

Description

CFP3605 is an Over-Voltage-Protection (OVP) IC with an ultra-low $R_{ds(on)}$ high current high voltage MOSFET. It can sustain voltage as high as 36V DC, protecting downstream devices from high voltage surges.

When input voltage of CFP3605 exceed the OVP trip level, it responses quickly and shuts off the MOSFET. The OVP trip level can be externally adjusted with resistors at OVLO pin. It also has an over-temperature protection feature that turns off the MOSFET.

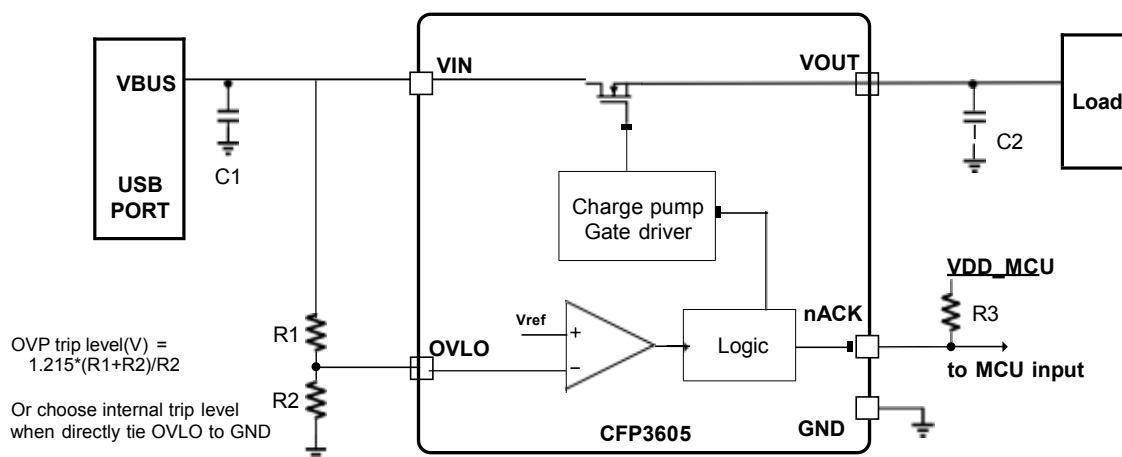
Applications

- Mobile Phone
- Mobile handsets
- Portable device

Features

- Supply voltage range from 2.6V to 20V
- 36V VBUS voltage tolerance
- Maximum DC switching current up to 3.1A
- Adjustable over voltage protection (OVP)
- 6.0V OVP trip level when OVLO=0V
- Fast turnoff transient response
- Over temperature protection (OTP)
- On chip slew rate control for inrush current
- On-The-Go (OTG) functionality
- ESD:
 - Human Body Model (HBM) > 2.5kV
 - Charged Device Model (CDM) >500V
 - IEC61000-4-2 on VBUS pin, Air discharge >15kV
 - IEC61000-4-2 on VBUS pin, contact discharge > 8kV

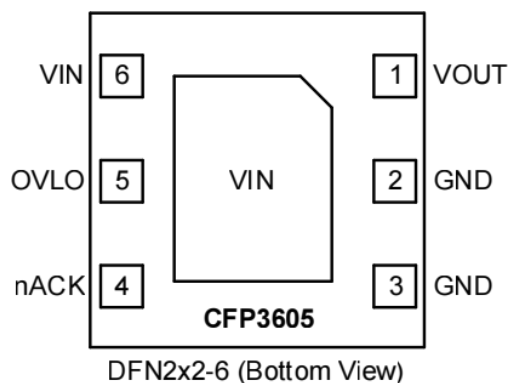
Typical Application



Order Information

Part No.	Package Type	Top Mark	Pcs/Reel
JKOVP-CFP3605	DFN2x2-6L	3605/YWWL	3000

Pin Description



Pin	Name	I/O	Description
1	VOUT	O	OUTPUT pin. Bypass with a 1uF capacitor from this pin to ground.
2,3	GND	G	GND
4	nACK	O	Open-Drain Active-Low Output. It needs an external pull-up resistor, e.g.10kΩ ~ 470 kΩ, to the System I/O. If not used , leave it open or tied to ground.
5	OVLO	I	OVP feedback input pin. It can be used to adjust the OVP trip level. Or it can be tied to GND to use internal OVP trip level. Caution: cannot float !
6, ePAD	VIN	I	Voltage Input. Bypass with a 0.1uF/50V ceramic capacitor as close to the device as possible.

