### A B C D E F G H

1 1

2 2

3 3

4 4

5 5

|  |
| --- |
|  |
| Tiiitttllle | <Tiiitttllle> |  |  |  |  |  |
| SiiizeCusttt | Documenttt Numberrr om<Doc> | Re v<Rev |
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## Code>

### A B C D E F G H

A B C D E F G H

19V

VDD\_19V\_IN

12

OUT

## 19V

### VDD\_19V\_IN

U52 TPS7A1650DRBR

SON8 COMMON

1/1 TPS7A16x

### 8 IN

### OUT 1

## No Stuff Rdiv for Fixed Output

0.2A 0.400

1

5V

### 5V0\_AO

nv\_cap

1

## 19V

### VDD\_19V\_IN

1

R377

10k

nv\_res

## 19V

### VDD\_19V\_IN

1

R390

10k

nv\_cap

### C223

1uF

25V

10% X7R 603

COMMON

## GND

1 2

### R338 31.6k

1

1%

402

COMMON

2

nv\_res

1

### R385 10.7k

1%

402

COMMON

2

nv\_res

### R376 11.5k

1

1%

402

COMMON

2

### 5V0\_AO\_EN

SNN\_5V0\_AO\_NC

5V0\_AO\_DLY

nv\_cap

### C230

1nF

50V

5% C0G 402

COMMON

### EN

1. NC
2. DELAY

### PG 3

### FB\_NC 2

### GND 4

### TPAD 9

5V0\_AO\_FB

GND

R380

34k

1%

402

NO STUFF

nv\_res

nv\_res

### R381 10.7k

1%

402

NO STUFF

2

## GND

1

### C235

* 1. uF

10V

10% X7R 603

COMMON

5%

402

COMMON

2

5%

402

COMMON

1G1D1S

### 3

D Q59

MOD\_PWR\_CFG\_9V

## GND GND

GND

1G1D1S

3

### D Q46

BSS138

MOD\_PWR\_CFG\_9V\*

BSS138

G SOT23\_1G1D1S COMMON

1

2

1

### S 2

Enable at 8V or 4.5V Rising

2,11 IN

2

MOD\_PWR\_CFG\_ID

### 1

1

G

R389

10k

5%

402

COMMON

2

SOT23\_1G1D1S COMMON

### S 2

R392

10k

5%

402

COMMON

2

2

## GND GND GND GND

5V

### 5V0\_AO

1

R379

10k

5%

402

COMMON

2

3

1G1D1S 3

CARRIER\_PWR\_ON\_DLY

## 5V

### 5V0\_AO

nv\_res

1

R288 44.2k

1%

402

COMMON

2

1G1D1S D

### 1G

3

Q55

BSS138 SOT23\_1G1D1S

## 5V

### 5V0\_AO

5V

5V0\_AO

1

ONOFF\_CTLR\_P1B1OUT MOD\_VIN\_EN 12

3

OUT

OUT

2,9,11,13,15 IN

CARRIER\_PWR\_ON

### D Q41

BSS138 SOT23\_1G1D1S COMMON

1G

### S 2

GND

GND

nv\_cap

### C206 47uF

10V

20% X5R 805

COMMON

COMMON

### S 2

GND

nv\_res

1

R276

0ohm

0.05 ohm

nv\_cap

### C233 0.1uF

16V

20% X5R 402

COMMON

### U53

SRC0GS22D

LTST-C281KRKT-5A

### DS1

30mA

* 1. V

### R391

10k

5%

402

COMMON ONOFF\_CTLR\_VCCLO\_LED

2 2

