

Single/Dual Adjustable Over Current Protection

UC2601/2

DESCRIPTION

The UC2601/2 is Single/Dual over current protection for Smart USB dedicated chargers.

The devices feature an over current protection to protect USB output current, this function can turn off GND when USB output current bigger than setting current and the USB port will auto recovery while the fault condition is removed

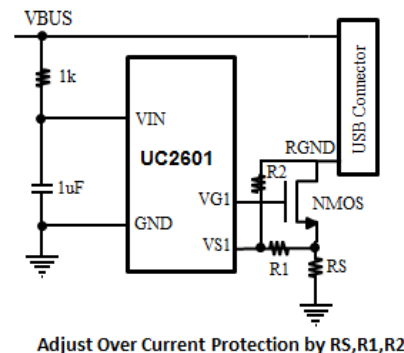
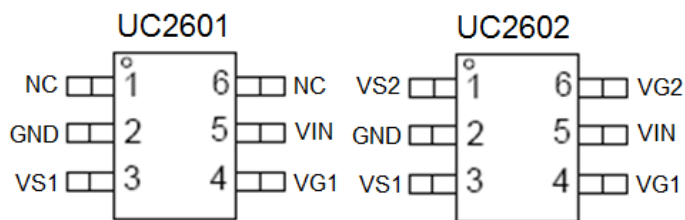
FEATURES

- 4.5V~5.5V Single Supply Operation.
- Easy pass DOE-6 test.
- Adjustable Over Current Protection.
- Support single Layer PCB.
- Available in SOT23-6 Package.

APPLICATIONS

- USB Wall Adapter
- USB Multiple Charger

UC2601/2 SOT23-6 PACKAGE and SIMPLIFIED APPLICATION

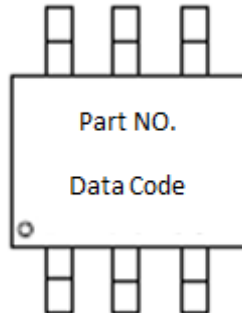


Adjust Over Current Protection by RS,R1,R2

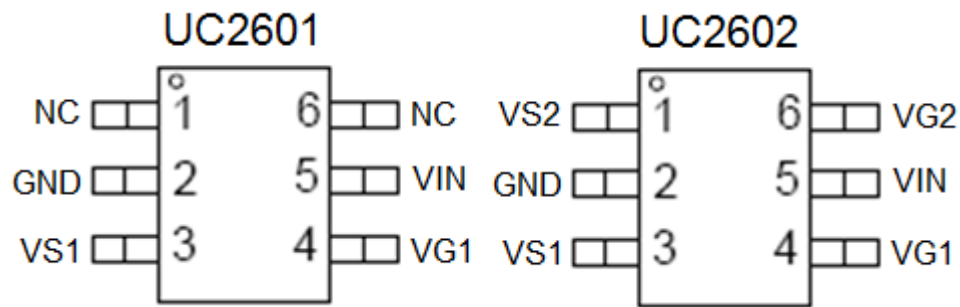
ORDING INFORMATION

Part Number	Package Type	Package Qty	Op Temp(°C)
UC2601	SOT23-6	3000	-40~85
UC2602	SOT23-6	3000	-40~85

MARK INFORMATION



PINOUT



PIN FUNCTIONS

NO.	NAME	TYPE ⁽¹⁾	DESCRIPTION
1	NC/VS2	O/I	No Connection / Sense Voltage of Channel2
2	GND	G	Ground connection
3	VS1	O/I	Sense Voltage of Channel1
4	VG1	O/I	Gate Driver of NMOS of Channel1
5	IN	P/I	Power supply/Input voltage connected to Power Switch; connect a 1 μ F or greater ceramic capacitor from IN to GND as close to the IC as possible
6	NC/VG2	O/I	No Connection / Gate Driver of NMOS of Channel2

(1) G = Ground, I = Input, O = Output, P = Power

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ABSOLUTE MAXIMUM RATINGS ⁽¹⁾

Over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		MIN	MAX	UNIT
supply voltage range	IN	-0.3	6	V
ESD rating, Human Body Model (HBM)	IN		2	kV
	VS1, VG1, VS2, VG2		2	
Operating Junction Temperature	T _J	-40	125	°C
Storage Temperature Range	T _{stg}	-65	150	

(1) Stresses beyond those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under *Recommended Operating Conditions* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

THERMAL CHARACTERISTICS

over operating free-air temperature range (unless otherwise noted)

THERMAL METRIC			UNIT
θ_{JA}	Package thermal impedance ⁽¹⁾	180	°C/W

(1) The package thermal impedance is calculated in accordance with JESD 51-7.