Absolute Maximum Ratings

Parameter	Rating	Unit	Remarks
VIN Voltage	-0.3 ~ 36	V	
OVLO Voltage	-0.3 ~ VCC+0.3	V	
VOUT	-0.3 ~ 24	V	
nACK Voltage	-0.3 ~ 7	V	
Continuous switch current	3.1	A	Tamb=25°C
Operational temperature range	-40 ~ 85	°C	
Storage temperature range	-55 ~ 150	°C	
ESD Air Gap	15	KV	
ESD Contact	8	KV	
ESD HBM	2.5	KV	
ESD CDM	0.5	KV	

Recommended Operating Condition

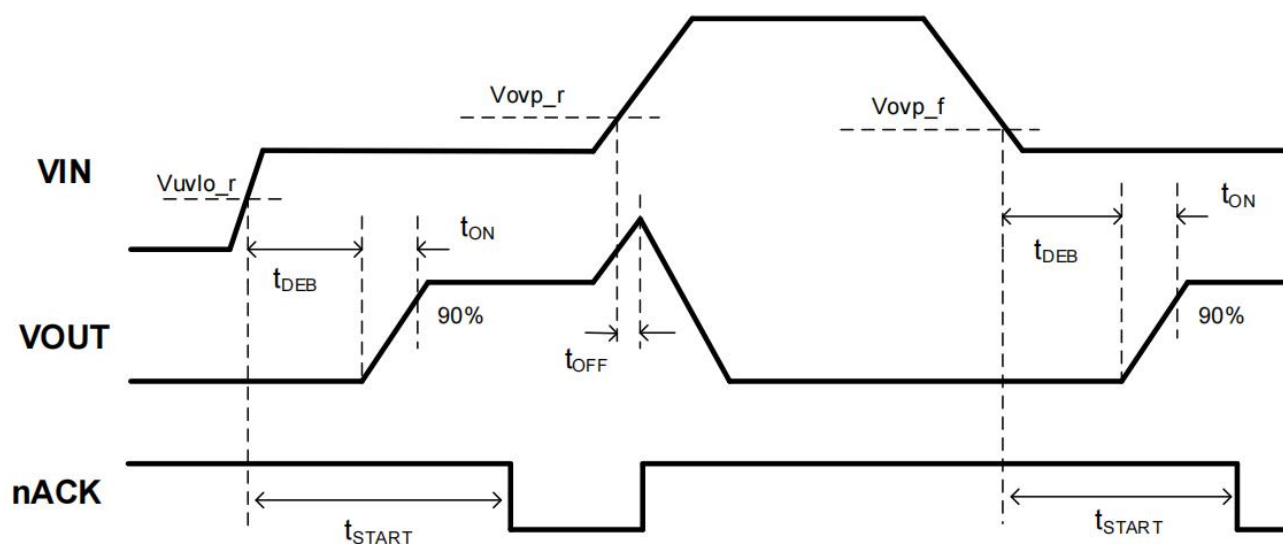
Parameter	Rating	Unit	Remarks
VBUS Voltage	2.6 ~ 20	V	
Ambient Operating Temperature	-40 ~ 85°C	V	
VOUT Load Capacitor	<1000	μF	

Electrical Characteristics

Test conditions: Tamb=25°C, VBUS=5V unless otherwise noted.

