

# FPF2895C

## 28 V / 5 A Rated Current Limit Switch with OVP and TRCB

### Description

The FPF2895C features a 28 V and 5 A rated current limit power switch, which offers Over-Current Protection (OCP), Over-Voltage Protection (OVP), and True Reverse Current Block (TRCB) to protect system. It has low On-resistance of typical 27  $\Omega$ m with WL-CSP can operate over an input voltage range of 4 V to 22 V.

The FPF2895C supports  $\pm 10\%$  of current limit accuracy, over-current range of 500 mA to 2 A and  $\pm 5\%$  of current limit accuracy, over-current range of 2 A to 5 A, flexible operations such as selectable OVP, selectable ON polarity and selectable OCP behavior, which can be optimized according to system requirements.

The FPF2895C is available in a 24-bump, 1.67 mm x 2.60 mm Wafer-Level Chip-Scale Package (WL-CSP) with 0.4 mm pitch.

### Features

- 28 V / 5 A Capability
- Wide Input Voltage Range: 4 V ~ 22 V
- Ultra Low On-Resistance
  - ◆ Typ. 27 m $\Omega$  at 5 V and 25 °C
- Adjustable Current Limit with external RSET
  - ◆ 500 mA ~ 5 A
- Selectable OVLO with OV1 and OV2 Logic Input
  - ◆ 5.95 V  $\pm$  50 mV
  - ◆ 10 V  $\pm$  100 mV
  - ◆ 16.8 V  $\pm$  300 mV
  - ◆ 23 V  $\pm$  460 mV
- Selectable ON Polarity
- Selectable Over-Current Behavior
  - ◆ Auto-Restart Mode
  - ◆ Current Source Mode
- True Reverse Current Block
- Thermal Shutdown
- Open Drain Fault FLAGB Output
- UL60950-1 & IEC 60950-1 Certification 5 A Max Loading
- Robust ESD Capability
  - ◆ 2 kV HBM & 1 kV CDM
  - ◆ 15 kV Air Discharge & 8 kV Contact Discharge under IEC 61000-4-2

### Applications

- Laptop, Desktop Computing and Monitor
- Power Accessories



ON Semiconductor®

[www.onsemi.com](http://www.onsemi.com)



WLCSP24 2.6x1.67x0.612  
CASE 567TQ

### PIN CONFIGURATION

	1	2	3	4
A	NC	ON	FLAGB	POL
B	GND	OCM ODE	OV	GND
C	ISET	VOUT	VIN	OV2
D	VOUT	VOUT	VIN	VIN
E	VOUT	VOUT	VIN	VIN
F	VOUT	VOUT	VIN	VIN

### ORDERING INFORMATION

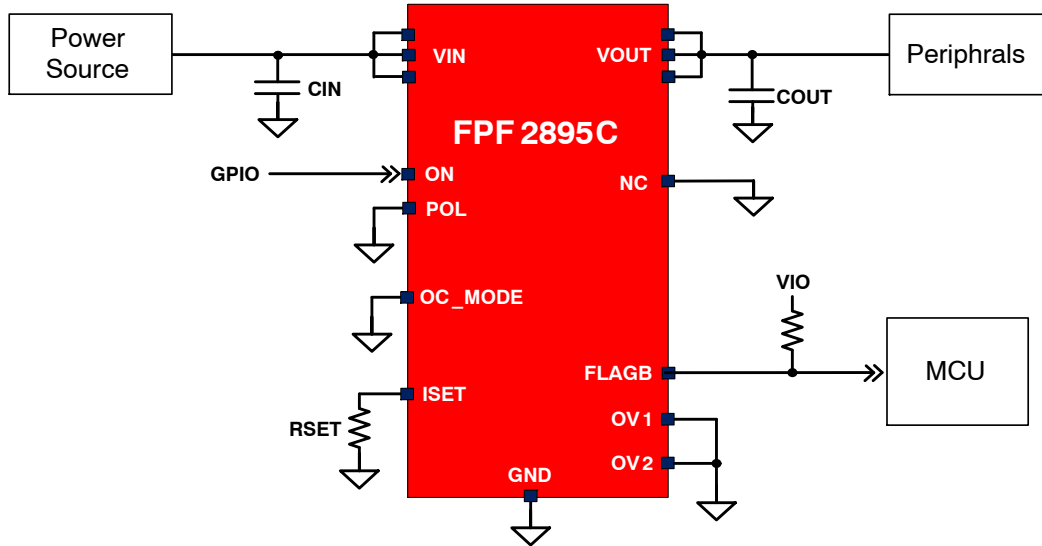
See detailed ordering and shipping information on page 2 of this data sheet.

