TPV

TPV COMPONENT SPECIFICATION

TPV PART NO.	PART DESCRIPTION	SUPPLIER	SUPPLIER TYPE
56G/T/K608-10	IC	O2MICRO	OZ9938GN
			SOIC-16
APPROVAL SHEET NO.	QUANTITY	SUPPLIER CODE	SUPPLIER PLANT
TZA060275		9000006	

CUSTOMS DUTY PARTS	■YES □NO	CLASSIFY CODE	LE56E/VE56E
SAFETY PARTS	□YES ■NO	SAFETY CONTROLLED MARKING	□YES ■NO
CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION (CCC/CQC)			□YES ■NO

VERSION	B	RELEASED DATE	03/21'06	■ 1st source □ 2nd source

NOTE:

機種： Gateway 15",17",19" LCD Monitor

- RoHS 料件。
- 来料外箱 BARCODE 下方需加盖 TPV 要求之标准 "RoHS" 印章。

After 252,500pcs of OZ9938GN-A2 delivery then will transfer to OZ9938GN-B.

- 67,500 rev A2: 3/10
- 185,000 rev A2 3/27.

□規格書第 1-18 頁，包裝資料第 19 頁，測試報告第 0 頁，
ROHS 資料第 20-22 頁，SONY 資料第 0 頁

注意：

1. 零件产品的任何内容變更，特别是原材料、制程、模具、產地、MARK、關鍵工序之生產設備、网板、設計、規格等影响到电气特性、信赖性、作业性方面的变更，供應商均須以 ECR 的方式通知 TPV RD, TPV RD 核准後方可導入變更。
2. 零件規格的變更必須詳細記錄到版本變更履歷中, 同時必須提供舊料切換控制、版本控制的方式。
3. 供应商应建立体系对其次级供应商进行管理。

NOTICE:

1. **Any contents changed of component, especially material, process, die, plant, mark, equipment of key process, halftone, design, specification etc affect component electrical characteristic and reliability and working characteristic changed of production, the supplier should be inform TPV RD the changed information with TPV ECR form. Only TPV RD approval the ECR, supplier cans instruction the changed.**
2. **Component spec must be minute detail changed in version record, and provide old version production changed mode, version control mode.**
3. **The vendor need build a system to manage sub-tier.**

SIGNATURE

COMPONENT ENGINEER	詹傳祥 3/21	ELECTRONIC PROJECT ENGINEER	李云波 3/22.
SAFETY ENGINEER	/	MECHANICAL PROJECT ENGINEER	
EMC ENGINEER	/	CHECKED BY	
APPROVER BY	Jeff 3/22/06		

TPV COMPONENT SPEC VERSION RECORD

TPV PART NO.	56G508-10	SUPPLIER	O2MICRO

VER	MINUTE OF CHANGES	CHECKER	RELEASE DATE
B	1.新增生產地,增加產能	詹傳祥	3/21

3/7

CC: QC, PD, WH, OQA, QE

捷联大量试跑追跑单

试跑目的：试跑升级版本	产线：	生管：	
试跑料件资讯			
料号：56G608-10	点位：IC801	品名规格：029938B	厂商：
料号：	点位：	品名规格：	厂商：
料号：PW1742CMW2SM	点位：	品名规格：	厂商：
试跑机种：T780KMCHKGYKNP		工单：1015323	数量：50
试跑线别：L12 M16 SMT			
RD 测试号码：			
《技术通报》号码：RDL17-06-128			

品质追踪流程

单位	试跑品质状况	签核
A/I		
基座	无不良	3/15
包装	无不良	3/15
OQA		
QE	ORT 加温120hrs. 目前无不良	
RD		

QR2—RD—13

henry.chan 詹傳祥

寄件者: Jonathan Shao [jonathanshao@anwon.com.tw]
寄件日期: 2006年3月10日星期五 上午 10:49
收件者: henry.chan 詹傳祥
主旨: OZ9938: PCN 060103a

Dear Henry;

After 252,500pcs of OZ9938GN-A2 delivery then will transfer to OZ9938GN-B.

- 67,500 rev A2: 3/10
- 185,000 rev A2 3/27.

Best Regards;

Jonathan Shao
An Won Enterprise Co.,LTD.
Tel:886-2-2696-2450
Fax:886-2-2696-2615
Cell:886-933100662

> ----- Original Message -----
> **From:** Jonathan Shao
> **To:** henry.chan 詹傳祥
> **Sent:** Tuesday, March 07, 2006 11:28 AM
> **Subject:** OZ9938: PCN 060103a
>
> FYI.
>
> Best Regards;
>
> Jonathan Shao
> An Won Enterprise Co.,LTD.
> Tel:886-2-2696-2450
> Fax:886-2-2696-2615
> Cell:886-933100662
> ----- Original Message -----
> **From:** Jonathan Shao
> **To:** Benson -Tpvaoc
> **Cc:** Guass.chen-Tpvaoc ; chunfu.lin@tpvaoc.com ; cc.lee@tpvaoc.com ; carl.wu@tpvaoc.com
> **Sent:** Monday, February 06, 2006 10:04 AM
> **Subject:** OZ9938: PCN 060103a
>
> Dear Sir;
>
> FYI.
>
> Best Regards;
>
> Jonathan Shao
> An Won Enterprise Co.,LTD.
> Tel:886-2-2696-2450
> Fax:886-2-2696-2615
> Cell:886-933100662
> ----- Original Message -----

From: Richard Schiffer (SC)
To: Hogan Hsu (TP) ; jonathanshao@anwon.com.tw
Cc: Arthur Su (TP) ; Steve Lee (TP) ; adylee@anwon.com ; Ken Yang (SC) ; Ching Kuo (TP) ; Richard Schiffer (SC)
Sent: Thursday, February 02, 2006 5:57 AM
Subject: OZ9938: PCN 060103a

Hogan,

Attached is letter.