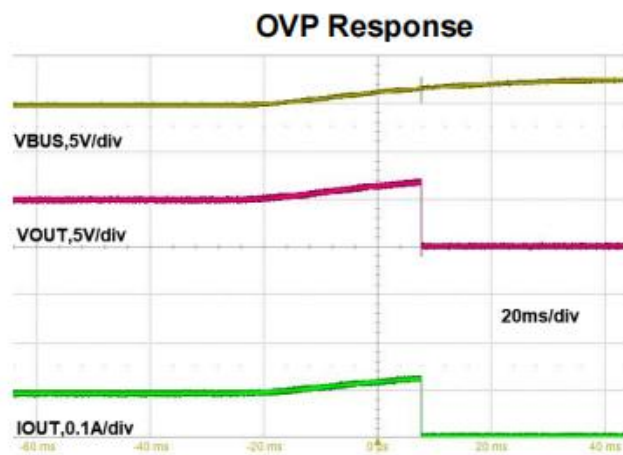
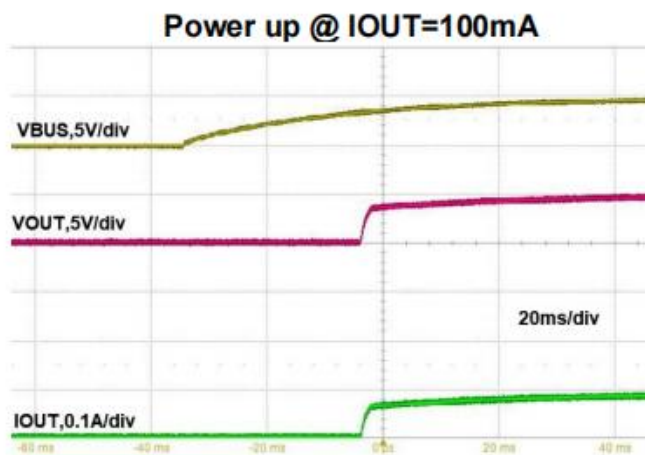
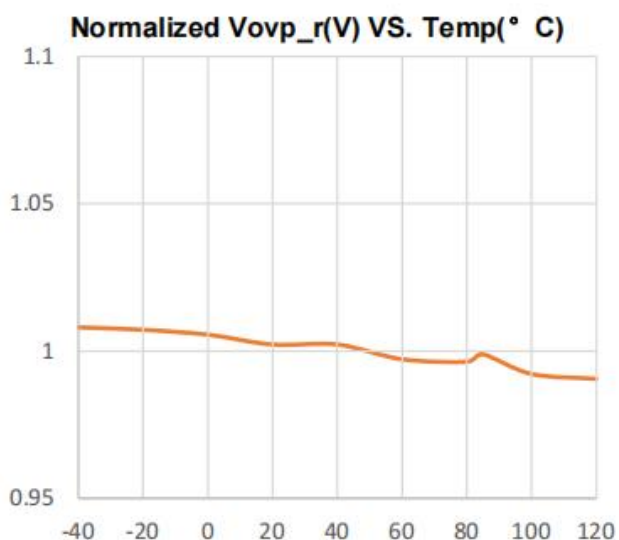
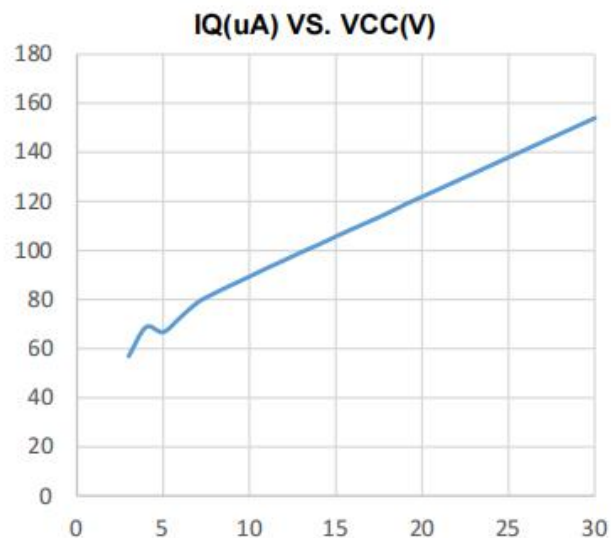
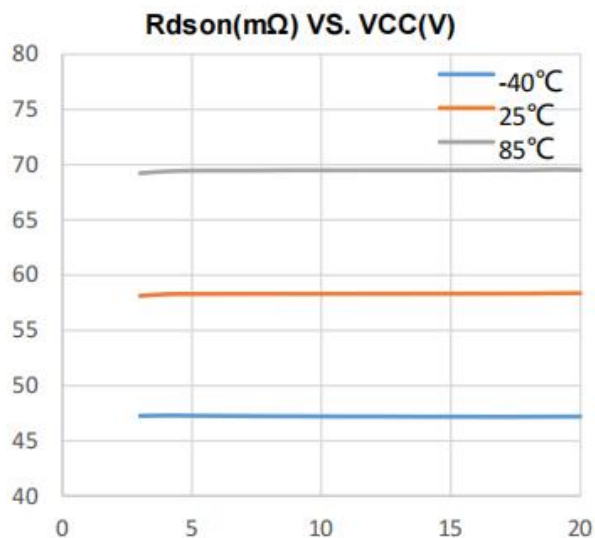
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Quiescent Current	I _Q	55	65	70	μA	VBUS=5V, OVLO=0V
Internal OVP trip level	V _{ovp_r}	5.8	6.0	6.2	V	VBUS rise, OVLO=0V
	V _{ovp_f}	5.7	5.9	6.1	V	VBUS fall, OVLO=0V
Adjustable OVLO threshold	V _{ovp_rng}	4		20	V	
Threshold voltage at OVLO	V _{ovlo}	1.185	1.215	1.245	V	
Under voltage lockout trip level	V _{uvlo_r}	2.37	2.47	2.57	V	VBUS rise, OVLO=0V
	V _{uvlo_f}	2.24	2.33	2.42	V	VBUS fall, OVLO=0V
Resistance from VBUS to VOUT	R _{dson}		63	70	mΩ	MOSFET on
Leakage current on OVLO	I _{L_ovlo}			2	μA	
Over temperature protection			130		°C	
Over temperature hysteresis			20			
Debounce Time	t _{DEB}		16		ms	
VOUT rise time	t _{ON}		1.5		ms	
OVLO turn off time	t _{OFF}		100		ns	RL=100Ω, CL=0μF
Start-up Time	t _{START}		30		ms	

