LITEON

LITE-ON TECHNOLOGY CORP.

PNC SBG Peripherals SBU.

APPROVAL SHEET NO : RDAP07050398A

ISSUE DATE: MAY 09 2007 APP'DSH REV: A

COMPONENT APPROVAL SHEET

PART NO	(758857) 32-PS224A74-ROHS
SPECIFICATION REV.	A
FIRST USE	PS-6241-4HP-ROHS
MAKER	SITI
MAKER P/N	PS224A
DESCRIPTION	IC PG 16P PS224A DIP

GREEN LITEON

* 此材料已符合 liteon ROHS 規范 LS-301 及 lead free 要求

證明文件詳見: NOTES\CE 公告\厂商技術資料

REMARKS:

1. THE PURPOSE OF APPROVAL:(此份承認書發行目的):
   - ☑ NEW COMPONENT, TIGHTEN UP ON CHECK.(新零件承認，第一次使用。請加強檢驗！)
   - ☐ RUNNING CHANGE. THE APPROVAL SHEET NO: _____VOID WHEN STOCK QT'Y: _____IS COMPLETE. (消耗庫存後，規格變更，前承認書作廢)
   - ☐ _____CHANGE IMMEDIATELY. THE APPROVAL SHEET NO: _____VOID. (規格立即變更，前承認書作廢)
   - ☐ AVL REVISE. THE APPROVAL SHEET NO: _____VOID.(修訂廠商一覽表，前承認書作廢)
   - ☐ ONLY ADDED NEW PART NUMBER, SPEC NO CHANGE THE APPROVAL SHEET NO: _____VOID. (只增加料號規格不變，前承認書作廢)
2. DISTRIBUTION: ☑ PUR ☑ VENDOR:_____
3. MAKER PACKING METHOD(來料的包裝方式): ☐REEL TAPING(卷軸) ☐BOX TAPING(盒裝) ☑AMMO(彈夾) ☐BULK(散裝) ☐TUBE(管狀) ☐TRAY(盤式) ☐不需規定
4. WEIGHT: 0.48 g/pcs
5. Any material or dimension or manufacturing place or electric characteristics change shall not violate LITE-ON SCD (specification control drawing) list. When any changed, ECR (engineering change request)must be proposed to LITE-ON CE , then submitted for testing by a vendor and approved by LITE-ON CE engineer! Or vender will be responsible for all issue.

Remark *Soldering Resistance To Heat: 260℃/10s

****REFLOW PROFILE SEE NOTES: / CE 公告/厂商技術資料/Reliability test report***

****Lead Plating: Sn***

FINAL DISPOSITION:

☑APPROVED

☐ CONDITIONALLY APPROVED_____ Q'TY.

NOTE :
- ☑ Approval sheet totaled 16 pages.
- ☑ Specification control drawing totaled 12 pages.
- ☑ Test data sheet totaled 1 pages.
- ☑ Attached samples are for IQC reference.
- ☐ Maker must attach certificate of material and safety license to every lot.
- ☐ Having the following safety license

☐ UL ( ) ☐ IMQ ( ) ☐ KEMA ( )
☐ CSA ( ) ☐ BSI ( ) ☐ NEMKO ( )
☐ TUV ( ) ☐ OVE ( ) ☐ DEMKO ( )
☐ VDE ( ) ☐ CUL ( ) ☐ FIMKO ( )
☐ SEV ( ) ☐JET ( ) ☐ SEMKO ( )
☐ CB REPORT ( ) ☐ KTL ( ) ☐ CCC ( )
☐ ENEC ( ) ☐ OTHER ( )

SIGNATURE	
CE ENGR	蔡鄂/陳昌慧 05/04'07
SAFETY DEPT.	5/9'07
DE / ME DEPT.	陳志泰 5/9'07 2007.05.10
DE / ME APPROVED BY	Eric Lin 5/8'07
LAYOUT DEPT. FOR PCB ONLY	
APPROVED BY	Bryan Fan 05/04'07

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APPROVAL REVISIONS

DOC NO:	REV.	DESCRIPTION	DATE	MADE BY	CHKD BY
	A	INITIAL	05/04'07	蔡鄂	陳昌慧

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APPROVED VENDER LIST

SPEC REV.		FINAL APP'D	COND APP'D	MAKER	MAKER P/N	MANUFACTURING PLACE	CE ENGR	APP'D DATE
A		✓		SITI	PS224A		蔡鄂	05/04'07

NOTE: THE MARK " * " MEANS THAT THE MAKER WAS APPROVED WITHOUT SAMPLES.