This should satisfy TPV.

BR

Rich

O2Micro™
Breathing Life into Mobility™

3118 Patrick Henry Drive ♦ Santa Clara, CA 95054 ♦ Tel: (408) 987- 5920 ♦ Fax: (408) 987- 5929

02 February 2006

To: TPV/AOC

From: Rich Schiffer

Subject: OZ9938: PCN 060103a

To Whom It May Concern:

Recently, you have received the subject PCN indicating a product revision change from A2 to B. The reason for the PCN is to advise TPV/AOC that a seal ring was added to the fabrication process. This change will enhance the quality of OZ9938 when used in certain applications, where the IC is operating at an ambient temperature of >100 degrees C.

The additional of the seal ring has NO affect on the performance or the Electrical Characteristics on pages 3 and 4 of the OZ9938 datasheet. In other words, the datasheet will remain at version 1.1

If you any further questions, please contact Jonathan or Hogan.

Sincerely,

Rich Schiffer, Marketing Manager
Intelligent Lighting Group
Phone: (408) 987-5920, ext. 8079
Email: Richard.schiffer@o2micro.com

cc: Hogan Hsu
Jonathan Shao

Product Change Notification

FORM- 034 Rev.00

PCN Number: PCN-060103a		**Date:** January 20, 2006
Customer: All applicable customers		
Affected Part ID: OZ9938GN/DN	**Package Type:** 16SOP/16PDIP	**Revision:** A2
New Part ID: No Change	**Package Type:** No Change	**Revision:** B

Description of Changes:

Add the Die Seal Ring outside the active Die Area.

Reason for Change:

Quality Enhancement.

Anticipated Impact on Form, Fit, Function, or Reliability:

None.

Qualification Plan:

Available upon request

Estimated Date of Implementation: March 1, 2006
Date of Available Qualified Sample: Now

O2Micro Contact Person

Name: Ken Yang **Phone:** 408- 987-5920
E-Mail: ken.yang@o2micro.com **Fax:** 408- 987-5929
Address: 3118 Patrick Henry Drive, Santa Clara, CA 95054 U.S.A.

Attachment: None

Signature: _____

Tactical Marketing Manager, O2Micro

APPROVAL SHEET

Customer Name	**:**	**TPV(AOC)**
O2 Part Number	**:**	**OZ9938GN**
Revision	**:**	**B**
Description	**:**	**LCDM Inverter Controller**
Package Type	**:**	**16 SOIC Lead-Free**
Pack Type	**:**	**Tube or T&R**
Quantity per Type	**:**	**48 or 2,500**
Quantity per Inner Box	**:**	**4,800 or 2,500**
Quantity per Ship Box	**:**	**28,800 or 12,500**

APPROVED BY:

_____ _____

Print Name and Signature Date

***** Please fax back a signed copy to O_2 Micro attn: Angela Chang at (03) 564-4273 *****
*****THANK YOU *****

Tel : (02) 2545-9095 ■ Fax : (02) 2545-9583
(03) 578-7448 ■ (03) 578-7897
4F, No.150, Duenhua N. Road, Taipei, Taiwan, 105
5F, No.36, Lane162, Keshiueyuan Road, Hsin Chu, Taiwan, 300

Change Summary

CHANGES

No.	Applicable Section	Description	Page(s)
1.	Electrical Characteristics	Update **'Protection release threshold'** in 'Timer & protection' parameter Min & Max limits	3
2.	Throughout datasheet	Miscellaneous changes	---

REVISION HISTORY

Revision No.	Description of change	Release Date
0.60	Initial release	5/12/2005
0.65	1. Electrical Characteristics: a. Modify general test conditions in line 1; b. Modify 'Driver Frequency – Striking & Normal Operation' Typ limit; c. Modify 'PWM Dimming Control – LCT frequency'. 2. Reference Application Circuit: Modify C14, C9 & R9 values	6/27/2005
1.0	1. Ordering Information: Add OZ9938G, IG, D & DN. 2. Recommended Operating Range: a. Add 'Dimming Range'; b. Fill in 'Thermal Impedance'. 3. Electrical Characteristics: a. Update 'Supply Current' limits; b. Update 'Soft Start' limits; c. Update 'Under Voltage Lockout' limits; d. Update 'Reference Voltage' limits; e. Update 'Driver Frequency' limits; f. Update 'Timer & Protection' limits; g. Update 'Drivers' parameter name & limits; h. Update 'PWM Dimming Control' limits; i. Delete 'Analog Dimming Control'. 4. Function Description: Update formula in NO. 4 Ignition, No. 6 Normal Operation & No. 9 Dimming Control. 5. Package Information: Add DIP package drawing.	9/22/2005

OZ9938

LCDM Inverter Controller

FEATURES

- Positive PWM dimming polarity
- Constant operating frequency
- Drives positive/negative-impedance lamps during ignition
- High drive current for external MOSFETs
- User-defined ignition time and shutdown delay time
- Multiple mode dimming control
- Built-in intelligence for ignition and normal operation of CCFLs
- Built-in open-lamp protection and over-voltage protection for backlight system
- Optimized soft-start function

ORDERING INFORMATION

Part Number	Temp Range	Package
OZ9938G	-20°C to 85°C	16-pin SOIC
OZ9938GN	-20°C to 85°C	16-pin SOIC Lead-Free
OZ9938IG	-40°C to 85°C	16-pin SOIC
OZ9938IGN	-40°C to 85°C	16-pin SOIC Lead-Free
OZ9938D	-20°C to 85°C	16-pin DIP
OZ9938DN	-20°C to 85°C	16-pin DIP Lead-Free

GENERAL DESCRIPTION

The OZ9938 is a high performance, cost-effective CCFL (Cold Cathode Fluorescent Lamp) controller designed for driving large-size Liquid Crystal Display (LCD) applications requiring 2 to 6 CCFLs.