# FPF2895C

**Table 1. ORDERING INFORMATION**

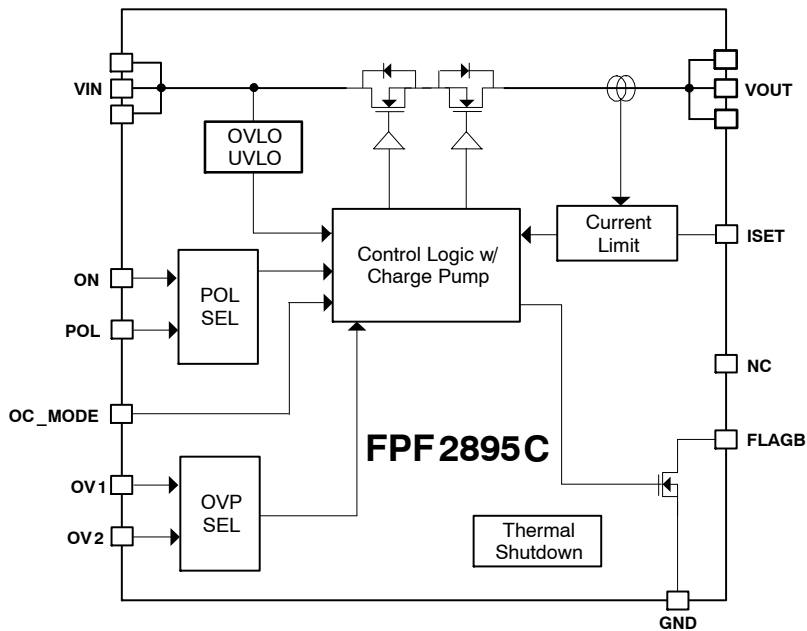
Part Number	Operating Temperature Range	Top Mark	Package	Packing Method
FPF2895CUCX	-40°C – +85°C	3G	24-Ball, 0.4 mm Pitch WLCSP	Tape & Reel