SITI: SILICON TOUCH TECHNOLOGY INC.

AVL 嚴禁對外發行

LITEON

COMPONENT TEST DATA SHEET

CONCLUSTON:

☑ APPROVAL ☐ CONDITION APPROVED ☐ REJECTED

LITE-ON P/N:(758857) 32-PS224A74-ROHS

TEST CONDITION: 25℃ 65 RH

MAKER:SITI

ITEM	SPEC	SAMPLE NO.				
		1	2	3	4	5
MODEL:PS-6241-4HP-ROHS 實裝測試:(焊錫性測試)	TEST CONDITION:(NOM) 預熱溫度: 115+/-25℃ 錫爐溫度: 235+/-10℃ 輸送速度: 85+/-5 cm/min	OK	OK	OK	OK	OK

Test equipment:

1. MILLIOHMMETER: _____
2. DC SOURCE: _____
3. HI-POT TESTER: _____
4. L.C.R METER: _____
5. MEGOHMMETER: _____

Reject Reason:

TESTED BY: 蔡鄂 05/04'07 CHECK BY: 陳昌鼕 05/04'07

NPS-MR-C030

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CL CODE	PART NO.	REV.
32	(758857) 32-PS224A74-ROHS	A

SPECIFICATION CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED : DIMENSIONS ARE IN mm. TOLERANCE : ANGLES: ±0.5° DECIMALS: .X ± 0.3 XX ± 0.10	**TITLE:** **4-CHANNEL SECONDARY MONITORING IC** **PS224A**			
SCALE DRAWNING: NONE			SHEET 1 OF 12	

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PNC SBG Peripherals SBU.

RECORD OF REVISION

DOC NO.	REV.	PAGES AFFECTED	DESCRIPTION ITEMS BE CHANGED OVER , (FROM / T0)	DATE	ENGINEER
	A		INITIAL:	05/04'07	蔡鄂

NOTE: SPEC REV. EXPRESSION RULES:
1. BEFORE THE YELLOW BOOK RELEASE: X1, X2, X3...
2. AFTER THE YELLOW BOOK RELEASE : A, B, C...

SPECIFICATION CONTROL DRAWING	SIZE A4	MODEL NAME: PS-6241-4HP-ROHS PARTNO. (758857) 32-PS224A74-ROHS	REV A	SHEET 2

PS224A

Version : ***A.001***
Issue Date : ***2006/12/26***
File Name : ***SP-PS224A-A.001.doc***
Total Pages : ***10***

4-Channel Secondary Monitoring IC

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SILICON TOUCH TECHNOLOGY INC.
9-7F-1, Prosperity Road I, Science Based Industrial Park,
Hsin-Chu, Taiwan 300, R.O.C.
Tel : 886-3-5645656 Fax : 886-3-5645626

PS224A

4-Channel Secondary Monitoring IC

General Description

PS224A is specially designed for switching power supply system. Four important functions of PS224A are the followings: over-voltage protection, over-current protection, under-voltage protection and power good signal generating.

OVP/UVP (Over-Voltage/Under-Voltage Protection) monitors 3.3V, 5V and dual 12V to protect our power supply and PC, FPO/ goes to high when one of these supply voltages exceeds their normal operation voltage range.

OCP (Over Current Protection) monitors IS33, IS5, IS12A, IS12B input current sense. An adjustable over-current condition composed of Iref and "protection current range resistor" helps users design OCP easily.