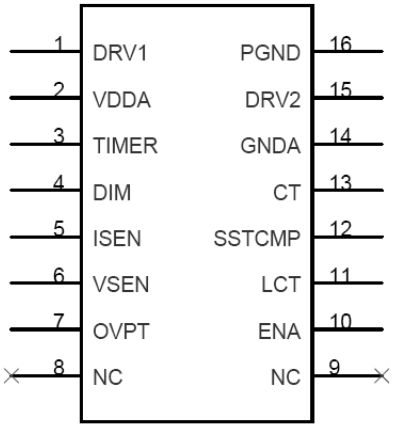
The controller converts unregulated DC voltages into a nearly sinusoidal lamp voltage and current waveforms.

The OZ9938 provides two drive signals for most power conversion topologies while maintaining high-efficiency operation. The PWM controller provides a soft-start operation, current and voltage regulation, over-voltage and over-current protection, high drive capability and multiple dimming functions (internal PWM or external PWM or analog dimming functions).

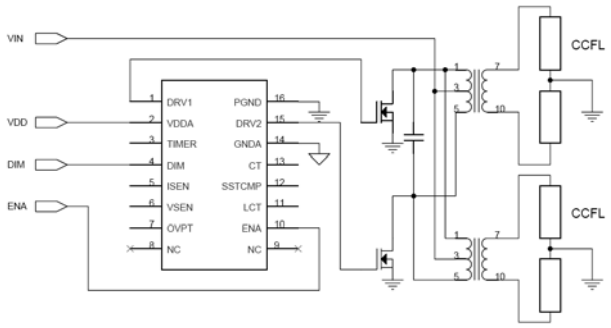
The control logic provides a regulated ignition voltage and appropriate protection features for over-voltage or over-current conditions.

The OZ9938 offers a high level of integration, while maintaining flexibility and high-efficiency operation that reduces external component heating, resulting in higher reliability and longer CCFL life. The proprietary design technique provides a simple, low-cost system solution.

PIN DIAGRAM



SIMPLIFIED APPLICATION CIRCUIT



PIN DESCRIPTION

Pin No.	Names	Description
1	DRV1	Drive output
2	VDDA	Supply voltage input
3	TIMER	Timing capacitor to set striking time and shutdown delay time
4	DIM	Analog dimming or Internal LPWM dimming or external PWM pulse input for dimming function
5	ISEN	Current sense feedback
6	VSEN	Voltage sense feedback
7	OVPT	Over-voltage/ over-current protection threshold setting pin
8	NC	No connection
9	NC	No connection
10	ENA	ON/OFF control of IC
11	LCT	Timing capacitor to set internal PWM dimming frequency and also a pin for analog dimming selection
12	SSTCMP	Capacitor for soft start time and loop compensation
13	CT	Timing resistor and capacitor for operation and striking frequency
14	GNDA	Ground for analog signals
15	DRV2	Drive output
16	PGND	Ground for power paths

ABSOLUTE MAXIMUM RATINGS(1)

Input Voltage VDDA	7.0V
GNDA	+/- 0.3V
Signal Inputs	-0.3V to VDDA +0.3V

Operating Temp.	OZ9938	OZ9938I
	-20°C to 85°C	-40°C to 85°C

Operating Junction Temp.	125°C
Storage Temp.	-55°C to 150°C

RECOMMENDED OPERATING RANGE

VDDA - Input Voltage	4.5V to 5.5V
f_{op} - Operating Frequency	20KHz to 150KHz
Analog Dimming Range	0.7V to 2.1V
Thermal Impedance (θ_{J-A}) - 16-pin SOP - 16-pin DIP	 86 °C/W 56 °C/W

Note (1): The "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The "Electrical Characteristics" table defines the conditions for actual device operation. Exposure to absolute maximum rated conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Conditions		Limits		Unit
		VDDA=5V; Ta=25 °C R_{CT} =39Kohm, C_{CT}=470pF R_{LCT} =3.3Mohm, C_{LCT}=4.7nF	Min	Typ	Max	
Supply Current						
Stand By	I_{dds}	ENA=0V		2.0	5.0	μA
Operating	I_{dd}	Capacitance at DRV1 & DRV2=2nF	1.5	2.0	2.5	mA
Soft Start						
Current Source	ISSTCMP		1.83	2.29	2.75	μA
Under Voltage Lockout						
Lock out	UVLO	VDDA 5V→0V			3.2	V
Resume	UVLO	VDDA 0V→5V	4.0			V
Reference Voltage						
ISEN reference voltage		ISEN=SSTCMP	1.12	1.18	1.23	V
		Temperature Coefficient		360		ppm/ °C
VSEN reference voltage during striking		VSEN=SSTCMP	2.78	2.92	3.06	V
		Temperature Coefficient		310		ppm/ °C
Driver Frequency						
Striking	f_{str}		62.6	65.8	69.0	KHZ
		Temperature Coefficient		290		ppm/ °C
Normal operation	F_{op}		50.0	52.0	54.0	kHz
		Temperature Coefficient		110		ppm/ °C
Timer and Protection						
Striking current Source		ISEN =0V	2.3	2.9	3.5	uA
Open lamp and over voltage protection current Source		SSTCMP > 3.3V or VSEN>OVPT	8.0	10.0	12.0	uA
Protection release threshold			2.60	2.81	3.02	V
Drivers						
DRV1/2 source	Ron			12	18	Ω
DRV1/2 sink	Ron			5	9	Ω
Maximum duty cycle			45			%