## 5V

### 5V0\_AO

R388

1

10k

5%

402

COMMON

## 5V 5V

5V

### 5V0\_AO

nv\_cap

402

COMMON

## GND

2

TDFN12 COMMON

### 1 VCC

VCCLO\*

Red 402

7COMMON

1

### ONOFF\_CTLR\_VCCLO\_L

5V0\_AO

R386

2

1

10k

5%

### 5V0\_AO

R378

1

10k

5%

### U42

74LVC1G74

### C234 0.1uF

16V

20% X5R 402

COMMON

4

11 IN

### MOD\_PWR\_CFG\_ID\_L

1G1D1S

### 1G

3

### D Q56

BSS138 SOT23\_1G1D1S COMMON

### ONOFF\_CTLR\_PSHOLD

POWER\_BTN\_2\_SR

4 PSHOLD

PBOUT 8

EN/EN\* 9

ONOFF\_CTLR\_PBOUT

MOD\_VIN\_EN

402

COMMON

2

402

COMMON

### MOD\_PWR\_ON\_SET

2

DFN08 COMMON

### 7 SD\*

VCC 8

GND

4

### MOD\_PWR\_ON\_STATE

9,16 IN

S 2

### POWER\_BTN

2 SR\*

6 PB\*

RST\*

10 MOD\_PWR\_ON\_CLK

1R290

nv\_res

0ohm2

MOD\_PWR\_ON\_RST

2 D

1 CP

6 RD\*

Q 5

### Q\* 3

### GND 4

11

### MOD\_PWR\_ON\_STATE\_L

11

OUT OUT

### ONOFF\_CTLR\_SR\_DLY

5 CSRD

INT\* 11

402 0.05 ohm COMMON

2 IN

## WAKE\_L

### 1R289

nv\_res

0ohm2

C231 0.47uF

nv\_cap

### ONOFF\_CTLR\_VREF

nv\_cap

### C232

1uF

3 VREF

GND 12

GND

402 0.05 ohm COMMON

16V

10% X7R 603

COMMON

6.3V

10% X7R 603

COMMON

## GND

GND GND

### ONOFF\_CTLR\_INT

5 5

## Tiiitttllle

<Tiiitttllle>

### Siiize

## Documenttt Numberrr

## Re v

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Sheettt

10 o fff 16

A B C D E F G H

A B C D E F G H

1 5V

5V0\_AO

## nv\_cap

5V

### 5V0\_AO

1

## nv\_cap

### 1R277

nv\_res

0ohm2

MOD\_PWR\_ON\_STATE\_L\_R

GND

C196 0.1uF

16V

20% X5R 402

COMMON

## 5V

### 5V0\_AO

1

5

U41

GND

C190 0.1uF

16V

20% X5R 402

COMMON

1G1D1S

### 3

D Q50

BSS138

### POWER\_ON

2,9

OUT

10 IN

### MOD\_PWR\_ON\_STATE

402 0.05 ohm COMMON

## nv\_res

### 5V

5V0\_AO

5

## nv\_res

### R281

1

0ohm

0.05 ohm 402

NO STUFF

2

### 2

GND

3

SN74LVC1G08

### 4

SC70-5 COMMON

MOD\_PWR\_ON\_STATE\_MASKED

SOT23\_1G1D1S COMMON

### S 2

1G

GND

ON OFF STATE

10 IN

### 1R278

0ohm2

2 4

MOD\_PWR\_ON\_STATE\_OR\_VIN\_EN\_NOT

402 0.05 ohm COMMON

3

2

GND

U46

SN74LVC1G04 SC70 COMMON

## 5V

### 5V0\_AO

1

R394

10k

5%

402

COMMON

2

### MOD\_PWR\_CFG\_ID\_L

10

2

OUT