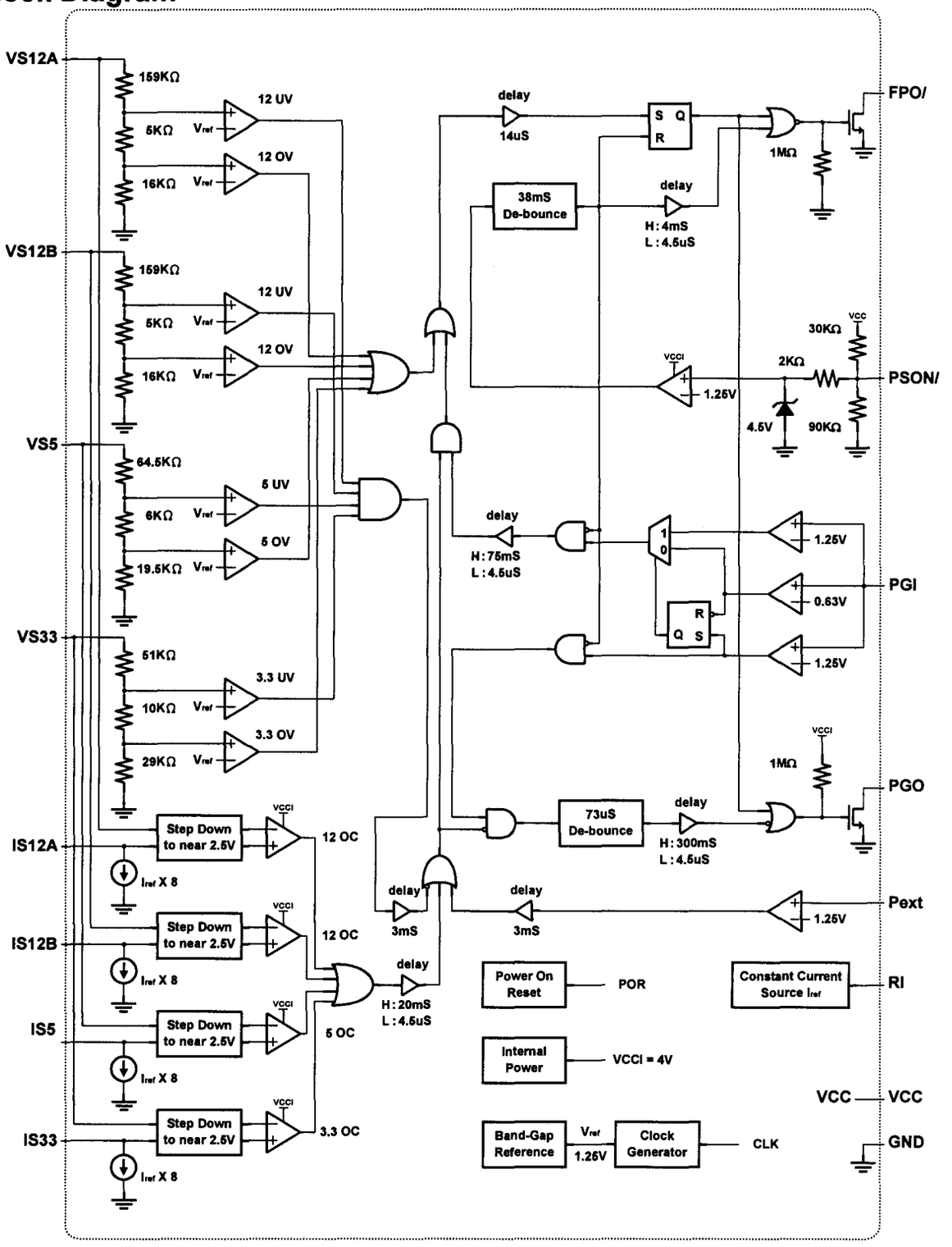
An additional protection input pin provides the flexibility for design protection circuit.

Power good signal generating notifies personal computer when power supply is ready or power supply is going to shutdown, therefore it can provide a reliable power supply environment.