ELECTRICAL CHARACTERISTICS (Continued)

Parameter	Symbol	Test Conditions		Limits		Unit
		VDDA=5V; Ta=25°C R_{CT} =39Kohm, C_{CT}=470pF R_{LCT} =3.3Mohm, C_{LCT}=4.7nF	Min	Typ	Max	
PWM Dimming Control						
LCT frequency			194	200	206	Hz
ENA Threshold						
On					2.0	V
Off			1.0			V

FUNCTIONAL BLOCK DIAGRAM

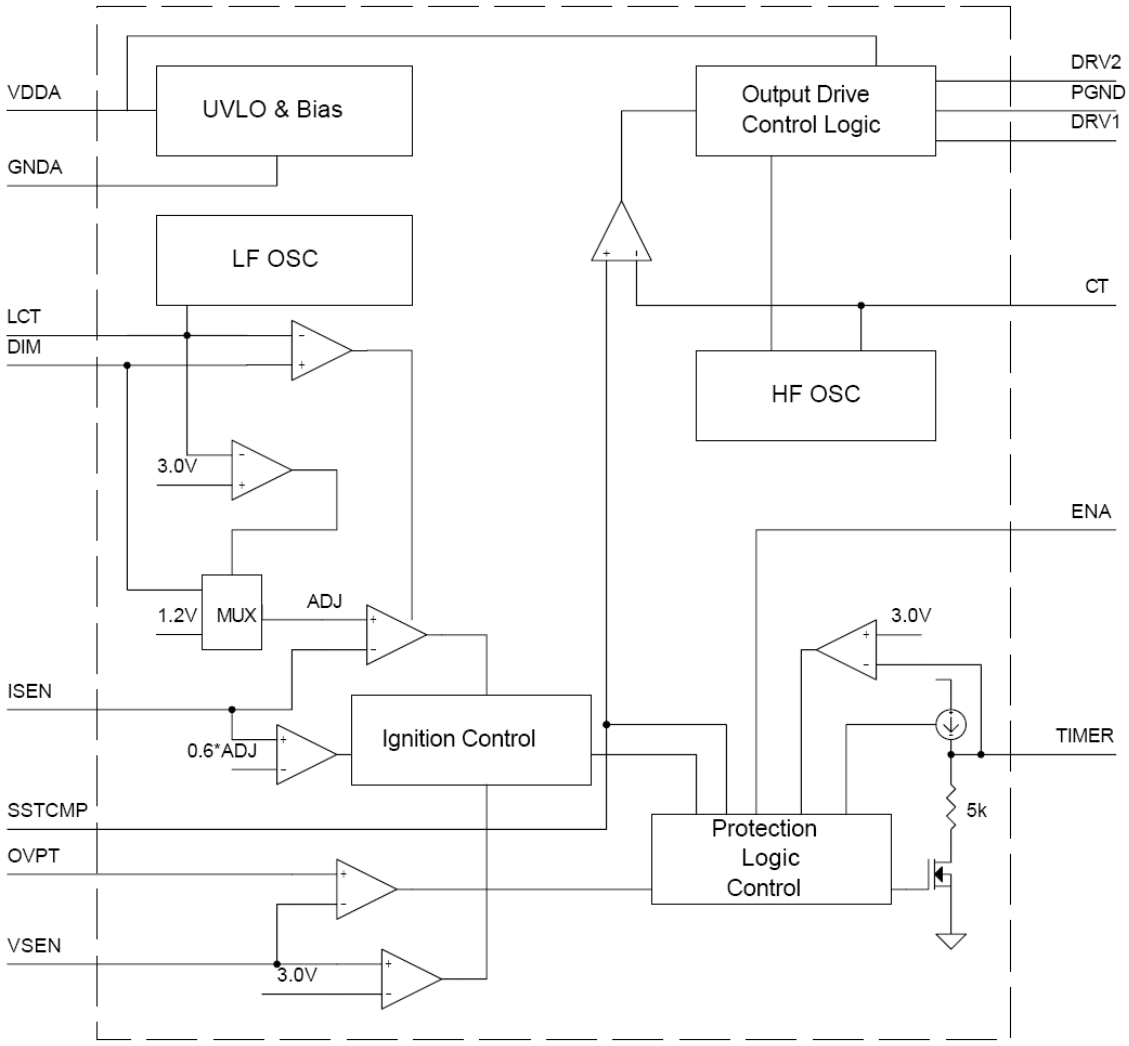


Figure 1

FUNCTIONAL DESCRIPTION

1. Power Conversion

The OZ9938 controller is designed to suit various power conversion topologies and provides symmetrical drive pulses to the tank circuit that includes the transformer(s), output capacitors and the CCFL/panel load that yields quasi-sinusoidal CCFL voltage and current waveforms. High efficiency operation of the OZ9938 yields lower heat dissipation for the inverter system resulting in higher reliability.

To illustrate the controller functions, refer to Figures 1 and 2 on pages 5 and 8, respectively for the following sections.

2. Enable

Applying a voltage level greater than 2V to ENA (pin 10) enables the IC. A voltage less than 1V will disable the IC.

3. Soft-Start (SST)

Utilizing a patented multi-task technique, the soft-start function and the loop compensation function are combined to provide a good start-up characteristic. Connecting an external capacitor to SSTCMP (pin 12) provides the functions. In the start-up mode, current charges capacitor C13 connected to SSTCMP. The voltage at the capacitor controls the gradual increase in power to the transformer and subsequently to the output load. This reduces in-rush current and provides reliable operation to the CCFL.