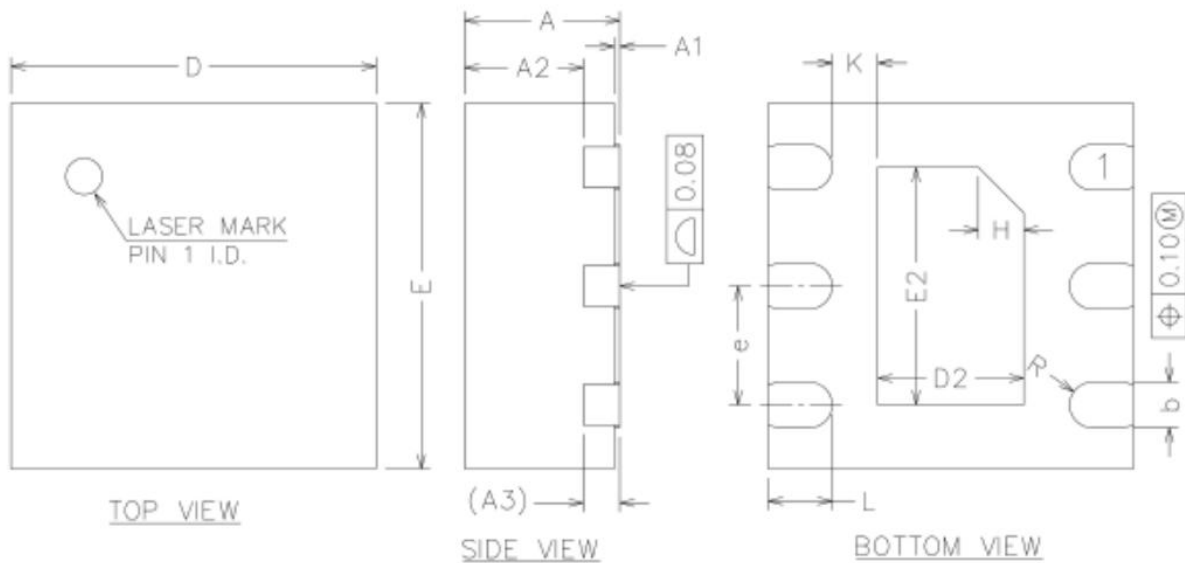
Timing Diagrams



Typical Characteristics

Test conditions: $T_{amb}=25^{\circ}\text{C}$, $V_{BUS}=5\text{V}$, $C_{IN}=C_{OUT}=1\mu\text{F}$, unless otherwise noted.



Package Outline
DFN2x2-6L


SIDE VIEW

**COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)**

SYMBOL	MIN	NOM	MAX
A	0.80	0.85	0.90
A1	0.00	0.02	0.05
A2	0.60	0.65	0.70
A3	0.20REF		
b	0.18	0.25	0.30
D	1.90	2.00	2.10
E	1.90	2.00	2.10
02	0.70	0.80	0.90
E2	1.20	1.30	1.40
e	0.55	0.65	0.75
H	0.25REF		
K	0.20		
L	0.30	0.35	0.40
R	0.11	—	—