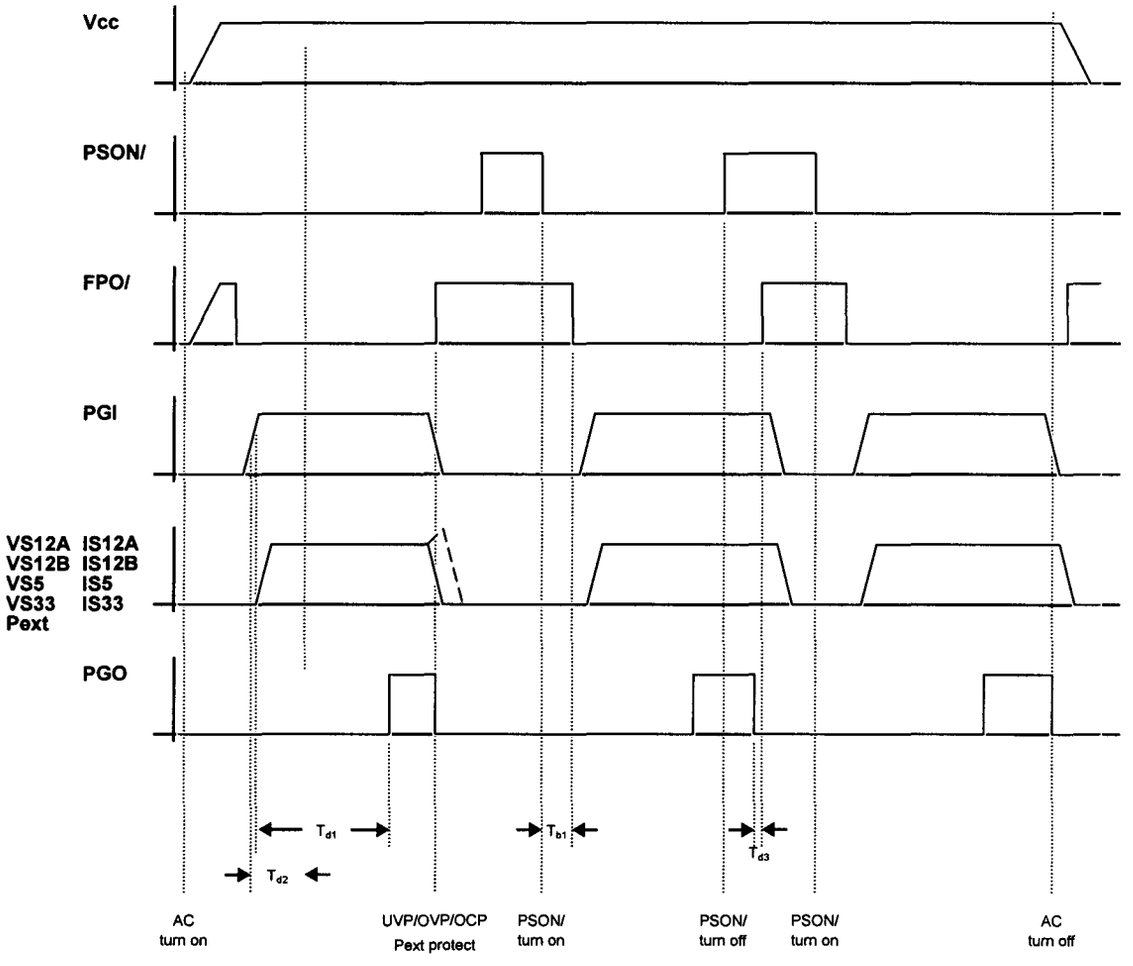
Features

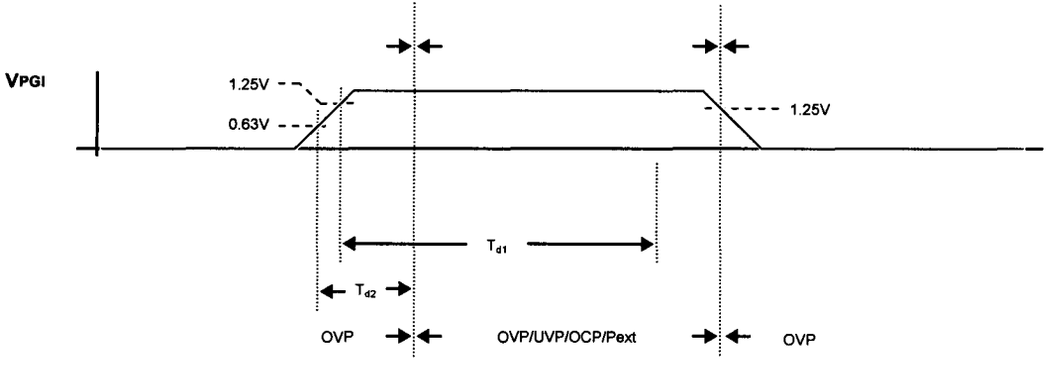
- Over/Under-voltage protection and lock out
- Over-current protection and lock out
- Additional protection input
- Fault protection output with open drain output stage
- Open drain power good output signal for power good input
- Built-in 300mS power good delay
- AC on 75ms delay for UV/OC protection
- 38mS PSON/ control de-bounce
- Wide power supply range (3.8V~16V)
- Special care for AC power off