4. Ignition

When the VDDA voltage exceeds the under-voltage lockout threshold, the IC is enabled an internal striking timer is activated.

The approximate striking frequency is calculated by the following equation.

$$f_{st} = \frac{3812/\ R_{CT}\ [K\Omega] + 26}{4\ *C_{CT}[pF]}\ X1000\ [KHz]$$

5. Aged CCFL Ignition

OZ9938 provides a striking timer function to ensure that any aged, slow-turn-on CCFL is provided with sufficient voltage and time to ignite. The transformer output voltage is sensed at VSEN (Pin 6). When the voltage at VSEN reaches a threshold of approximately 3.0V, the IC regulates the output voltage at the transformer secondary. If the lamps are not ignited when the voltage at TIMER (pin 3) reaches a threshold of approximately 3V, the IC will shutdown and latch

The approximate striking time is calculated by the following equation.

$$T_{str}\ [Sec]\ = C_{TIMER}\ [uF]$$

To resume normal operation, toggle the ENA signal or reset VDDA.

6. Normal Operation

Once the lamps are ignited and the voltage at ISEN (pin 5) is >0.7V, the IC enters the normal operation mode and the PWM dimming control is activated.
The operating frequency is determined by resistor (R9) and capacitor (C9) connected to CT (pin 13). The control loop regulates the average current through the lamps by adjusting the duty cycle of the output drives. Constant frequency operation eliminates interference with the inverter and LCD panel that often occurs in a variable frequency inverter system. The peak and valley of the CT waveform are 2V and 0V respectively.

The approximate operating frequency is calculated by the following equation.

$$f_{op} = \frac{9.53\ x10^{5}}{R_{CT}\ [K\Omega]*C_{CT}[pF]}\ [KHz]$$

7. Open Lamp Protection

If a CCFL is removed or damaged during normal operation, the voltage at SSTCMP (pin 12) rises rapidly. When the voltage at SSTCMP reaches a threshold of approximately 2.5V, a current source charges the capacitor (C17) connected to TIMER (pin 3). Once the voltage level at the TIMER pin reaches a threshold of approximately 3V, the drive outputs shut down and latch.

The shutdown delay feature avoids inverter shutdown due to a VIN transient or if a lamp has a positive impedance characteristic.

The approximate shutdown delay time is calculated by the following equation.

$T_d\ [Sec] = 0.33\ XC_{TIMER}\ [uF]$

To resume operation, toggle the ENA signal or restart VDDA.

8. Over-Voltage and Over-Current Protection

Over-voltage and over-current protection are monitored by the voltage on VSEN (pin 6). During normal operation, if a CCFL is damaged or removed, the voltage at VSEN (pin 6) increases. Once the voltage at VSEN exceeds the user-defined, preset voltage set by OVPT (pin 7), the driver output duty cycle is regulated and the shutdown delay timer is activated. OVPT sets the overall protection threshold voltage that is lower than ~3V (VSEN threshold). Once the voltage at TIMR pin reaches ~3V, the IC will shut down and latch. OVPT voltage setting is determined by a resistor divider (R13 and R16) connected to the OVPT.

The approximate shutdown delay time is calculated by the following equation.

T_d [Sec] = 0.33 XC_{TIMER} [uF]

To resume operation, toggle the PWM signal or restart VDDA.

9. Dimming Control

A built-in function enables the user to select one of the following dimming controls: analog, internal LPWM or external PWM signal.

Analog dimming control is activated when the voltage to LCT (pin 11) is greater than 3V. A voltage of 0.5V to 1.25V applied to DIM (pin 4) controls the amplitude of the lamp current.

Internal LPWM dimming control is determined by resistor R8 and capacitor C14 connected to LCT. The low frequency sawtooth waveform is compared with the voltage at DIM to generate the LPWM signal. The peak and valley of the waveform are 1.5V and 0.1V respectively. The frequency is approximated by the following equation:

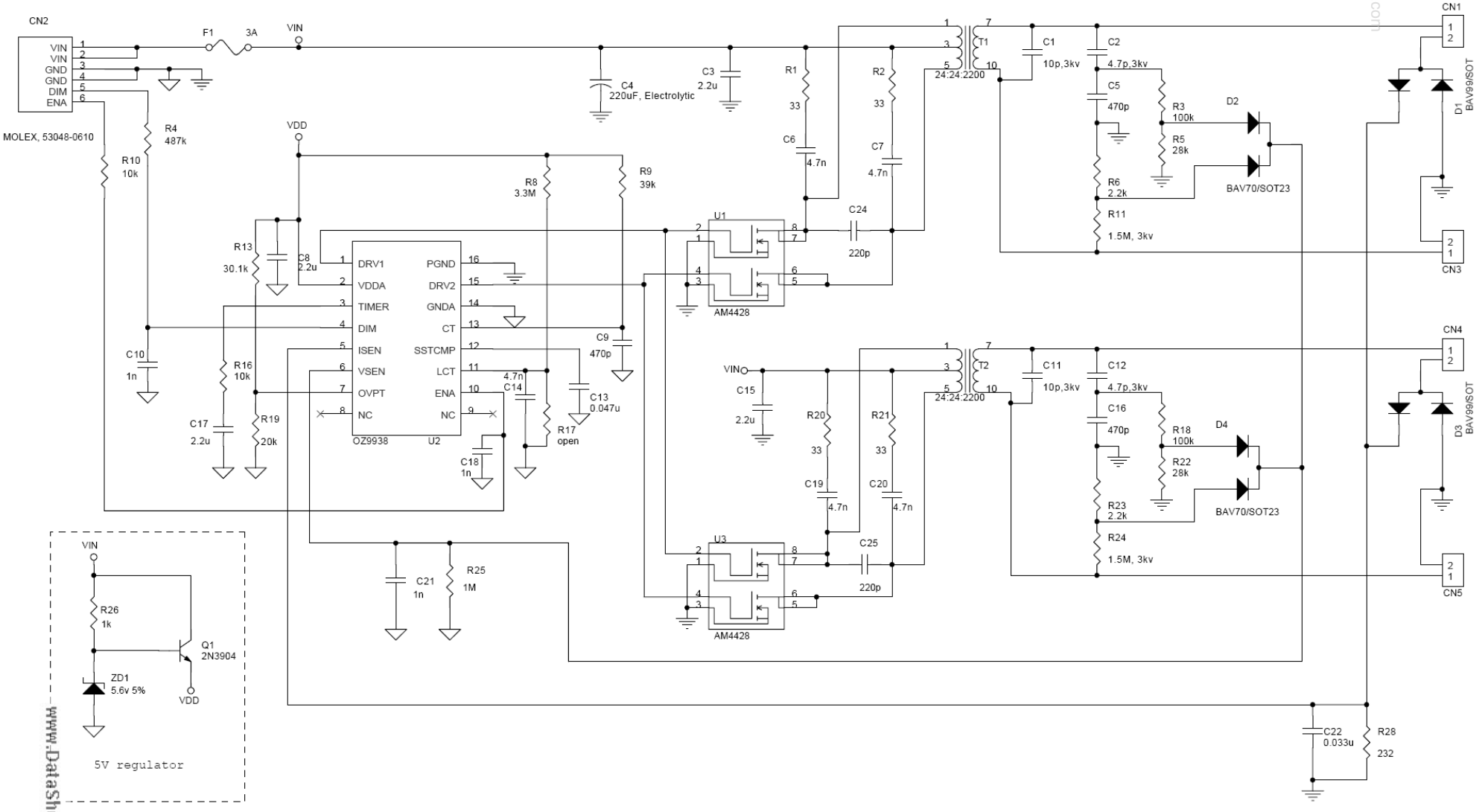
$$f_{LOSC} = \frac{3102}{R_{LCT}\,[M\Omega]*C_{LCT}[nF]} \quad [Hz]$$

With positive PWM dimming polarity, the LPWM duty cycle will be 100% when DIM pin voltage is higher than 1.5V. LCD panel will have maximum brightness. When DIM pin voltage is lower than 0.1V, the LPWM duty cycle will be 0%. LCD panel will be totally dark.

External PWM dimming is implemented by setting LCT to a DC voltage between 0.5V to 1.0V using a resistor divider (R8 and R17) between VDDA and GND. Apply the external PWM pulse to DIM (pin 4).

.

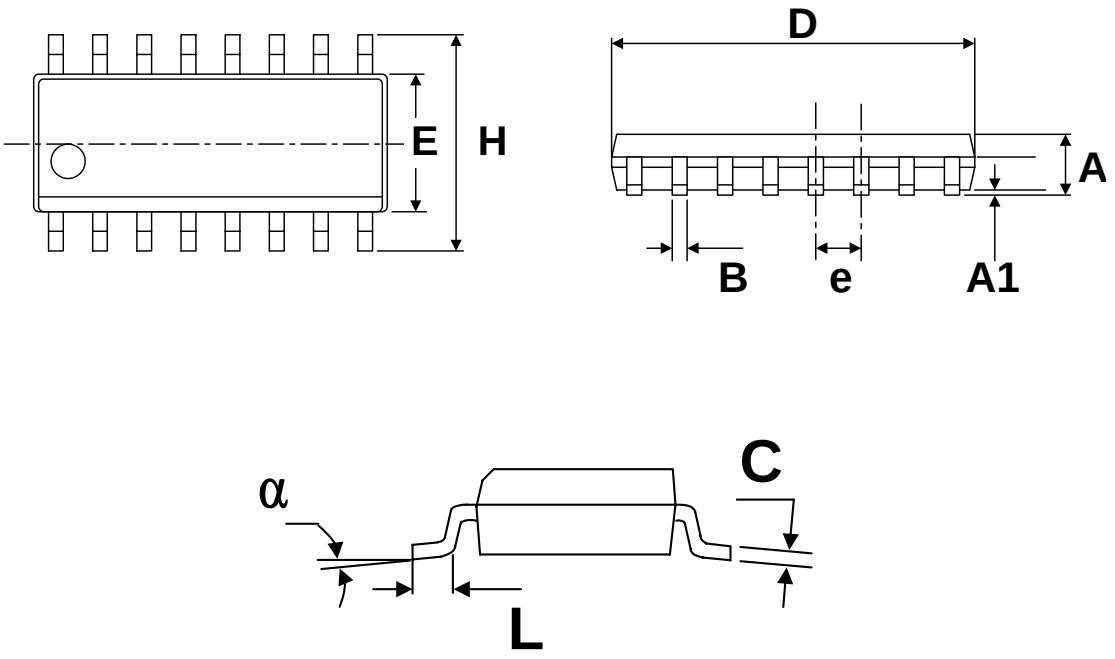
REFERENCE APPLICATION CIRCUIT



VIN: 10.8V---13.2V
ENA: 0V---1.0V, disable. 2.0V---5.0V, Enable
DIM: 0.2V---1.6V; 0.2V, minimum brightness; 1.6V, maximum brightness