## Application Diagram



**Figure 1. Typical Application**

## Block Diagram



**Figure 2. Functional Block Diagram**

PIN CONFIGURATION

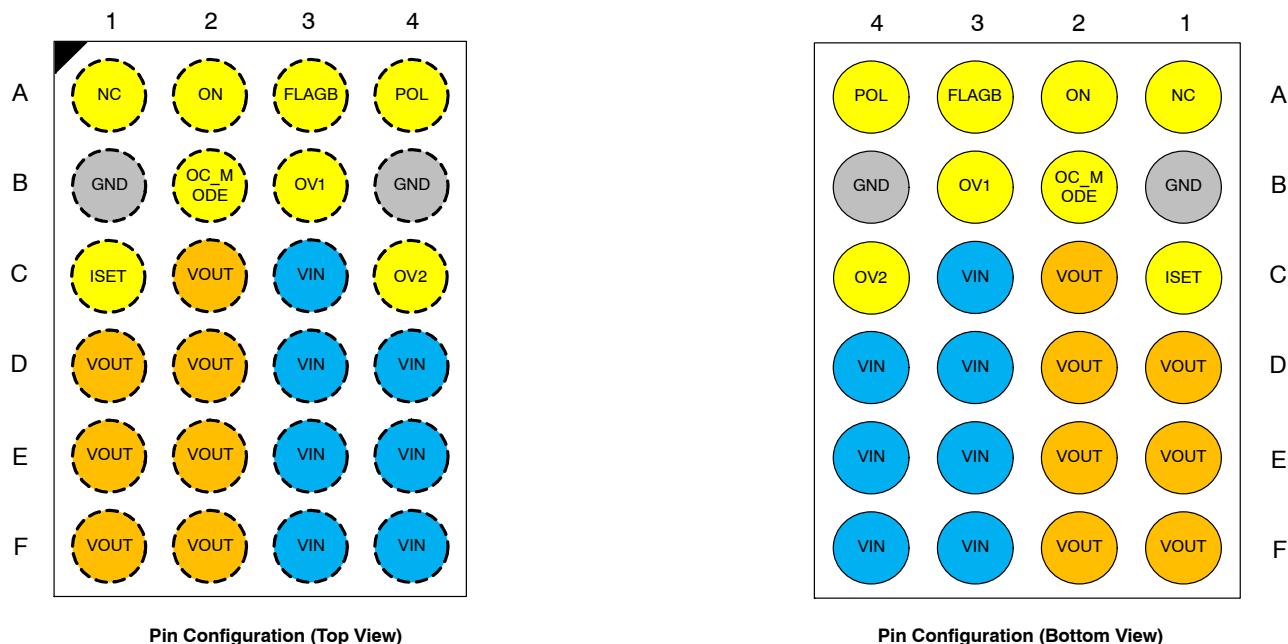


Figure 3. 24 Ball WL\_CSP, 4 x 6 Array, 0.4 mm Pitch, 250 μm Ball

Table 2. PIN DEFINITIONS

Name	Bump	Type	Description
VIN	C3, D3, D4, E3, E4, F3, F4	Input/Supply	Switch Input and Device Supply
VOUT	C2, D1, D2, E1, E2, F1, F2	Output	Switch Output to Load
NC	A1	Dummy	Recommended to connect to GND
ON	A2	Input	Internal pull-down resistor of 1 MΩ is included. Active polarity is depending on POL state (Note 1)
POL	A4	Input	Enable Polarity Selection. Internal pull/up of 1 MΩ is included. HIGH (or Floating): Active LOW LOW: Active HIGH (Note 1)
FLAGB	A3	Output	Active LOW. VBUS to SYS path only. Internal pull-down resistor of 1 MΩ is included.
ISET	C1	Input	A resistor from ISET to ground set the current limit for the switch. See below selection Table 6.
OC_MODE	B2	Input	OCP behavior can be selected. Internal pull-up of 1 MΩ is included. HIGH (or Floating): Auto-restart mode during over-current condition. LOW: Current source mode during over-current condition. (Note 1)
OV1	B3	Input	Over-Voltage Selection Input 1. Internal pull-up of 1 MΩ is included and see below selection Table 7. (Note 1)
OV2	C4	Input	Over-Voltage Selection Input 2. Internal pull-up of 1 MΩ is included and see Table 7 (Note 1)
GND	B1, B4	GND	Device Ground

1. To avoid external noise influence when floating, recommend to connect these pins to a certain level.

# FPF2895C

**Table 3. ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Min.	Max.	Unit
V <sub>IN</sub> , V <sub>OUT</sub>	V <sub>IN</sub> , V <sub>OUT</sub> to GND	-0.3	28.0	V
V <sub>PIN</sub>	ON, POL, OC_MODE, ISET, FLAGB and OV <sub>n</sub> to GND	-0.3	6.0	V
I <sub>SW</sub>	Continuous Switch Current		5.5	A
t <sub>PD</sub>	Total Power Dissipation at T <sub>A</sub> = 25°C		2.08	W
T <sub>STG</sub>	Storage Junction Temperature	-65	+150	°C
T <sub>J</sub>	Operating Junction Temperature		+150	°C
T <sub>L</sub>	Lead Temperature (Soldering, 10 Seconds)		+260	°C
Θ <sub>JA</sub>	Thermal Resistance, Junction-to-Ambient (1in. <sup>2</sup> pad of 2 oz. copper)		60 (Note 2)	°C/W
ESD	Electrostatic Discharge Capability	Human Body Model, ANSI/ESDA/JEDEC JS-001	2	kV
		Charged Device Model, JESD22-C101	1	
	IEC61000-4-2 System Level	Air Discharge	15	
		Contact Discharge	8	

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

2. Measured using 2S2P JEDEC std. PCB.

**Table 4. RECOMMENDED OPERATING CONDITIONS**

Symbol	Parameter	Min.	Max.	Unit
V <sub>IN</sub>	Supply Voltage	4.0	22.0	V
C <sub>IN</sub> /C <sub>OUT</sub>	Input and Output Capacitance	1.0		μF
T <sub>A</sub>	Ambient Operating Temperature	-40	+85	°C

