

## FEATURES

- USB2.0 Analog Switch
- 3.5Ω On-Resistance
- 5.0pF On-Capacitance
- 4.5~5.5V Single Supply Operation
- CLK Pin Control Charger and Data Mode
- Open Drain Pins for Mode indication
- Automatic USB charger Identification Circuit
- Support 2.1A Apple® Devices fast charging
- Support Samsung Galaxy Tab Devices fast Charging
- Support BC1.2 & YD/T 1591-2009 Charging Spec
- Available in MSOP10 Package

## APPLICATIONS

- USB Cable
- USB Wall Adapter

## DESCRIPTION

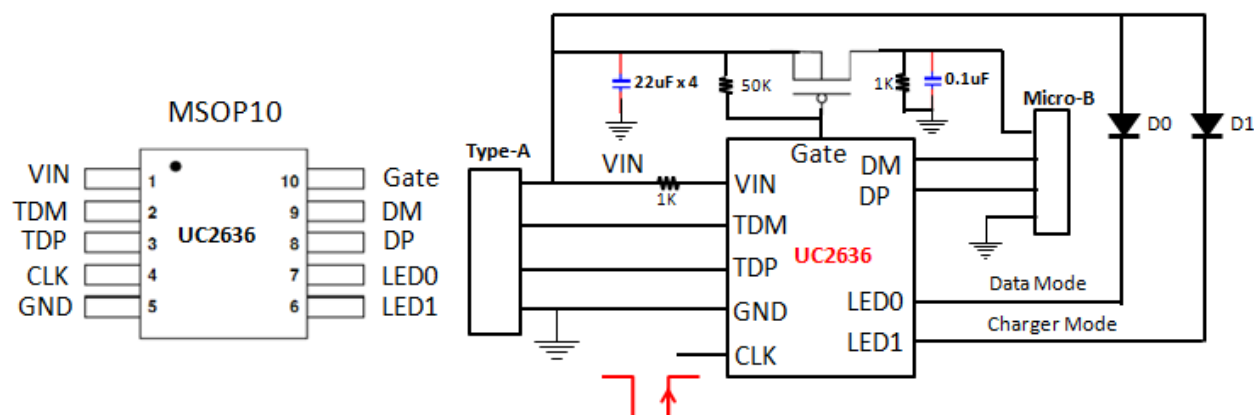
The UC2636 is latest USB adapter emulators with analog switch. It can achieve USB automatic host charger identification circuitry for USB dedicated chargers and data communication by CLK pin.

The UC2636 achieve mode change by Gate with a external PMOS to reduce system cost .

The UC2636 integrated automatic USB charger identification circuit allow mobile power supply, In-Car charger, USB wall adapters, travel chargers, and other dedicated chargers to identify themselves as a USB dedicated charger to USB devices, like Apple charger to Apple products, Samsung charger to Samsung Galaxy Tab & Phone, and BC1.2 charger to HTC, SONY, LG, BlackBerry, Lenovo, Coolpad, ZTE, Huawei and other legacy D+/D- short detection devices.

The UC2636 feature two LED pins for indicate charging mode or data communication mode.

## UC2636 MSOP10 PACKAGE and SIMPLIFIED APPLICATION



## ORDING INFORMATION

Part Number	Package Type	Package Qty	Op Temp(°C)
UC2636	MSOP10	3000	-40~85



# Single USB Charger Adapter Emulator with Analog Switch

UC2636

## ABSOLUTE MAXIMUM RATINGS <sup>(1)</sup>

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

PARAMETER		MIN	MAX	UNIT
supply voltage range	IN	-0.3	6	V
Input voltage range	DP,DM, TDP, TDM	-0.3	5.8	
Continuous output sink current	TDP,TDM,DP,DM input current		35	mA
Continuous output source current	TDP,TDM,DP,DM output current		35	
ESD rating, Human Body Model (HBM)	IN, LED,LED1,GATE,CLK		2	kV
	DP, DM		4	
ESD rating, Charging Device Model (CDM)			500	V
Operating Junction Temperature	T <sub>J</sub>	-40	125	°C
Storage Temperature Range	T <sub>stg</sub>	-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
$\theta_{JA}$	Package thermal impedance <sup>(1)</sup>	84	°C/W

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

## RECOMMENDED OPERATING CONDITIONS

PARAMETER		MIN	MAX	UNIT
V <sub>IN</sub>	Input voltage of IN	4.5	5.5	V
V <sub>DP/DM/TDP/TDM</sub>	DP/DM/TDP/TDM data line input voltage		5.5	
I <sub>DP/DM/TDP/TD</sub>	Continuous sink/source current		±10	mA
T <sub>J</sub>	Operating Junction Temperature	-40	125	°C



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## ELECTRICAL CHARACTERISTICS

Conditions are  $-40^{\circ}\text{C} \leq (T_J = T_A) \leq 125^{\circ}\text{C}$  and  $4.5\text{ V} \leq V_{IN} \leq 5.5\text{ V}$  unless otherwise noted. Typical value is at  $25^{\circ}\text{C}$ . All voltages are with respect to GND unless otherwise noted.