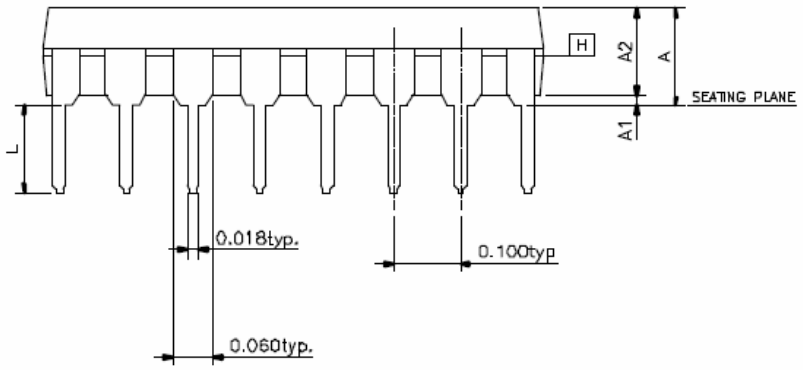
Figure 2

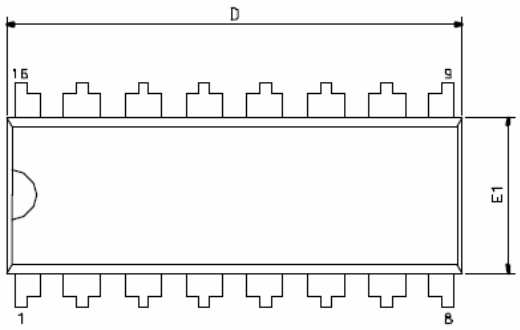
PACKAGE INFORMATION – 16-PIN SOP: OZ9938G (150mil)

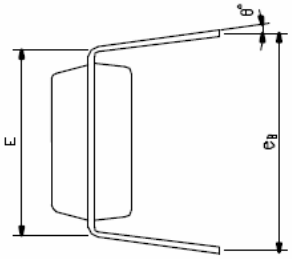


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.0532	0.0688	1.35	1.75
A1	0.0040	0.0098	0.10	0.25
B	0.013	0.020	0.33	0.51
C	0.0075	0.0098	0.19	0.25
D	0.3859	0.3937	9.80	10.00
E	0.1497	0.1574	3.80	4.00
e	0.050 BCS.		1.27 BCS.	
H	0.2284	0.2440	5.80	6.20
L	0.016	0.050	0.40	1.27
α	0°	8°	0°	8°

PACKAGE INFORMATION – 16-PIN DIP: OZ9938D (300mil)







SYMBOLS	MIN.	NOR.	MAX.
A	–	–	0.210
A1	0.015	–	–
A2	0.125	0.130	0.135
D	0.735	0.755	0.775
E	0.300 BSC.		
E1	0.245	0.250	0.255
L	0.115	0.130	0.150
e_B	0.335	0.355	0.375
θ°	0	7	15

UNIT : INCH

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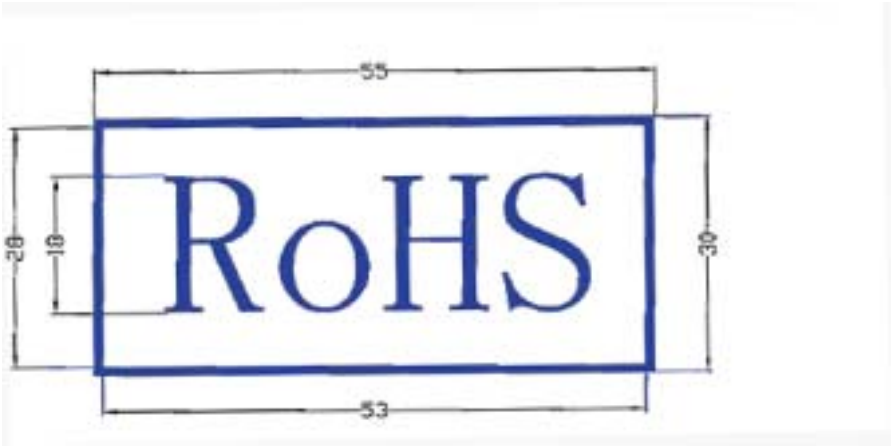
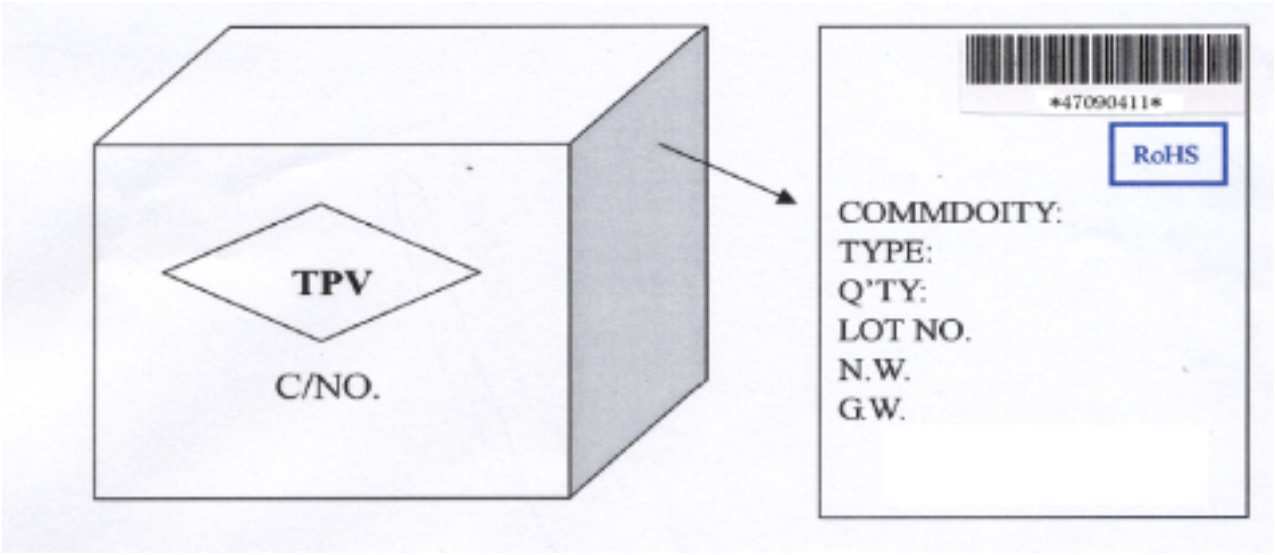
MICRO

