

FUSB3301

USB Type-C Controller for Mobile Charge and Power Adapter

Description

The FUSB3301 is an autonomous Source only Type-C controller optimized for mobile chargers and power adapters. It broadcasts the available current of the charger over CC1/CC2 using the USB Type-C standard and prevents VBUS from being asserted until a valid connection has been verified. It can be used for up to 15 W charging using Type-C protocols. The FUSB3301 has very low standby power consumption and is packaged in a 0.5 mm pitch MLP to accommodate power adapter PCBs.

Features

- Fully Autonomous Type-C Controller
- Supports Type-C Version 1.2
- Fixed Source Mode
- Low Standby Power: $I_{CC} = 5 \mu\text{A}$ (Typical)
- VBUS Switch Control
- Advertises Three Standard Type-C VBUS Current Levels (900 mA, 1.5 A, 3.0 A)
- 2 kV HBM ESD Protection
- 10 Lead MLP Package
- V_{DD} Operating Range, 3.0 V – 5.5 V

Applications

- USB Type-C Power Ports
- Mobile Chargers
- Power Adapters
- AC-DC Adapters



www.onsemi.com

WDFN
10 LEAD
CASE 511DM

MARKING DIAGRAM

NZ

NZ = Specific Device Marking

FUSB3301

FUSB3301

Table 2. CONNECTION STATE TABLE

CC1	CC2	SW	Description
NC	NC	HiZ	No Attach
Rd	NC	L	Attach to UFP (Sink)
NC	Rd	L	Attach to UFP (Sink)
Rd	Rd	HiZ	No Attach
Ra	NC	HiZ	No Attach
NC	Ra	HiZ	No Attach
Ra	Ra	HiZ	No Attach

Host Current

Table 3. HOST INPUT TRUTH TABLE

HOST2

FUSB3301

Table 4. ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Min	Max	Unit	
V _{DD}	Supply Voltage		-0.5	6.0	V	
V _{CCX}	CC pins when configured as HOST		-0.5	6.0	V	
T _{STORAGE}	Storage Temperature Range		-65	+150	°C	
T _J	Maximum Junction Temperature			+150	°C	
T _L	Lead Temperature (Soldering, 10 seconds)			+260	°C	
ESD	IEC 61000-4-2 System ESD	Connector Pins (VBUS, CC1 & CC2)	Air Gap	15		kV
			Contact	8		
	Human Body Model, JEDEC JESD22-A114	Connector Pins (VBUS, CC1 and CC2)		4		kV
		Others		2		
Charged Device Model, JEDEC JESD22-C101	All Pins		1		kV	

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.

Table 5. RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Typ	Max	Unit
V _{DD}	Supply Voltage	3.0	5.0	5.5	V
T _A	Operating Ambient Temperature	-40		+85	°C
T _J	Operating Junction Temperature	-40		+125	°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.

Table 6. DC AND TRANSIENT CHARACTERISTICS All typical values are at T_A=25°C unless otherwise specified.

Symbol	Parameter	T _A = -40 to +85°C T _J = -40 to +125°C			Unit
		Min	Typ	Max	
I _{80_CCX}	Source 80 μA CC Current (Default) HOST2=VDD, HOST1=VDD	64	80	96	μA
I _{180_CCX}	Source 180 μA CC Current (1.5 A) HOST2=VDD, HOST1=GND or HOST2=GND, HOST1=VDD	166	180	194	μA
I _{330_CCX}	Source 330 μA CC Current (3 A) HOST2=GND, HOST1=GND	304	330	356	μA
zOPEN	CC Resistance for Disabled State	126			kΩ
vRa-SRCdef	Ra Detection Threshold for CC Pin for Source for Default Current on VBUS	0.15	0.20	0.25	V

FUSB3301

Table 7. CURRENT CONSUMPTION

Symbol	Parameter	Conditions	V _{DD} (V)	T _A = -40 to +85°C T _J = -40 to +125°C			Unit
				Min	Typ	Max	
I _{stby}	Unattached Source	Nothing attached, Host Pins = VDD, GND, Float.	3.0 to 5.5		5	20	μA
I _{attach}	Attach Current (Less Host Current)	Attached, Host Pins=VDD, GND, Float.	3.0 to 5.5		10T		