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

# FPF2895C

**Table 5. ELECTRICAL CHARACTERISTICS** (Unless otherwise noted,  $V_{IN}=4$  to 22 V,  $T_A=-40$  to 85°C; typical values are at  $V_{IN}=5$  V,  $C_{IN}=C_{OUT}=1$   $\mu$ F, ON=HIGH, POL=OV1=OV2=OC\_MODE=GND and  $T_A = 25^\circ\text{C}$ .)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit	
<b>BASIC OPERATION</b>							
$V_{IN}$	Input Voltage		4		22	V	
$I_{SD\_IN}$	$V_{IN}$ Shutdown Current	$V_{ON} = \text{OFF}$ , $V_{IN} = 5.5$ V, $V_{OUT} = \text{Short to GND}$		75	100	$\mu\text{A}$	
$I_Q$	Quiescent Current	$I_{OUT} = 0$ mA, $V_{ON} = \text{ON}$	$V_{IN} = 5$ V		270	330	$\mu\text{A}$
			$V_{IN} = 12$ V		300	400	
			$V_{IN} = 20$ V		350	450	
$R_{ON}$	On Resistance	$T_A = 25^\circ\text{C}$ , $I_{OUT} = 1$ A	$V_{IN} = 5$ V		27	39	$\text{m}\Omega$
			$V_{IN} = 12$ V		27	39	
			$V_{IN} = 20$ V		27	39	
$I_{ON}$	ON Input Leakage	$V_{ON} = V_{IN}$ or GND			10	$\mu\text{A}$	
$V_{IH}$	ON Input Logic High Voltage	$V_{IN} = 3$ V ~ 23 V	1.2			V	
$V_{IL}$	ON Input Logic Low Voltage	$V_{IN} = 3$ V ~ 23 V			0.4	V	
$V_{P\_LOW}$	FLAGB Output Logic Low Voltage	$V_{IN} = 5$ V, $I_{SINK} = 5$ mA		0.1	0.2	V	
$I_{LKG}$	FLAGB Output High, Leakage Current	$V_{IN} = 5$ V, Switch ON			1	$\mu\text{A}$	
<b>PROTECTIONS</b>							
$I_{LIM}$	Current Limit (Note 3)	$V_{IN} = 5$ V, $V_{OUT} = 4$ V, $R_{SET} = 3.01$ k $\Omega$ , $T_A = -40$ to 85°C	1.35	1.50	1.65	A	
		$V_{IN} = 5$ V, $V_{OUT} = 4$ V, $R_{SET} = 1.54$ k $\Omega$ , $T_A = -40$ to 85°C	2.85	3.00	3.15		
$V_{FOLD}$	ILIM Foldback Trip Voltage (Note 3)	$V_{OUT}$ under ILIM Mode		2		V	
$I_{FOLD}$	ILIM Foldback Current (Note 3)	$V_{IN} = 5$ V, $V_{OUT} < V_{FOLD}$ , $T_A = 25^\circ\text{C}$ , OC_MODE = HIGH		500		mA	
		$V_{IN} = 5$ V, $V_{OUT} < V_{FOLD}$ , $T_A = 25^\circ\text{C}$ , OC_MODE = LOW		250		mA	
$V_{UVLO}$	Under-Voltage Lockout	$V_{IN}$ Increasing		2.70	2.95	V	
		$V_{IN}$ Decreasing		2.5			
	UVLO Hysteresis			200		mV	
$V_{OVLO}$	Over-Voltage Lockout (Note 34)	OV1 = LOW, OV2 = LOW	$V_{IN}$ Rising	22.20	23.00	23.46	V
			$V_{IN}$ Falling	22.00			
		OV1 = LOW, OV2 = HIGH	$V_{IN}$ Rising	9.80	10.00	10.10	
			$V_{IN}$ Falling	9.75			
		OV1 = HIGH, OV2 = LOW	$V_{IN}$ Rising	16.30	16.80	17.10	
			$V_{IN}$ Falling	16.10			
		OV1 = HIGH, OV2 = HIGH	$V_{IN}$ Rising	5.85	5.95	6.00	
			$V_{IN}$ Falling	5.80			
$T_{OVP}$	OVP Response Time (Note 3)	$R_L = 100$ $\Omega$ , $C_L = 0$ $\mu\text{F}$ , $V_{IN} > V_{OVLO}$ to $V_{OUT} = 0.9 \times V_{IN}$			150	ns	
$V_{T\_RCB}$	TRCB Protection Trip Point	$V_{OUT} - V_{IN}$		25	40	mV	
$V_{R\_RCB}$	TRCB Protection, Release Point	$V_{IN} - V_{OUT}$		25	40	mV	

# FPF2895C

**Table 5. ELECTRICAL CHARACTERISTICS** (Unless otherwise noted,  $V_{IN}=4$  to 22 V,  $T_A=-40$  to 85°C; typical values are at  $V_{IN}=5$  V,  $C_{IN}=C_{OUT}=1$   $\mu$ F, ON=HIGH, POL=OV1=OV2=OC\_MODE=GND and  $T_A = 25^\circ$ C.)

$t_{RCB}$	TRCB Response Time (Note 3)	$V_{IN} = 5$ V, $V_{ON} =$ HIGH/LOW	5	$\mu$ s
$t_{RCB\_Release}$	TRCB Release Time (Note 3)	$V_{IN} = 5$ V, Enabled	1	$\mu$ s
$t_{OC}$	Over Current Response Time (Note 3)	$V_{IN} = 5$ V, Moderate OC	20	$\mu$ s
		$V_{IN} = 5$ V, Hard Short	5	
$I_{SD\_OUT}$	VO <sub>UT</sub> Shutdown Current	$V_{ON} =$ OFF, $V_{OUT} = 5$ V, $V_{IN} =$ Short to GND	2	$\mu$ A
TSD	Thermal Shutdown (Note 3)	Shutdown Threshold	150	$^\circ$ C
		Hysteresis	20	

## DYNAMIC BEHAVIOR

$t_{DON}$	Delay On Time	$R_L = 100$ $\Omega$ $C_L = 1$ $\mu$ F	1	ms
$t_R$	VO <sub>UT</sub> Rise Time	$R_L = 100$ $\Omega$ $C_L = 1$ $\mu$ F	1	ms
$t_{ON}$	Turn-On Time	$R_L = 100$ $\Omega$ $C_L = 1$ $\mu$ F	2	ms
$t_{DOFF}$	Delay Off Time	$R_L = 100$ $\Omega$ $C_L = 1$ $\mu$ F	10	$\mu$ s
$t_F$	VO <sub>UT</sub> Fall Time	$R_L = 100$ $\Omega$ $C_L = 1$ $\mu$ F	200	$\mu$ s
$t_{OFF}$	Turn-Off Time	$R_L = 100$ $\Omega$ $C_L = 1$ $\mu$ F	210	$\mu$ s
$t_{BLANK}$	Over-Current Blanking Time (Note 3)	OC_MODE = HIGH	5	ms
$t_{RSTRT}$	Auto-Restart Time (Note 3)	OC_MODE = HIGH	200	ms
$t_{QUAL}$	Over-Current Qualification Time (Note 3)	OC_MODE = LOW	5	ms
$t_{DEB}$	FLAGB De-bounce Time (Note 3)	Restart-up during or after OC	3	ms
		Restart-up during or after Thermal shutdown	15	
		Restart-up during or after UVLO	1	