Label Size



字體：藍色宋體”RoHS”需垂直居中，水平居中

#Carton



Carton size:Anomaly

#TPV RoHS product stick RoHS blue word seal on the upper-right corner of the side mark of carton

To: Top Victory Electronics (Fujian) Co.,Ltd

Date:

Company: O2Micro Electronics, Inc
Address: 3118, Patrick Henry Drive,
Santa Clara, CA 95054, USA
Product name: Inverter IC

Guarantee of compliance regarding six Hazardous Substances

Top Victory Electronics (Fujian) Co.,Ltd

We (includes our subsidiary, affiliated company) here guarantee that all the components and parts shipped to you (includes directly shipping or via third parties) are in accordance with below limitation.

Hazardous substance	limitation
1. Cadmium and cadmium compounds	5ppm
2. Lead and lead compounds	100ppm (For solder bar:1000ppm)
3. Mercury and mercury compounds	1000ppm
4. Hexavalent chromium compounds	1000ppm
5. Polybrominated biphenyls (PBB)	1000ppm
6. Polubrominated diphenylethers (PBDE)	1000ppm
7. $Cd+Pb+Hg+Cr^{+6}$	100ppm (Only for packing material together with TPV production to market.)

Note:

1. Please refer to file named "specification and explanation relating with hazardous substance of TPV.PPT" for exemption items from the requirements of applications of lead, mercury, cadmium and hexavalent chromium.
2. In witness where of the above Guarantee has been duly exercised by the company's fully authorized representative signed below.

Signature: Wayne Anderson

Name: Wayne Anderson

Position: Quality Director

*Need to affix the official seal, afford by the post or fax.

3

原材料及原材料厂家调查表

零件类别:

TPV P/N (泛腿料号)	ITEM (品名)	RAW MATERIAL (部件/原材料/辅助材料名称)	RAW MATERIAL SUPPLIER (供应商名称)	Address (大致地址)	铅含量 (ppm)	SGS或ITS测试报告号码	铅含量 (ppm)	SGS或ITS测试报告号码	六价铬含量 (ppm)	SGS或ITS测试报告号码	汞含量 (ppm)	SGS或ITS测试报告号码	PBB/PBDE含量 (ppm)	SGS或测试报告号码
		IC	OZ960GN	CA, USA	0	CE/2004/51663		CE/2004/51663	0	CE/2004/51663	0	CE/2004/51663	0	CE/2004/51663

☆ 备注:

☆ 请填写该类零部件用到的所有部件、原材料、辅助材料的详细信息;

☆ 必须详细、正确的填写部件,原材料,辅助材料的供应商名称、材料型号;

☆ 请填写6种环境管理物质含量和对应的SGS或ITS的检测报告号码;

☆ 如果有些部分未有ICP检测报告,需请提报检测计划;

☆ 有ICP检测报告,但是不符合限定值要求的部分,需请提报改善计划。

主管/职位: Wayne Anderson/ Quality Director

公司全称: 02Micro International ltd.

公司公章: 02Micro International Ltd.

Post-it® Fax Note 7671	Date 5/9/05	# of pages ▶ 1
To Ms. 鄭倩珊	From Sophia	
Co./Dept.	Co. O2 Micro	
Phone #	Phone # 2565095 x820	
Fax # 8226 2886	Fax #	

ATTN: Sophia C.C. Akila Tsai From: HS-Shawn

RoHS 零件 可焊性 / 耐焊接熱 標準

一 DIP 零件 , Wave Solder 要求

可焊性規格 : 條件: 溫度 255 -5/+0 ℃ 時間 2.5±0.5 sec
判定: 引腳沾錫面積 90% 以上
詳細參數見附件 [RoHS 零件可焊性標準]

耐焊接熱規格 : 條件: 溫度 270 -0/+2 ℃ 時間 10±0.5 sec [端子]
條件: 溫度 270 -0/+2 ℃ 時間 20±0.5 sec [本體]
判定: 機械特性 電器特性符合規格定義要求
詳細參數見附件 [RoHS 零件耐焊接熱標準]

二 SMD 零件 , Solder Reflow 要求

可焊性規格 : 條件: 溫度 255 -5/+0 ℃ 時間 2.5±0.5 sec
判定: 引腳沾錫面積 90% 以上
詳細參數見附件 [RoHS 零件可焊性標準]

耐焊接熱規格 : 條件: 溫度 265 -0/+5 ℃ 時間 10 -0/+5 sec ← 此部份為 >50°C only.
判定: 機械特性 電器特性符合規格定義要求
詳細參數見附件 [RoHS 零件耐焊接熱標準]

參考附件
一 RoHS 零件可焊性標準
二 RoHS 零件耐焊接熱標準

此份規格 納入各 RoHS 零件承認書內

供應商名稱 O2Micro Electronics Inc.

負責人 QA Director / Wayne Anderson

簽章 Wayne Anderson

2-02