RECOMMENDED OPERATING CONDITIONS

PARAMETER		MIN	MAX	UNIT
V _{IN}	Input voltage of IN	4.5	5.5	V
V _{VS1, VS2}	Sense Voltage of sense resistor		5.5	
V _{VG1, VG2}	Gate Voltage of NMOS		5.5	
T _J	Operating Junction Temperature	-40	125	°C

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ELECTRICAL CHARACTERISTICS

 Conditions are $T_A = 25^\circ\text{C}$ and $V_{IN} = 5.0\text{ V}$. All voltages are with respect to GND unless otherwise noted.

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
UNDERVOLTAGE LOCKOUT						
V_{UVLO}	IN rising UVLO threshold voltage			3.5		V
	Hysteresis			100		mV
SUPPLY CURRENT						
I_{IN}	IN supply current			160		μA
Over Current Protection						
I_{VS}	VS Pin Source Current	UC2601		20.0		μA
	VS Pin Source Current	UC2602		23.5		
V_{OS}	Offset Voltage			0.0		mV

UC2601 I_{OUT} Calculation:

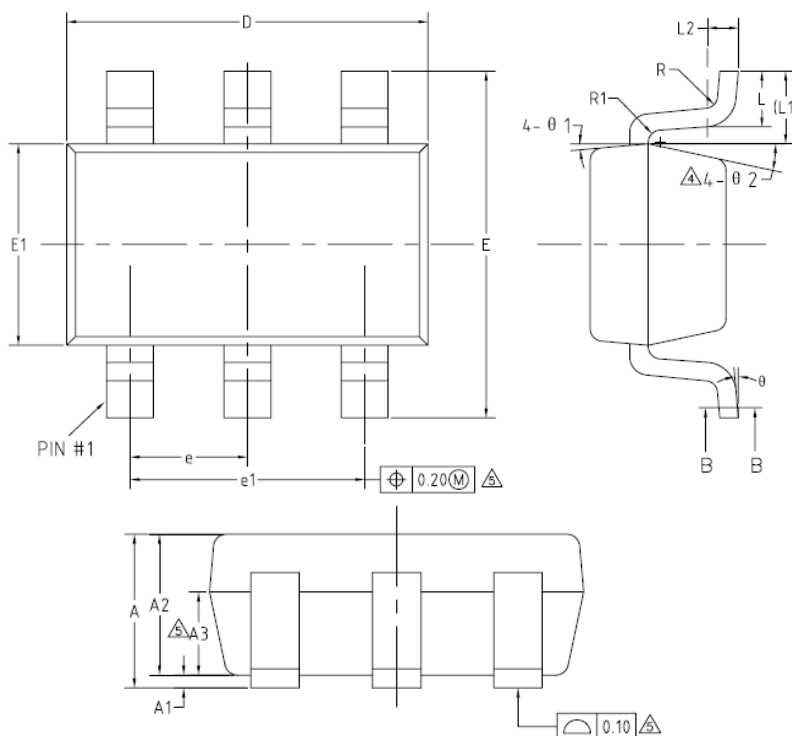
$$I_{OUT} = \frac{95\text{mV} - 20\mu\text{A} \times R_1}{R_S}$$

UC2602 I_{OUT} Calculation:

$$I_{OUT} = \frac{95\text{mV} - 23.5\mu\text{A} \times R_1}{R_S}$$

PACKAGE INFORMATION

SOT23-6



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	—	—	1.25
A1	0	—	0.15
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.36	—	0.50
b1	0.36	0.38	0.45
c	0.14	—	0.20
c1	0.14	0.15	0.16
D	2.826	2.926	3.026
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
R	0.10	—	—
R1	0.10	—	0.20
θ	0°	—	8°
θ 1	3°	5°	7°
θ 2	6°	—	14°