2,10 IN

### MOD\_PWR\_CFG\_ID

1G1D1S D

### 1G

S

3

Q47

BSS138

SOT23\_1G1D1S COMMON

### 2

5V

5V0\_AO

GND

5V

5V0\_AO

nv\_cap

5V

5V0\_AO

1

5V

5V0\_AO

nv\_cap

3

## GND

nv\_cap

### C195 0.1uF

16V

20% X5R 402

COMMON

## 5V

### 5V0\_AO

GND

C191 0.1uF

16V

20% X5R 402

COMMON

### R280

10k

5%

402

COMMON

2

## 5V

### 5V0\_AO

5

U40

GND

C189 0.1uF

16V

20% X5R 402

COMMON

1G1D1S

3

### 3

D Q45

2,9,10,13,15 IN

CARRIER\_PWR\_ON

U43

1 SN74AUP1G0O0NDOCFKFR\_CTLR\_PBOUT\_MASKED1

5

### 4

1R28 2

nv\_res

0ohm2

1. SINGLE\_HC1G02

ONOFF\_CTLR\_PBOUT\_MASKED2

### 4

1. SC70

3

BSS138 SOT23\_1G1D1S COMMON

### S 2

1G

ON/OFF MOMENTARY ALL OTHER PULSES

10 IN

### ONOFF\_CTLR\_PBOUT

5V

5V0\_AO

5

2

GND

3

4 ONOFF\_CTLR\_PBOUT\_INV

### U45

SN74LVC1G04 SC70 COMMON

nv\_res

### R4 100k

1

1%

402

COMMON

2

## GND

2

3

GND

SC70-5 COMMON

402 0.05 ohm COMMON

## GND

COMMON

## GND

5V

### 5V0\_AO

5V

nv\_cap

## nv\_res

### R284

1

4 5V0\_AO

nv\_cap

## 5V

### 5V0\_AO

2

5V

5V0\_AO

1

C193 0.1uF

16V

0ohm 4

0.05 ohm 402

## 5V

### 5V0\_AO

GND

### C208 0.1uF

16V

20% X5R 402

COMMON

MOD\_PWR\_ON\_STATE\_L\_MSK\_Q

### 3

nv\_res

R5

1

15k

1%

402

COMMON

2

### R9

10k

5%

402

COMMON

MOD\_PWR\_ON\_STATE\_LMSK DLY

2

### 3

5V

### 5V0\_AO

1

5

U44

GND

20% X5R 402

COMMON

COMMON

1G1D1S

5

### 1

4 1G

D Q51

BSS138 SOT23\_1G1D1S

1G1D1S

### 1G

D Q52

BSS138 SOT23\_1G1D1S

U\_XOR\_2MINOD\_PWR\_ON\_STATE\_L\_PULSE

### 4

2 SC70

1

COMMON

3

### MOD\_PWR\_ON\_STATE\_L

2 U49

SN74LVC1G32DCKR SC70

3

COMMON

COMMON

### S 2

GND

nv\_cap

### C192 47uF

10V

COMMON

### S 2

GND

2

GND

### R245

10k

5%

402

COMMON

1G1D1S

### 3

D Q53

BSS138

MOD\_PWR\_ON\_STATE\_L\_PULSE\_F\_Q

## ON/OFF MOMENTARY INITIAL POWER ON PULSE

GND

### MOD\_PWR\_ON\_STATE\_L\_MSK

GND

20%

X5R 805

COMMON

MOD\_PWR\_ON\_STATE\_L\_PULSE\_F

nv\_cap

### C194

1uF

16V

20% X5R 402

COMMON

G SOT23\_1G1D1S COMMON

### S 2

1

## GND

5 GND 5

## Tiiitttllle

## <Tiiitttllle>

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## Dattte:::