3. Guaranteed by characterization and design, not production test.

## Setting Current Limit

FPF2895C current limit is set with an external resistor connected between I<sub>SET</sub> and GND. This resistor is selected using the following equation:

$$R_{SET}(k\Omega) = \left( \frac{4674.89}{I_{SET}mA} \right)^{1/1.0326} \quad (\text{eq. 1})$$

Resistor tolerance of 1% or less is recommended. 5% tolerance can be achieved only when ILIM is set to larger than 2 A.

**Table 6. ILIM VS. RSET LOOK-UP TABLE**

RSET [k $\Omega$ ]	ILIM [mA]		
	Min.	Typ.	Max.
8.75	450	500	550
7.35	540	600	660
6.30	630	700	770
5.55	720	800	880
4.95	810	900	990
4.45	900	1000	1100
4.06	990	1100	1210
3.73	1080	1200	1320
3.45	1170	1300	1430

# FPF2895C

**Table 6. ILIM VS. RSET LOOK-UP TABLE**

RSET [kΩ]	ILIM [mA]		
	Min.	Typ.	Max.
3.21	1260	1400	1540
3.01	1350	1500	1650
2.82	1440	1600	1760
2.66	1530	1700	1870
2.52	1620	1800	1980
2.39	1710	1900	2090
2.28	1900	2000	2100
2.17	1995	2100	2205
2.07	2090	2200	2310
1.99	2185	2300	2415
1.91	2280	2400	2520
1.83	2375	2500	2625
1.77	2470	2600	2730
1.70	2565	2700	2835
1.64	2660	2800	2940
1.59	2755	2900	3045
1.54	2850	3000	3150
1.49	2945	3100	3255
1.44	3040	3200	3360
1.40	3135	3300	3465
1.36	3230	3400	3570
1.32	3325	3500	3675
1.29	3420	3600	3780
1.25	3515	3700	3885
1.22	3610	3800	3990
1.19	3705	3900	4095
1.16	3800	4000	4200
1.14	3895	4100	4305
1.11	3990	4200	4410
1.08	4085	4300	4515
1.06	4180	4400	4620
1.04 (Note 4)	4275	4500	4725
1.02	4370	4600	4830
0.99	4465	4700	4935
0.97	4560	4800	5040
0.96	4655	4900	5145
0.94	4750	5000	5250 (Note 5)

4. Passed UL&CB certification with max. 5 A output current.

5. 6 A absolute limit current value. See Figure 9. for protection timing diagram.

# FPF2895C

**Table 7. OVLO LEVEL SELECTION**

OV1	OV2	OVLO
LOW	LOW	23 V ± 460 mV
LOW	HIGH (Floating)	10 V ± 100 mV
HIGH (Floating)	LOW	16.3 ± V 300 mV
HIGH (Floating)	HIGH (Floating)	5.95 ± V 50 mV

**Table 8. DEVICE ENABLE POLARITY SELECTION**

POL	ON	Device State	ON Polarity
LOW	LOW (Floating)	OFF	Active HIGH
LOW	HIGH	ON	
HIGH (Floating)	LOW (Floating)	ON	Active LOW
HIGH (Floating)	HIGH	OFF	



TIMING DIAGRAMS

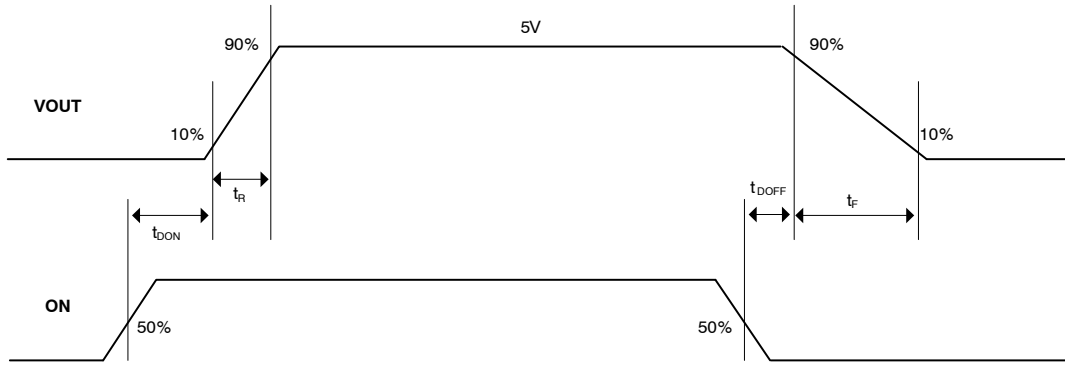


Figure 4. Normal ON/OFF Operation by ON (POL = GND)

