APPENDIX A3.2.3-7

CHARGER PCBA SCHEMATICS AND LAYOUT (ASM.000279.RD R3)

Confidentiality Statement

Confidentiality Statement: Data and information contained in this document are considered to constitute trade secrets and confidential commercial information, and the legal protections provided to such trade secrets and confidential information are hereby claimed under the applicable provisions of United States law. No part of this document may be publicly disclosed without the written consent of Philip Morris International.

Table of Contents

ASM.000279.RD R3 – SCHEMATICS 3
ASM.000279.RD R3 – BILL OF MATERIAL 9
PCB.000082.RD R3 – COMPONENTS PLACEMENT (TOP SIDE).....11
PCB.000082.RD R3 – COMPONENTS PLACEMENT (BOTTOM SIDE MIRROR) 12
PCB.000082.RD R3 – COMPONENTS PLACEMENT (BOTTOM SIDE) 13
PCB.000082.RD R3 – PCB SPECIFICATION 14
PCB.000082.RD R3 – PCB LAYOUT 15

Confidentiality Statement

Confidentiality Statement: Data and information contained in this document are considered to constitute trade secrets and confidential commercial information, and the legal protections provided to such trade secrets and confidential information are hereby claimed under the applicable provisions of United States law. No part of this document may be publicly disclosed without the written consent of Philip Morris International.

(b) (4)

Prj.No: 613035080	Saved: 24/2/2015
Rev: 1	Printed: 19/3/2015
Author: (b) (4)	
Review: *	
Review: *	
Sheet: 1 of 6	
Size: A3	
File: C(b) ork\PMI\ECAD\MU\ASM000279_R3\Release to PMI\MAIN.SchDoc	

Title: FPD 4.2 - MU Electronics

Part number: ASM.000279.RD_R3

Subtitle: MAIN.SchDoc

(b) (4)

Title:	FPD 4.2 - MU Electronics
Part number:	ASM.000279.RD_R3
Subtitle:	MICROCONTROLLER.SchDoc
Prj.No: 613035080	Saved: 24/2/2015
Rev: 1	Printed: 19/3/2015
Author: (b) (4)	
Review: *	
Review: *	
Sheet: 2 of 6	
Size: A3	
File: C(b) Work\PMI\ECAD\MU\ASM000279_R3\Release to PMI\MICROCONTROLLER.SchDoc	

(b) (4)

Title:	FPD 4.2 - MU Electronics
Part number:	ASM.000279.RD_R3
Subtitle:	TSH_CHARGER.SchDoc
Prj.No: 613035080	Saved: 24/2/2015
Rev: 1	Printed: 19/3/2015
Author: (b) (4)	
Review: *	
Review: *	
Sheet: 3 of 6	
Size: A3	
File: C(b) Work\PMI\ECAD\MU\ASM000279_R3\Release to PMI\TSH_CHARGER.SchDoc	

(b) (4)

Title:	FPD 4.2 - MU Electronics
Part number:	ASM.000279.RD_R3
Subtitle:	MU_CHARGER.SchDoc
Prj.No: 613035080	Saved: 24/2/2015
Rev: 1	Printed: 19/3/2015
Author: (b) (4)	
Review: *	
Review: *	
Sheet: 4 of 6	
Size: A3	
File: C:\(b) Work\PMI\ECAD\MU\ASM000279_R3\Release to PMI\MU_CHARGER.SchDoc	

(b) (4)

[redacted]

Title:	FPD 4.2 - MU Electronics
Part number:	ASM.000279.RD_R3
Subtitle:	USER_INTERFACE.SchDoc
Prj.No: 613035080	Saved: 19/3/2015
Rev: 1	Printed: 19/3/2015
Author: (b) (4)	
Review: *	
Review: *	
Sheet: 5 of 6	
Size: A3	
File: C:(b) Work\PMI\ECAD\MU\ASM000279_R3\Release to PMI\USER_INTERFACE.SchDoc	

(b) (4)

Prj.No: 613035080	Saved: 24/2/2015	Title: FPD 4.2 - MU Electronics
Rev: 1	Printed: 19/3/2015	Part number: ASM.000279.RD_R3
Author: (b) (4)		Subtitle: USB_INTERFACE.SchDoc
Review: *		
Review: *		
Sheet: 6 of 6		
Size: A3		
File: C(b) Work\PMI\ECAD\MU\ASM000279_R3\Release to PMI\USB_INTERFACE.SchDoc		