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## Sheettt

## o fff 16

### A B C D E F G H

A B C D E F G H

19V Jack

19V

VDD\_19V\_CON

19V

1 VDD\_19V\_CON

19V

9

19V

OUT

1

U533

1 2

### 1 2

10.0A

6.000

### LB16 30ohm

BEAD\_0603 COMMON

### VDD\_19V\_IN

10.0A

6.000

### 1R2004

1206

### 0ohm2

NO STUFF

12V

### VDD\_12V\_SLP

VDD\_19V\_IN

10

19V

VDD\_MOD

OUT

DC JACK

### LB17

30ohm

D13

### C179

C177

C178

0.005 ohm

### C2228

C2227

C2229

2

BEAD\_0603 COMMON

### LB15 30ohm

C174 0.1uF

BZX84C24LT1G

### C501 4.7uF

10uF

25V

### 10uF

25V

### 10uF

25V

### LB20

30ohm

10uF

25V

### 10uF

25V

### 10uF

25V

OUT

2\*1p

3

25V

SOT23

25V

20%

20%

20%

BEAD\_0603 NO STUFF

20%

20%

20%

BEAD\_0603 COMMON

### LB18 30ohm

10%

25.6V

0.225W

1

10%

X5R

X5R

X5R

### LB21

30ohm

X5R

X5R

X5R

19V

### VDD\_MUX

X7R

COMMON

X5R

0603W

0603W

0603W

BEAD\_0603 NO STUFF

0603W

0603W

0603W

BEAD\_0603 COMMON

603

805

COMMON

COMMON

COMMON

### LB22

30ohm

COMMON

COMMON

COMMON

COMMON

COMMON

## GND GND

GND

BEAD\_0603 NO STUFF

## GND

GND

GND

12V

13,15

OUT

## GND

PLUG 5.5 0D, 2.5 ID

GND

### VDD\_12V\_SLP

6

OUT

2

1

### R501

10k

5%

402

COMMON

2

### C237 4.7uF

25V

10% X5R 805

COMMON

### MOD\_VIN\_EN\_G

2

3 25V

### S 2W

2

-50A

14mohm@10V / 22mohm@4.5V / [ ]@2.5V

1

G

-10A

4 -30V

COMMON

### R383

1

10k

5%

402

COMMON

1G1D3S

DFN3X3

### PE507BA

D

5 Q30

19V\_INPUT

### C176 0.47uF

VIN\_PWR\_BAD\_C

1

### 1R273

10k 2

1G1D1S

VIN\_PWR\_BAD\_CQ 1G

### 3

D Q31

NTS4001NT1G SOT323\_1G1D1S COMMON

VIN\_PWR\_BAD\_L

2,9,13,15

OUT

### MOD\_VIN\_EN

10

1R285

nv\_res

0ohm2

MOD\_VIN\_EN\_OPT

1G1D1S

### 1G

MOD\_VIN\_EN\_D

3

2

D Q43

BSS138 SOT23\_1G1D1S

6.000

805 50V

10% X7R

COMMON

### R272 100k

1%

402

COMMON

2

402 5% COMMON

COMMON 0.2A

2 1

1

30V SOD523

RB521S30T1G

### D31

2

R274

47k

5%

402

COMMON

S 2

30V

0.27A

1500mohm@10V / 1500mohm@4.5V / 1500mohm@2.5V 0.8A

0.33W

20V

IN

402 0.05 ohm COMMON

3

COMMON

### S 2

50V

* 1. A

3500mohm@10V / 3500mohm@4.5V / 3500mohm@2.5V 0.2A

* 1. W

20V

## GND

GND

GND

GND

3

## GND

4

1G1D1S

### 3 VIN\_DISCHARGE\_G

D

5V

5V0\_AO

R382

2 1

10k

5%

402

COMMON

1G1D1S

### 1G

nv\_res

### R384

1

221ohm

1%

603

COMMON

2

0V.I5N0\_0DISCHARGE\_D

### 3

D Q44

AO3402 SOT23\_1G1D1S COMMON

## PCB CO-LAYOUT

MAX CURRENT: 8A

### LB13 30ohm

BEAD\_0603 COMMON

### C169

2 1

86..00A0

## 19V

### VDD\_MOD

To Compute Module

4

### Q42

BSS138

G SOT23\_1G1D1S COMMON

1

### S 2

50V

S 2

30V

3.4A

52mohm@10V / 65mohm@4.5V / -1000mohm@2.5V 15A

1W

12V

### LB12 30ohm

BEAD\_0603 COMMON

### C186 10uF

25V