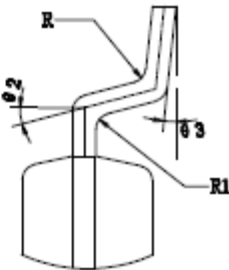
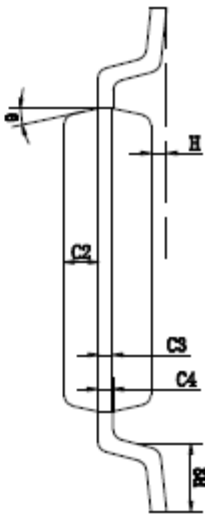
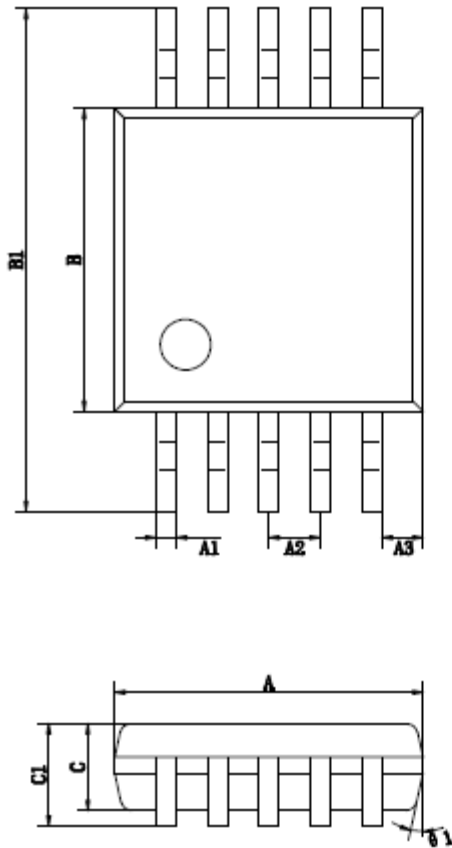
PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
UNDERVOLTAGE LOCKOUT						
V <sub>UVLO</sub>	IN rising UVLO threshold voltage		3.7	3.9	4.1	V
	Hysteresis		100			mV
SUPPLY CURRENT						
I <sub>IN</sub>	IN supply current		130			250 μA
BC 1.2 DCP MODE (SHORT)						
R <sub>DPM_SHORT</sub>	DP / DM shorting resistance		125			200 Ω
R <sub>DCHG_SHORT</sub>	Resistors connected DP /DM to GND after hand-shaking		200			400 kΩ
V <sub>DPL_TH_DETACH</sub>	DP low threshold while detaching BC1.2 devices		310	330	350	mV
V <sub>DPL_TH_DETACH_HYS</sub>	hysteresis		50			mV
IPAD MODE 2.1A Mode (SEL=1 or Floating)						
V <sub>DP_IPAD</sub>	DP output voltage		2.55	2.7	2.85	V
V <sub>DM_IPAD</sub>	DM output voltage		1.9	2.0	2.1	V
R <sub>DP_IPAD</sub>	DP output impedance	I <sub>DP</sub> = -5uA	20	30	40	kΩ
R <sub>DM_IPAD</sub>	DM output impedance	I <sub>DM</sub> = -5uA	20	30	40	kΩ
Galaxy Tab MODE						
V <sub>DP_GAL</sub>	DP output voltage		1.10	1.2	1.30	V
V <sub>DM_GAL</sub>	DM output voltage		1.10	1.2	1.30	
R <sub>DP_GAL</sub>	DP output impedance	I <sub>DP</sub> = -5uA	80	105	130	kΩ
R <sub>DM_GAL</sub>	DM output impedance	I <sub>DM</sub> = -5uA	80	105	130	
Analog Switch						
R <sub>ON</sub>	On Resistance		3.5			Ω
C <sub>ON</sub>	On Capacitance		5.0			pF
I <sub>LKG</sub>	Off leakage current		0			250 nA
BW	-3dB Bandwidth		750			MHz

0755-82535266 13316849266



PACKAGE INFORMATION

MSOP10



标注	尺寸	最小(mm)	最大(mm)	标注	尺寸	最小(mm)	最大(mm)
A		2.90	3.10	C3		0.152	
A1		0.18	0.25	C4		0.15	0.23
A2		0.50TYP		H		0.02	0.15
A3		0.40TYP		θ		15° TYP4	
B		2.90	3.10	θ 1		12° TYP4	
B1		4.70	5.10	θ 2		14° TYP	
B2		0.45	0.75	θ 3		0° ~ 6°	
C		0.75	0.95	R		0.15TYP	
C1		--	1.10	R1		0.15TYP	
C2		0.328TYP					