ASM.000279.RD Rev3 Assembly 066_1005 Main Unit PCBA

Level	Product Code	Product Type	Description	Rev	Designator	Qty
0	ASM.000279.RD	Assembly	Assembly 066_1005 Main Unit PCBA	3		1
. 1	CAP.000001.RD	Capacitor	Capacitor 10nF 10V 10% X7R 0201	1	C313	1
. 1	CAP.000004.RD	Capacitor	Capacitor 100nF 10V 10% X7R 0201	1	C303,C312,C317,C319,C327,C328,C329, C332,C335,C337,C338,C344,C345,C346	14
. 1	CAP.000005.RD	Capacitor	Capacitor 1uF 10V 10% X5R 0402	1	C333,C347	2
. 1	CAP.000011.RD	Capacitor	Capacitor 4.7pF 25V 5% NPO 0201	1	C305,C307,C320,C321	4
. 1	CAP.000012.RD	Capacitor	Capacitor 47pF 50V 5% NPO 0201	1	C306,C309,C310,C314,C316,C324,C326, C339,C340,C341,C342,C343	12
. 1	CAP.000013.RD	Capacitor	Capacitor 220nF 6.3V 20% X5R 0201	1	C323,C325	2
. 1	CAP.000014.RD	Capacitor	Capacitor 470nF 6.3V 10% X5R 0402	1	C315	1
. 1	CAP.000015.RD	Capacitor	Capacitor 4.7uF 6.3V 20% X5R 0402	1	C304,C308,C322,C330,C331	5
. 1	CAP.000018.RD	Capacitor	Capacitor 10uF 10V 10% X5R 0805	1	C318,C334	2
. 1	CAP.000023.RD	Capacitor	Capacitor 22uF 10V 20% X5R 0805	1	C311	1
. 1	CAP.000025.RD	Capacitor	Capacitor 47uF 10V 20% X5R 1206	1	C301,C302,C336	3
. 1	CON.000041.RD	Connector	Connector Male Special 4 FPD 4.x TSH SMT Custom	4	J302	1
. 1	CON.000066.RD	Connector	Connector Female Receptable 5 micro USB 2.0 SMT	1	J303	1
. 1	CON.000067	Connector	Connector Male Rectangular 2 Poles SFH Header, Unshrouded SMT	1	J301	1
. 1	DIO.000002.RD	Diode	Diode RB751S40 Rectifier 40V 0.03A Vd=0.37 SC-79, SOD-523	1	D301,D302	2
. 1	IC.000004.RD	Integrated Circuit	IC TPS797285 SC-70-5, 6-TSSOP (5 Lead), SC-88A, SOT-353	1	U302	1
. 1	IC.000015.RD	Integrated Circuit	IC PESD3V3L4UW SOT-665	2	U305	1
. 1	IC.000017.RD	Integrated Circuit	IC TPD4E001 Array of 4 SOT-666	1	U307	1
. 1	IC.000043.RD	Integrated Circuit	IC 74LVC1G17 SON-6	1	U303	1
. 1	IC.000044.RD	Integrated Circuit	IC TPS63020 14-QFN	1	U304	1
. 1	IC.000045.RD	Integrated Circuit	IC BQ24190 24-VQFN	1	U306	1
. 1	IC.000052.RD	Integrated Circuit	IC MSP430F5524IZQE with MT+BL 80BGA	2	U301	1