Block Diagram



Timing Chart





Pin Descriptions

Pin No	PIN NAME	Descriptions
1	PGI	Power good input signal pin
2	GND	Ground
3	FPO/	Inverted fault protection output ,open drain output stage
4	PSON/	Remote ON/OFF control input pin
5	IS12A	12V(1) over current protection input pin
6	RI	Current sense setting
7	IS12B	12V(2) over current protection input pin
8	VS12B	12V(2) over/under voltage protection input pin
9	Pext	External protection detect input pin
10	IS5	5.0V over current protection input pin
11	IS33	3.3V over current protection input pin
12	VS12A	12V(1) over/under voltage protection input pin
13	VS33	3.3V over/under voltage protection input pin
14	VS5	5.0V over/under voltage protection input pin
15	VCC	Power supply
16	PGO	Power good output signal pin , open drain output stage

Absolute Maximum Ratings

Parameter			Rating			Unit
Storage Temperature	(T_{stg})		-40	to	+125	°C
Operating Temperature	(T_{opr})		-30	to	+90	°C
Supply Voltage	(V_{CC})	VCC	-0.5	to	+16.0	V
Input Voltage Range	(V_I)	VS12A, VS12B, IS12A,IS12B	-0.5	to	+16.0	V
		VS5, IS5	-0.5	to	+9.0	V
		VS33, IS33	-0.5	to	+7.0	V
		PGI	-0.5	to	+16.0	V
		PSON/, Pext	-0.5	to	Vcc+0.5	V
Output Voltage Range	(V_O)	FPO/	-0.5	to	Vcc+0.5	V
		PGO	-0.5	to	Vcc+0.5	V
Output Current for RI	(I_{RI})	RI	12.5	to	62.5	uA
ESD Susceptibility*	(V_{ESD})	PSON/, PGO		>	5000	V
		FPOB, VS12A, VS12B		>	2000	V
		PGI, IS12A,IS12B, VS5		>	3000	V
		Others		>	4000	V

*** Human Body Model (HBM).**

Electrical Characteristics, Vcc=12V, T_a = 25°C. (unless otherwise specified)

Power Supply Section

Parameter	Conditions	MIN	TYP	MAX	Unit
Supply Voltage		3.8	5.0	16.0	V
Supply Current	$V_{PSON/}$ = 5V		4.5	5.0	mA
Power On Reset Threshold Voltage (V_{POR})		3.2	3.4	3.6	V
Power On Reset Hysteresis (V_{HYST})		-0.15	-0.3	-0.45	V

Over-Voltage Section

Parameter		Conditions	MIN	TYP	MAX	Unit
Over-Voltage Threshold	VS33		3.8	3.9	4.0	V
	VS5		5.6	5.8	6.0	V
	VS12A/B		13.5	14.0	14.2	V

Under-Voltage Section

Parameter		Conditions	MIN	TYP	MAX	Unit
Under-Voltage Threshold	VS33		2.8	2.9	3.0	V
	VS5		4.2	4.4	4.6	V
	VS12A/B		10.3	10.8	11.0	V

Over-Current Section

Parameter		Conditions	MIN	TYP	MAX	Unit
Offset Voltage	VS33, VS5		-5	0	3	mV
	VS12A/B		-5	0	1	mV
Constant Current Generator Voltage (V_{RI})			1.20	1.25	1.30	V

PGI, Analog Input

Parameter	Conditions	MIN	TYP	MAX	Unit
Threshold Voltage for start T_{d1}		1.16	1.25	1.33	V
Threshold Voltage for start T_{d2}		0.60	0.63	0.75	V
Threshold Voltage for mask OC,UV		1.16	1.25	1.33	V
Hysteresis (V_{HYST})*		+/-20	+/-50	+/-80	mV

*** All of the comparator for PGI input in block diagram.**

Electrical Characteristics (Continued)

PGO, Open Drain Digital Output

Parameter	Conditions	MIN	TYP	MAX	Unit
Leakage Current (I_{LKG})	V_{PGO}=5V			5	uA
Low Level Output Voltage (V_{OL})	I_{SINK}=10mA			0.3	V

FPO/, Open Drain Digital Output

Parameter	Conditions	MIN	TYP	MAX	Unit
Leakage Current (I_{LKG})	$V_{FPO/}$=5V			5	uA
Low Level Output Voltage (V_{OL})	I_{SINK}=20mA			0.3	V

PSON/, Analog Input

Parameter	Conditions	MIN	TYP	MAX	Unit
Threshold Voltage		1.16	1.25	1.33	V
Hysteresis (V_{HYST})		20	50	80	mV

