

Single USB Charger Adapter Emulator

DESCRIPTION

The UC2635B is USB adapter emulators with automatic host charger identification circuitry for USB dedicated chargers.

The devices 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 devices feature a control input that allows for charger mode selection. The UC2635B supports Apple 2.4A, Galaxy 2.0A and USB BC1.2 compliant devices.

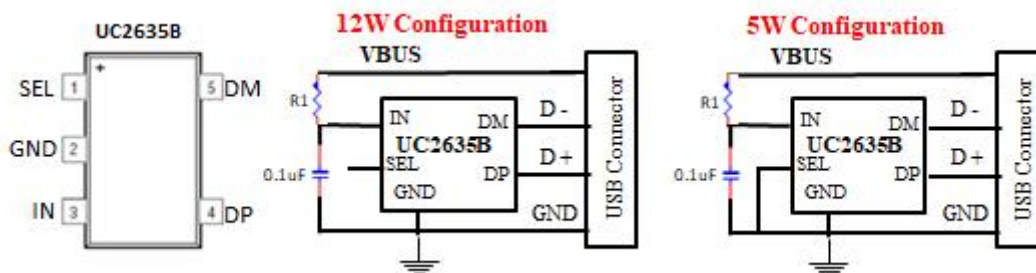
FEATURES

- 4.5V~5.5V Single Supply Operation.
- Automatic USB charger Identification Circuit.
- Support Apple® Devices fast charging. (2.4A mode)
- Support Samsung Galaxy Tab Devices fast Charging.
- Support BC1.2 & YD/T 1591-2009 Charging Spec.
- Available in SOT23-5 Package.

APPLICATIONS

Mobile Power Supply
 In-Car Charger
 USB Wall Adapter
 Travel Charger

UC2635B SOT23-5 PACKAGE and SIMPLIFIED APPLICATION



ORDERING INFORMATION

Part Number	Package Type	Package Qty	Op Temp(°C)
UC2635B	SOT23-5	3000	-40~85

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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
Input voltage range	DP,DM	-0.3	5.8	
Continuous output sink current	DP input current, DM input current		35	mA
Continuous output source current	DP output current, DM output current		35	
ESD rating, Human Body Model (HBM)	IN		2	kV
	DP, DM		8	
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

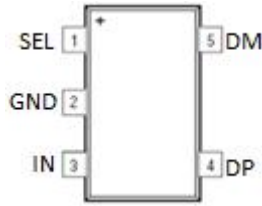
(1) The package thermal impedance is calculated in accordance with JESD 51-7.

RECOMMENDED OPERATING CONDITIONS

PARAMETER		MIN	MAX	UNIT
V _{IN}	Input voltage of IN	4.5	5.5	V
V _{DP}	DP data line input voltage		5.5	
V _{DM}	DM data line input voltage		5.5	
I _{DP}	Continuous sink/source current		±10	mA
I _{DM}	Continuous sink/source current		±10	
T _J	Operating Junction Temperature	-40	125	°C

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PINOUT



PIN FUNCTIONS

NO.	NAME	TYPE ⁽¹⁾	DESCRIPTION
1	SEL	I	Mode selection pin, SEL is “1” or floating is 2.4A mode, SEL is “0” or pull down to GND by 10k res is 1A mode.
2	GND	G	Ground connection
3	IN	P/I	Power supply/Input voltage connected to Power Switch; connect a 1 μF or greater ceramic capacitor from IN to GND as close to the IC as possible
4	DP	O/I	DP data line to connector, output for hand-shake voltage to portable equipment, high impedance while disabled
5	DM	O/I	DM data line to connector, input for hand-shake voltage from portable equipment high impedance while disabled

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

MARK INFORMATION



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ELECTRICAL CHARACTERISTICS

Conditions are $-40^{\circ}\text{C} \leq (T_J=T_A) \leq 125^{\circ}\text{C}$ and $4.5\text{ V} \leq V_{\text{IN}} \leq 5.5\text{ V}$ unless otherwise noted. Typical value is at 25°C . 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	3.9	4.1	4.3	V
	Hysteresis		100		mV
SUPPLY CURRENT					
I_{IN}	IN supply current		160	250	μA
BC 1.2 DCP MODE (SHORT)					
$R_{\text{DPM_SHORT}}$	DP / DM shorting resistance		125	200	Ω
IPAD MODE 2.4A Mode (SEL=1 or floating)					
$V_{\text{DP_IPAD}}$	DP output voltage	2.55	2.7	2.85	V
$V_{\text{DM_IPAD}}$	DM output voltage	2.55	2.7	2.85	V
IPAD MODE 1.0A Mode (SEL=0)					
$V_{\text{DP_IPAD}}$	DP output voltage	1.90	2.0	2.10	V
$V_{\text{DM_IPAD}}$	DM output voltage	2.55	2.7	2.85	V
Galaxy Tab MODE					
$V_{\text{DP_GAL}}$	DP output voltage	1.10	1.2	1.30	V
$V_{\text{DM_GAL}}$	DM output voltage	1.10	1.2	1.30	

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PACKAGE INFORMATION

SOT23-5