ASM.000279.RD Rev3 Assembly 066_1005 Main Unit PCBA

Level	Product Code	Product Type	Description	Rev	Designator	Qty
. 1	IND.000004.RD	Inductor	Inductor 2.2uH 30% 3.2A 5.0x5x2	1	L305	1
. 1	IND.000007.RD	Inductor	Inductor 1.2uH 30% 4.2A 5.0x5x2	1	L302	1
. 1	IND.000012.RD	Inductor	Inductor 0H 0% 6A 0603	1	L301,L303,L304,L306,L310,L311	6
. 1	LED.000006	LED	LED Red 0603	1	D307,D309	2
. 1	LED.000007	LED	LED Green 0603	1	D303,D304,D305,D306,D308,D310	6
. 1	MSC.000007.RD	Misc Parts	XTAL 32768Hz 1206	1	Y302	1
. 1	MSC.000023.RD	Misc Parts	Switch tactile surface mount 12V 0.05A 90°	1	S301,S302	2
. 1	MSC.000024.RD	Misc Parts	XTAL 24MHz 2.0x1.6	1	Y301	1
. 1	PCB.000082.RD	PCB	PCB Blank 235x95mm 10x F4M3	3		1
. 1	RES.000003.RD	Resistor	Resistor 10kΩ 5% 0.05W 200ppm/K 0201	1	R304,R312,R316,R318,R336	5
. 1	RES.000025.RD	Resistor	Resistor 33mΩ 1% 0.25W 350ppm/K 0603	1	R330	1
. 1	RES.000027.RD	Resistor	Resistor 27Ω 1% 0.125W 100ppm/K 0805	1	R321,R326	2
. 1	RES.000029.RD	Resistor	Resistor 1k3Ω 5% 0.05W 200ppm/K 0201	1	R325,R333,R334	3
. 1	RES.000030.RD	Resistor	Resistor Array of 4 4k7Ω 5% 0.062W 200ppm/K 0408	1	R306,R307,R311,R324,R328,R331	6
. 1	RES.000031.RD	Resistor	Resistor 100kΩ 1% 0.05W 200ppm/K 0201	1	R309,R337,R338	3
. 1	RES.000032.RD	Resistor	Resistor 180kΩ 1% 0.05W 200ppm/K 0201	1	R305,R310,R317,R322	4
. 1	RES.000033.RD	Resistor	Resistor 680kΩ 1% 0.05W 200ppm/K 0201	1	R308,R319,R320,R323	4
. 1	RES.000061.RD	Resistor	Resistor 240Ω 5% 0.05W 100ppm/K 0201	1	R315,R335	2
. 1	RES.000067.RD	Resistor	Resistor Array of 2 33Ω 5% 0.063W 200ppm/K 0404	1	R301,R303,R327	3
. 1	RES.000068.RD	Resistor	Resistor Array of 2 220Ω 5% 0.063W 200ppm/K 0404	1	R302,R329	2
. 1	RES.000070.RD	Resistor	Resistor 15kΩ 5% 0.05W 200ppm/K 0201	1	R313	1
. 1	TR.000002.RD	Transistor	Transistor MBT3904 Array of 2 NPN 40V 0.2A SOT-666	1	Q301,Q302,Q303,Q304,Q305	5

TOP ASSY

(b) (4)

BOTTOM ASSY

(b) (4)

BOTTOM ASSY

(b) (4)

PCB specification - PCB.000082.RD_R3

General

Material	FR 4 / UL94-0
Thickness	1.0 mm(b) (4)

Layer count	6
IPC class	Class 2

Layer stacking

Position	Specification	Data file
TOP		
(b) (4)		PCB.000082.RD_R3_13Jan15.GM19
		PCB.000082.RD_R3_13Jan15.GTS
		-
		PCB.000082.RD_ R3_13Jan15.GTL
		-
		PCB.000082.RD_ R3_13Jan15.G1
		-
		PCB.000082.RD_ R3_13Jan15.G2
		-
		PCB.000082.RD_ R3_13Jan15.G3
		-
		PCB.000082.RD_ R3_13Jan15.G4
		-
		PCB.000082.RD_ R3_13Jan15.GBL
		-
		PCB.000082.RD_ R3_13Jan15.GBS
		PCB.000082.RD_R3_13Jan15.GM20
BOTTOM		

Special instructions

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA
PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
LAYER 2

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA
PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
LAYER 3

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA
PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
LAYER 4

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA
PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
LAYER 5

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA
PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
LAYER 6 (BOTTOM)

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
BOTTOM PASTE MASK

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
BOTTOM SOLDER MASK

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
DRILL DRAWING

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
DRILL DRAWING

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
DRILL DRAWING

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
DRILL DRAWING

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
DRILL DRAWING

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA
PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics

BOTTOM OVERLAY

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA
PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics

TOP OVERLAY

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA
PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
LAYER 1 (TOP)

PCB LAYOUT DRAWN BY : ((b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

((b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
TOP PASTE MASK

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)

VUE DEPUIS LE LAYER TOP / VIEW FROM TOP LAYER

PHILIP MORRIS PRODUCTS SA

PCB No : PCB.000082.RD_R3

FPD 4.2 MU Electronics
TOP SOLDER MASK

PCB LAYOUT DRAWN BY : (b) (4)

PCB FILE NAME : PCB.000082.RD_R3_13Jan15.pcbDoc

(b) (4)