/chamfer feature is optional

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