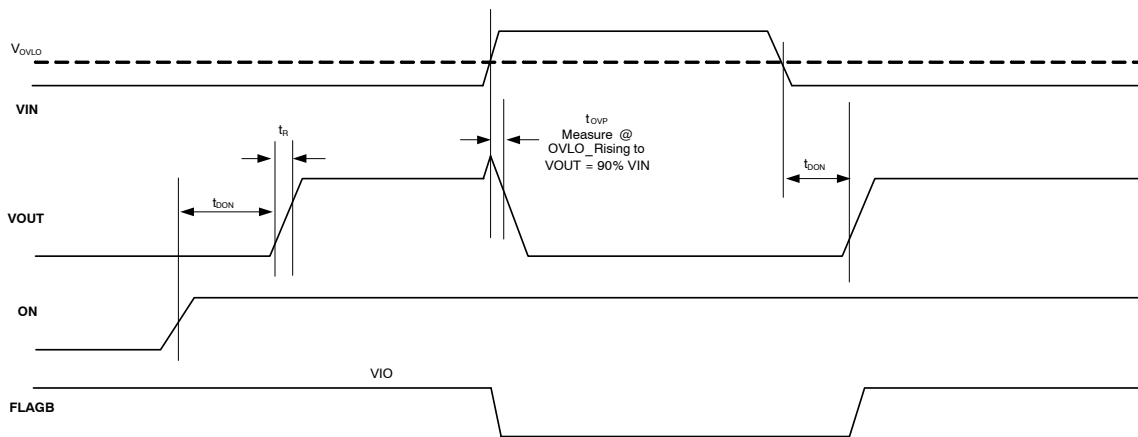


Figure 5. OVLO Operation (POL = GND & FLAGB is Pulled Up With an External VIO)

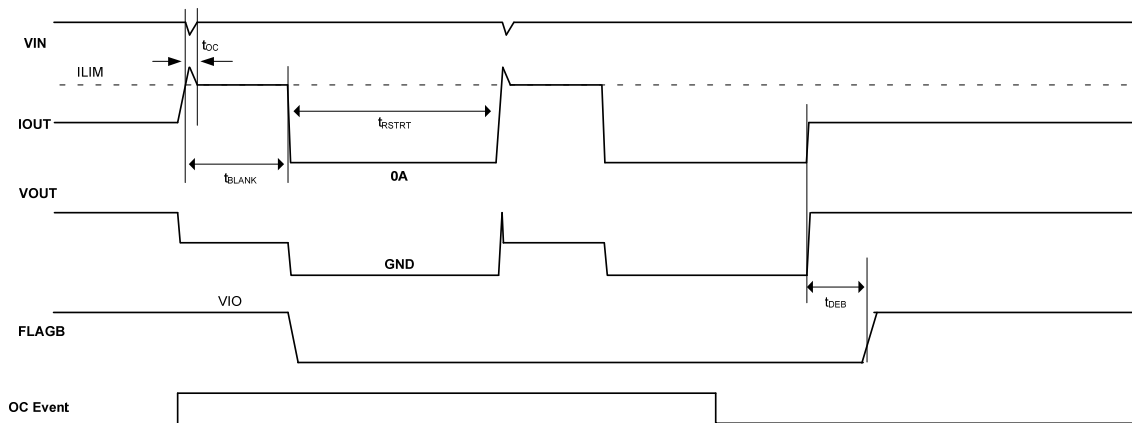


Figure 6. Current Limit Operation (OC\_MODE=HIGH & FLAGB is Pulled Up With an External VIO)

# FPF2895C

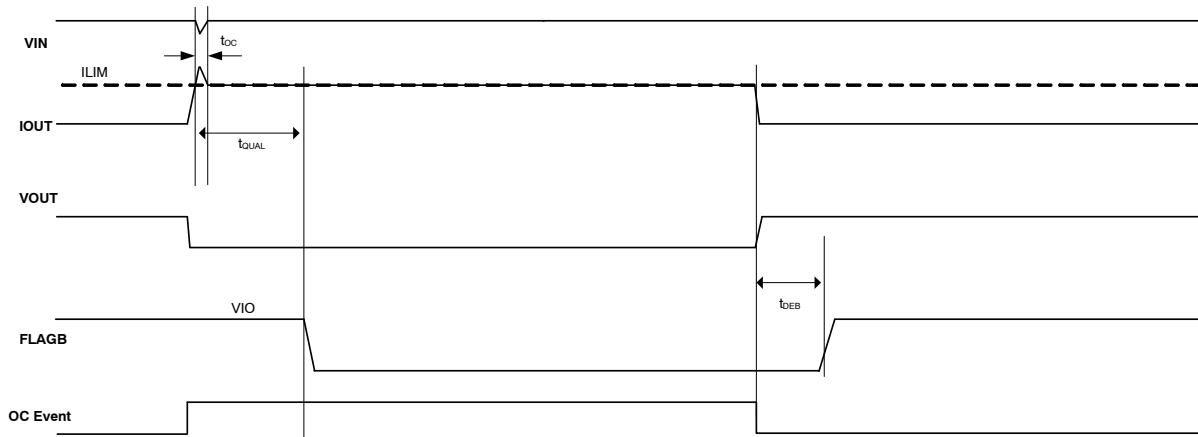


Figure 7. Current Limit Operation (OC\_MODE = LOW & FLAGB Is Pulled Up With an External VIO)