External Protection Detect Section

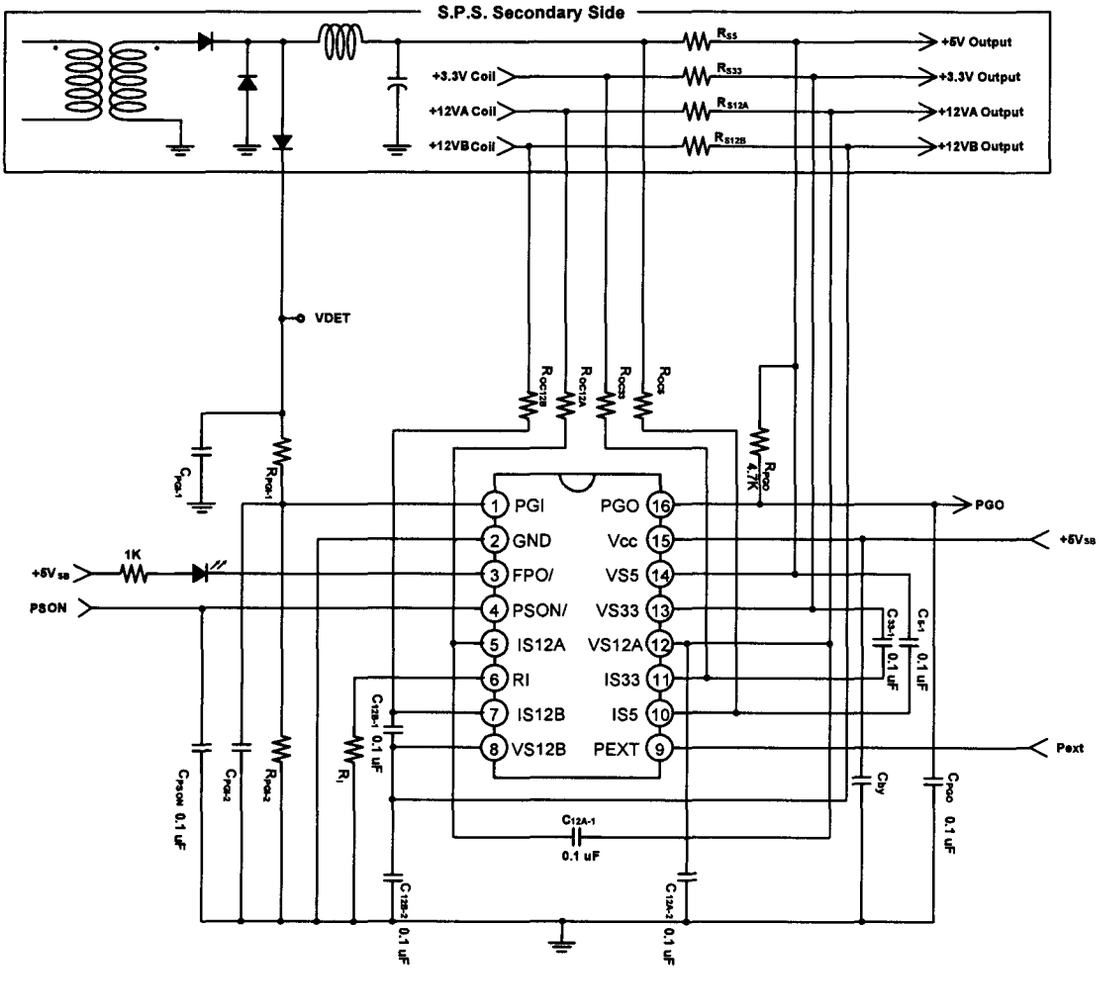
Parameter	Conditions	MIN	TYP	MAX	Unit
Threshold(V_{TH})		1.20	1.25	1.30	V
Hysteresis (V_{HYST})		-20	-50	-80	mV

Switching Characteristics, Vcc=12V, T_a = 25°C.