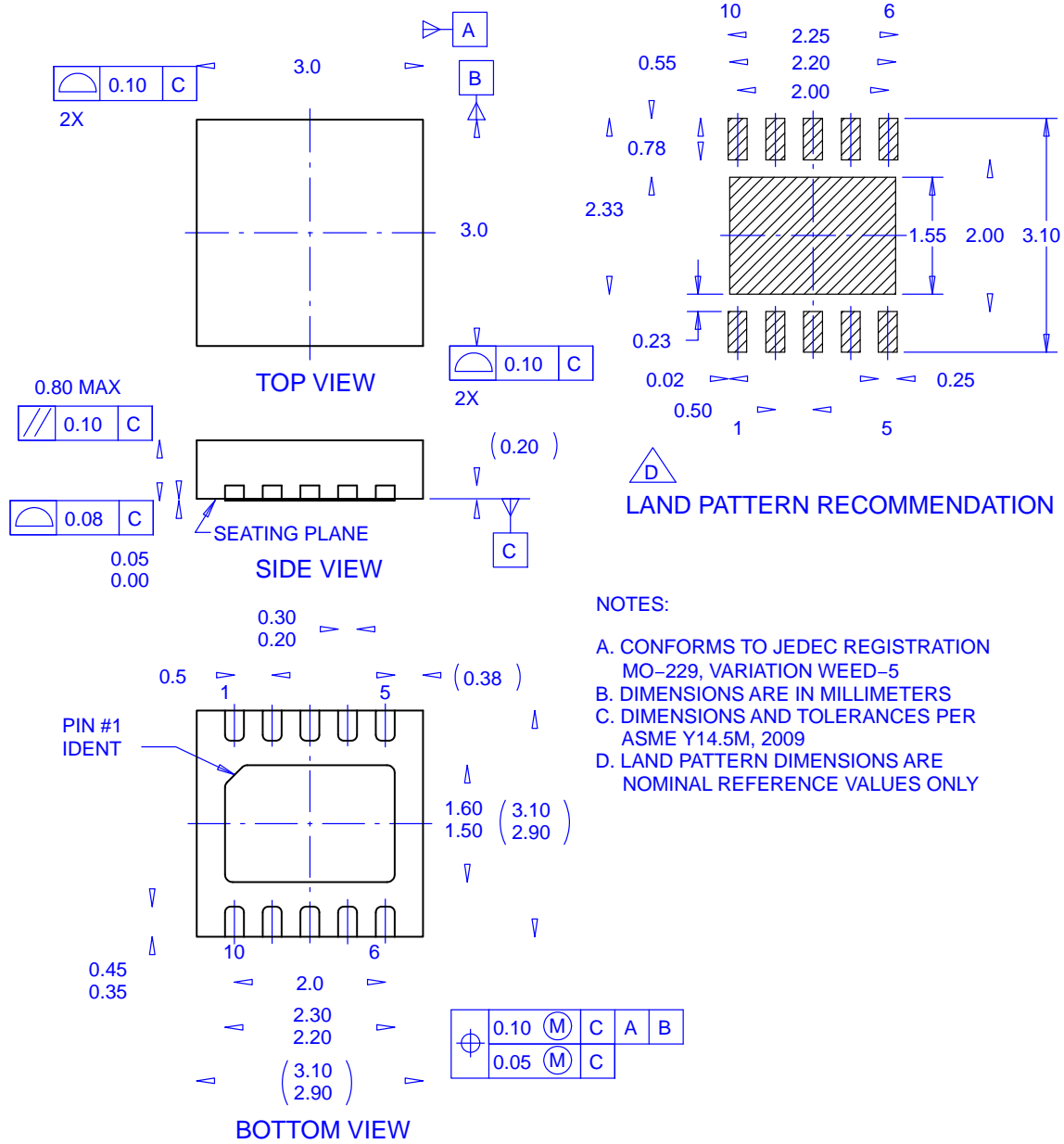
MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS



WDFN10 3x3, 0.5P
CASE 511DM
ISSUE O

DATE 31 AUG 2016



DOCUMENT NUMBER:	98AON13631G	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	WDFN10 3X3, 0.5P	PAGE 1 OF 1



onsemi, **onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** 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 **onsemi**
