## **Texas Instruments**

	Project Name: Project File: Base ID: Schematic Rev:	UCC28740 12.5W USB reference design PMP8965.PrjPCB PMP8965 E2		
Quantity	Designator	Description	Manufacturer	PartNumber
1	PCB	Printed Circuit Board	Any	PMP8965
2	C1, C2	CAP, AL, 10uF, 400V, +/-20%, TH	Panasonic Electronic Components	EEU-ED2G100
2	C3, C8	CAP, CERM, 1uF, 25V, +/-10%, X7R, 1206	AVX	12063C105KAT2A
1	C4	CAP, AL, 680uF, 10V, +/-20%, 0.007 ohm, TH	Nichicon	RR71A681MDN1
0	C5	CAP, CERM, 3300pF, 100V, +/-10%, X7R, 0805	AVX	08051C332KAT2A
2	C6, C12	CAP, CERM, 4.7uF, 50V, +/-10%, X5R, 0805	TDK	C2012X5R1H475K125AB
1	C7	CAP, CERM, 22pF, 50V, +/-5%, C0G/NP0, 0603	AVX	06035A220JAT2A
1	C9	CAP, CERM, 0.033uF, 100V, +/-10%, X7R, 0805	AVX	08051C333KAT2A
1	C10	CAP, CERM, 0.047uF, 25V, +/-10%, X7R, 0603	TDK	C1608X7R1E473K
0	C11	CAP, CERM, 0.047uF, 25V, +/-10%, X7R, 0603	TDK	C1608X7R1E473K
1	C13	Capacitor, Ceramic Chip, 200V, X7R,±10%, 1206	Yageo	CC1206KRX7RABB102
1	C14	CAP, CERM, 1000pF, 3150V, +80/-20%, E, Radial Disc D7x6mm	MuRata	DEBE33F102ZC3B
1	C15	CAP, CERM, 0.22uF, 250V, +/-10%, X7T, 1206	TDK	CGA5L3X7T2E224K160AE
1	D1	Diode, Switching-Bridge, 600V, 0.8A, MiniDIP	Diodes Inc.	HD06-T
1	D2	Diode, Ultrafast, 100V, 0.15A, SOD-123	Diodes Inc.	1N4148W-7-F
1	D3	TVS UNIDIRECT 600W 130V SMB	Diodes Inc	SMBJ130A-13-F
1	D4	Diode, Ultrafast, 600V, 1A, SMB	Diodes Inc.	MURS160-13-F
0	D5	Diode, Ultrafast, 100V, 0.15A, SOD-123	Diodes Inc.	1N4148W-7-F
1	F1	Fuse, 1A, 250V, TH	Littelfuse	0263001.WRT1L
1	JP1	Jumper Wire, 300mil spacing, Orange, pkg of 200	3M	923345-03-C
1	JP2	Jumper Wire, 600mil spacing, Blue, pkg of 150, TH	3M	923345-06-C
1	JP3	Jumper Wire, 200mil spacing, Red, pkg of 200	3M	923345-02-C
4	L, N, VO+, VO-	Pin, Thru Hole, Tin Plate, for 0.062 PCB's	Vector	K24A/M
1	L1	Inductor, Drum Core, Ferrite, 150uH, 0.82A, 0.33 ohm, TH	MuRata	13R154C