Parameter	Conditions	MIN	TYP	MAX	Unit
PGI to PGO Delay Time (T_{d1})		200	300	400	mS
Short Circuit Delay Time (T_{d2})		49	75	100	mS
PGO to FPO/ Delay Time (T_{d3})		2	4	6	mS
Under Voltage Delay Time (T_{d4})		2.6	3	3.6	mS
Over Current Delay Time (T_{d5})		13	20	27	mS
Over Voltage Delay Time (T_{d6})		9	14	19	uS
Pext Delay Time (T_{d7})		2.6	3	3.6	mS
PSON/ De-bounce Time (T_{b1})		24	38	52	mS
PGO Noise De-glitch Time (T_{b2})		47	73	100	uS

Application

Typical 4 rails SPS



Notes:

1. Zener diode or resistor or both of them can be used in component X.
2. The bypass capacitor C_{by} suggests to be 0.1uF~ 10uF and layout nearby pin VCC.
3. The recommend sense values of $R_{S12(1)}$, $R_{S12(2)}$, R_{S5} and R_{S33} are $\geq 0.002\Omega$.
4. Over-Current Protection design example:

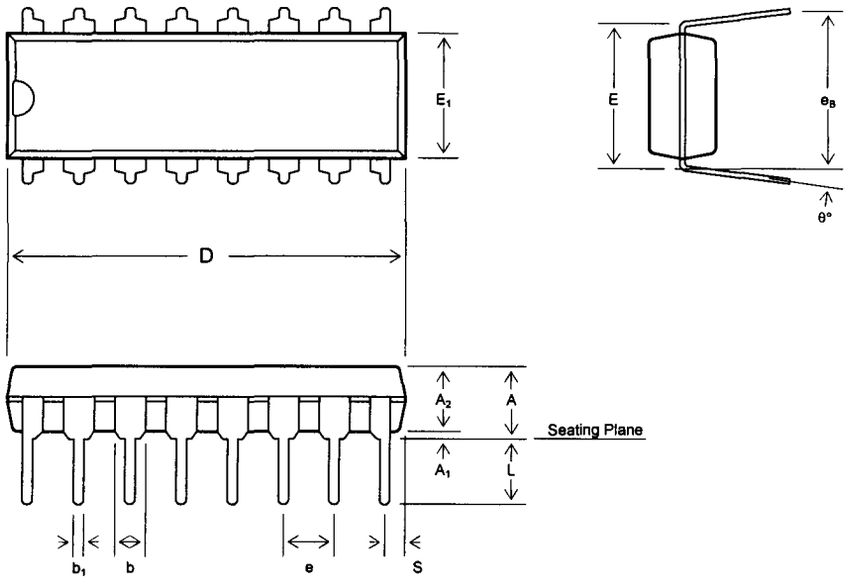
   (1) $I_{ref} = 20\mu A$, $R_I = \dfrac{V_{RI}}{I_{RI}} = \dfrac{1.25}{20\mu} = 62.5K(\Omega)$

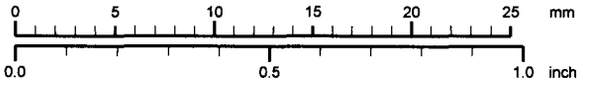
   (2) $R_{S5}=0.002\Omega$, $\Delta V_{5V} = 0.002 \times I_{+5V} = R_{OC5} \times 8 \times I_{ref}$

   (3) If +5V OCP trip point is 20A, $R_{OC5} = \dfrac{0.002 \times 20}{8 \times 20\mu} = 250(\Omega)$

Package Specification

(16-pin DIP)





Symbol	Dimension in mm			Dimension in inch			NOTE
	Min	Normal	Max	Min	Normal	Max	
A			5.33			0.210	
A_1	0.38			0.015			
A_2		3.30			0.130		
b	1.4	1.5	1.6	0.055	0.059	0.063	
b_1	0.38	0.48	0.58	0.015	0.019	0.023	
D	18.67	19.20	19.69	0.735	0.756	0.775	
E	7.37	7.62	7.87	0.290	0.300	0.310	
E_1	6.05	6.30	6.55	0.238	0.248	0.258	
e	2.19	2.54	2.89	0.086	0.100	0.114	
E_B	7.32	8.40	9.53	0.288	0.331	0.375	
L	2.54	2.92	3.81	0.100	0.115	0.150	
S		1.80			0.074		
θ°	0	7	15	0	7	15	

The products listed herein are designed for ordinary electronic applications, such as electrical appliances, audio-visual equipment, communications devices and so on. Hence, it is advisable that the devices should not be used in medical instruments, surgical implants, aerospace machinery, nuclear power control systems, disaster/crime-prevention equipment and the like. Misusing those products may directly or indirectly endanger human life, or cause injury and property loss.

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