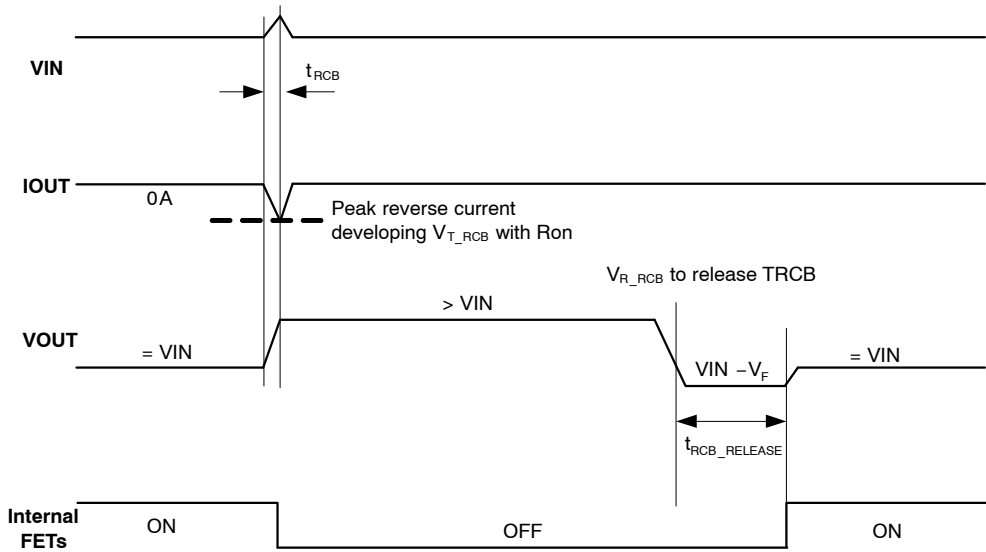


Figure 8. TRCB Operation (Device is Enabled)

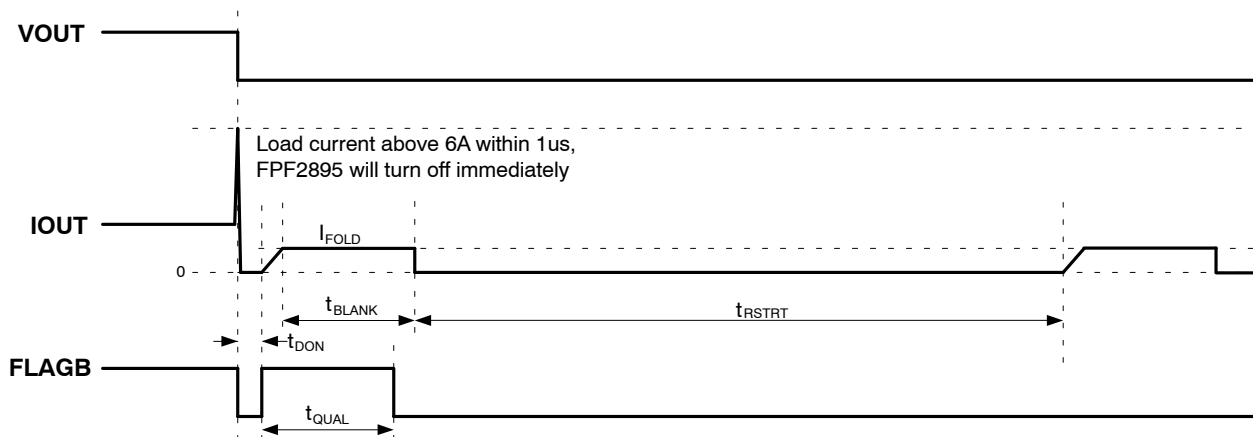


Figure 9. VOUT Hard Short to GND (OC\_MODE=HIGH & FLAGB Is Pulled Up With an External VIO)