1	Q1	MOSFET, N-CH, 600V, 7A, IPAK	AOS	AOI7N60
1	Q2	MOSFET, N-CH, 60V, 50A, SON 5x6mm	Texas Instruments	CSD18534Q5A
0	Q3	MOSFET, N-CH, 60V, 0.24A, SOT-23	Vishay Siliconix	2N7002E
1	R1	RES, 56.2 ohm, 1%, 0.125W, 0805	Vishay-Dale	CRCW080556R2FKEA
0	R2	RES, 10k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060310K0JNEA
0	R3	RES, 100k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603100KFKEA
2	R4, R5	RES, 5.11k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06035K11FKEA
0	R6	RES, 100k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603100KFKEA
1	R7	RES, 34.8k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0734K8L
1	R8	RES, 133k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603133KFKEA
1	R9	RES, 10.0 ohm, 1%, 0.25W, 1206	Vishay-Dale	CRCW120610R0FKEA
0	R10	RES, 169 ohm, 1%, 0.1W, 0603	Panasonic Electronic	ERJ-3EKF1690V
1	R11	RES, 93.1k ohm, 1%, 0.125W, 0805	Vishay-Dale	CRCW080593K1FKEA
1	R12	RES, 215k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603215KFKEA
1	R13	RES, 10.0 ohm, 1%, 0.125W, 0805	Vishay-Dale	CRCW080510R0FKEA
1	R14	RES, 100 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603100RFKEA
2	R15, R16	RES, 1.87 ohm, 1%, 0.25W, 1206	Vishay-Dale	CRCW12061R87FKEA
1	R17	RES, 22k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060322K0JNEA
1	R18	RES, 196k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603196KFKEA
2	R19, R20	RES, 3.01k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06033K01FKEA
0	R21	RES, 3.01k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06033K01FKEA
1	R22	RES, 37.4k ohm, 1%, 0.125W, 0805	Vishay-Dale	CRCW080537K4FKEA
1	R23	RES, 12.4k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060312K4FKEA
1	R24	RES, 1.00k ohm, 1%, 0.25W, 1206	Vishay Dale	CRCW1206100RJNEA
1	R25	RES, 49.9 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060349R9FKEA
0	R26	RES, 0 ohm, 5%, 0.125W, 0805	Vishay-Dale	CRCW08050000Z0EA
2	R27, R28	RES, 0.0 ohm, 1%, 0.5W, 1206	Panasonic Electronic	ERJ-8GEY0R00V
1	R29	RES, 100 ohm, 1%, 0.25W, 1206	Vishay-Dale	CRCW1206100RFKEA
1	T1	Transformer, 600uH, TH	Wurth Elektronik eiSos	750811114 Rev 2.
1	U1	Constant-Voltage, Constant-Current Flyback Controller Using Opto-Coupler Feedback, D0007A	Texas Instruments	UCC28740D
1	U2	GREEN Rectifier Controller Device, D0008A	Texas Instruments	UCC24610D
0	U3	Open-Drain Output Sub-Microamp Comparator, SOT23-5	Microchip	MCP6546RT-E/OT

1	U4	High Isolation Voltage Single Transistor Type OptoCoupler	California Eastern Laboratories	PS2501L-1
1		LOW-VOLTAGE ADJUSTABLE PRECISION SHUNT REGULATOR, DBZ0003A	Texas Instruments	TLV431AIDBZR

## **IMPORTANT NOTICE FOR TI REFERENCE DESIGNS**

Texas Instruments Incorporated ("TI") reference designs are solely intended to assist designers ("Buyers") who are developing systems that incorporate TI semiconductor products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products.

TI reference designs have been created using standard laboratory conditions and engineering practices. **TI has not conducted any testing other than that specifically described in the published documentation for a particular reference design.** TI may make corrections, enhancements, improvements and other changes to its reference designs.

Buyers are authorized to use TI reference designs with the TI component(s) identified in each particular reference design and to modify the reference design in the development of their end products. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

TI REFERENCE DESIGNS ARE PROVIDED "AS IS". TI MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE REFERENCE DESIGNS OR USE OF THE REFERENCE DESIGNS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. TI DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO TI REFERENCE DESIGNS OR USE THEREOF. TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY BUYERS AGAINST ANY THIRD PARTY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON A COMBINATION OF COMPONENTS PROVIDED IN A TI REFERENCE DESIGN. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES, HOWEVER CAUSED, ON ANY THEORY OF LIABILITY AND WHETHER OR NOT TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, ARISING IN ANY WAY OUT OF TI REFERENCE DESIGNS OR BUYER'S USE OF TI REFERENCE DESIGNS.

TI reserves the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques for TI components are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

Reproduction of significant portions of TI information in TI data books, data sheets or reference designs is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards that anticipate dangerous failures, monitor failures and their consequences, lessen the likelihood of dangerous failures and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in Buyer's safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed an agreement specifically governing such use.

Only those TI components that TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components that have **not** been so designated is solely at Buyer's risk, and Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265 Copyright © 2015, Texas Instruments Incorporated