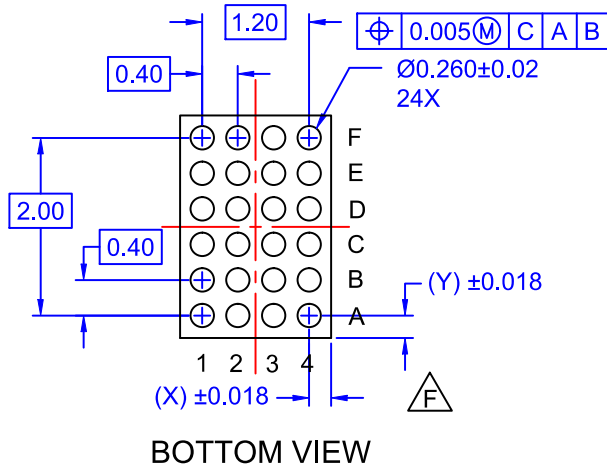
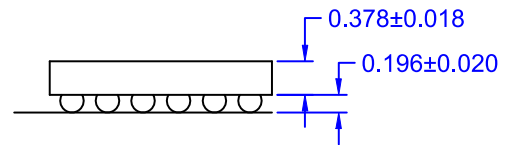
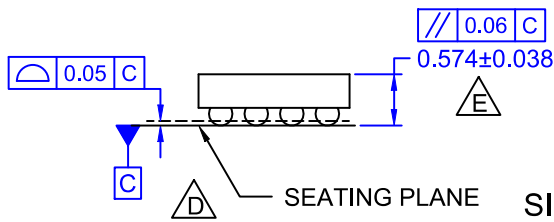
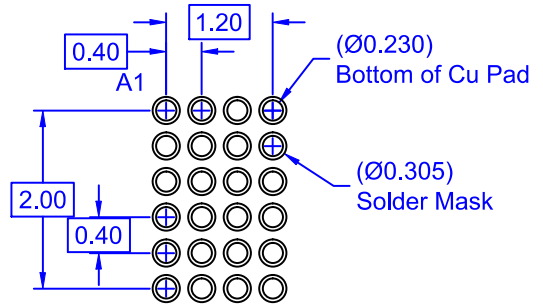
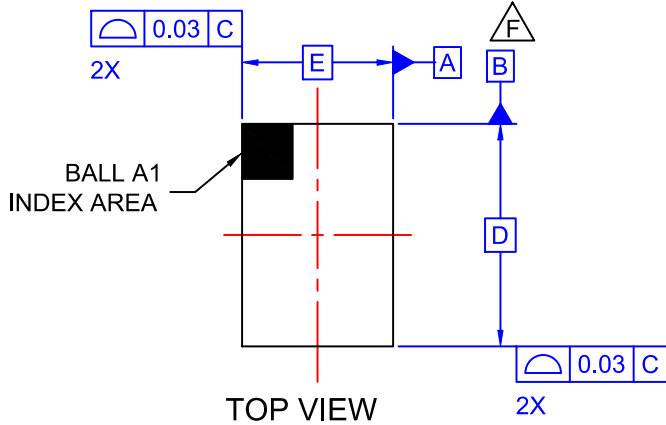
# FPF2895C

## PRODUCT-SPECIFIC DIMENSIONS

D	E	X	Y
2600 $\mu\text{m} \pm 30 \mu\text{m}$	1670 $\mu\text{m} \pm 30 \mu\text{m}$	235 $\mu\text{m} \pm 18 \mu\text{m}$	300 $\mu\text{m} \pm 18 \mu\text{m}$

**WLCSP24 2.6x1.67x0.612**  
CASE 567TQ  
ISSUE O

DATE 31 MAR 2017



**NOTES**


- A. NO JEDEC REGISTRATION APPLIES.
- B. DIMENSIONS ARE IN MILLIMETERS.
- C. DIMENSIONS AND TOLERANCE PER ASMEY14.5M, 2009.
- D. DATUM C IS DEFINED BY THE SPHERICAL CROWNS OF THE BALLS.
- E. PACKAGE NOMINAL HEIGHT IS 574 ± 38 MICRONS (536-612 MICRONS).
- F. FOR DIMENSIONS D, E, X, AND Y SEE PRODUCT DATASHEET.

<b>DOCUMENT NUMBER:</b>	<b>98AON13331G</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
<b>STATUS:</b>	<b>ON SEMICONDUCTOR STANDARD</b>	
<b>NEW STANDARD:</b>		
<b>DESCRIPTION:</b>	<b>WLCSP24 2.6x1.67x0.612</b>	<b>PAGE 1 OF 2</b>



ISSUE	REVISION	DATE
O	RELEASED FOR PRODUCTION FROM FAIRCHILD MKT-UC024AA TO ON SEMI-CONDUCTOR. REQ. BY D. TRUHITTE.	31 MAR 2017

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor  
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA  
**Phone:** 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
**Email:** [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

**N. American Technical Support:** 800-282-9855 Toll Free  
USA/Canada  
**Europe, Middle East and Africa Technical Support:**  
Phone: 421 33 790 2910

**ON Semiconductor Website:** [www.onsemi.com](http://www.onsemi.com)

**Order Literature:** <http://www.onsemi.com/orderlit>

For additional information, please contact your local  
Sales Representative

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А