20% X5R

### C187 10uF

25V

20% X5R

### 56uF

COMMON 20%

25V@105degC ALE

### C77 22uF

35V

20% X5R

### C75 10uF

25V

20% X5R

### C168 10uF

25V

20% X5R

### C166 10uF

25V

20% X5R

### C167 0.1uF

50V

10% X7R

0.2A

3500mohm@10V / 3500mohm@4.5V / 3500mohm@2.5V

### LB14

30ohm

0603W

0603W

2.8A@105degC,100KHz

0.03ohm

805

0603W

0603W

0603W

603

* 1. A
	2. W

20V

## GND

BEAD\_0603 COMMON

COMMON

COMMON

SMD\_D60

COMMON

COMMON

COMMON

COMMON

COMMON

## GND

GND

GND

GND

GND

GND GND

GND

GND

### 1R1999

1206

### 0ohm2

NO STUFF

## 19V

### VDD\_MUX

To IO board

0.005 ohm

5 5

## Tiiitttllle

<Tiiitttllle>

### Siiize

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Sheettt

1. o fff 16

A B C D E F G H

5V & 3V3 SYS POWER SUPPLIES

### 19V

VDD\_MUX

### 5V

VDD\_5V0\_IO\_SYS

IN 9

5V\_SYS\_EN

1R2016

402

0ohm2

NC

C172 56uF

C165

0.100

C163

C164

8.0A

C173 56uF

19V

VDD\_MUX

5,6,8,14,15 OU T

CARRIER\_PWR\_ON

0.05 ohm

1R507

0ohm2

COMMON

20%

1

22uF

25V

1uF

50V

1uF

50V

COMMON

20%

1

12,15

### V

OU T

IN 2,9..11,15

402

0.05 ohm

### 5V

COMMON

25V@105degC

ALE 2.8A@105degC,100KHz

2

0.03ohm SMD\_D60

10% X5R 1206

COMMON

10% X5R 603

COMMON

10% X5R 603

COMMON

25V@105degC

ALE 2.8A@105degC,100KHz

2

0.03ohm

 SMD\_D60

VDD\_3V3\_SYS

14,15

OU T

VDD\_5V0\_IO\_SYS

### VIN=4.5V-28 V

U31

TPS53015

0.773V

VBST\_IO

GND

1R515

1ohm2

BUCK\_BST\_IO

D1

G11

2

Q29

### PCB CO-LAYOUT

5V

VDD\_5V0\_IO\_SYS

R504

1

R503

1

GND

XSOP10 COMMON

402 5% COMMON

0.400

C504

SiZ918DT-T1-GE3

WPAK\_DUAL\_COPAD COMMON

L15

1uH

10k

5%

402

COMMON

2

47k

5%

402

COMMON

2

1G1D1S D 6

BUCK\_IO\_EN

5 VIN

4 EN

VBST 10

DRVH 9

0.400

BUCK\_IO\_HSDR

1.000

0.1uF

16V

10% X7R 402

COMMON

S1/D2 7

4.000

SMD\_9X8 NO STUFF

VDD\_5V0\_IO\_SYS\_R

4.000

13.0A

4.000

Q511A

### VIN=4.5V-28 V

L16

1uH

13.0A

D\_FORCE\_OFF\_G

AO6800 SOT23\_6D\_1G1D1S COMMON

S 5

1G

30V

3.4A

-1000mohm@10V / 75mohm@4.5V / 115mohm@2.5V

C171 4.7uF

0.200

BUCK\_IO\_VREG

3 VREG5

SW 8

BUCK\_IO\_VSW

BUCK\_IO\_LSDR

6.0A

SMD\_073X066 COMMON

R243

1

10ohm

C148 22uF

C142 220uF

COMMON

1

C144 220uF

COMMON

1

C158 100uF

D\_FORCE\_OFF\_L

1G1D1S D

3G

4

Q501B

AO6800 SOT23\_6D\_1G1D1S

20A

1.15W

12V

GND

6.3V

10% X5R 603

COMMON

2 PG

1 VFB

DRVL 7

PGND 6

R512

3.3ohm

1

5%

2

1.000

G62

S2 3

4

5

### R for test and measurement

1%

603

COMMON

1 2

BUCK\_FB\_IO\_MID

C149

16V

20% X5R 0805LP

COMMON

C154

20%

6.3V@105degC TA-Polymer

2

1.7A@45degC,100KHz

0.045ohm SMD\_3528

C143

2 1

20%

6.3V@105degC TA-Polymer

2

1.7A@45degC,100KHz

0.045ohm SMD\_3528

C156

6.3V

20% X5R 1206

COMMON

IN

1

R505 1M

5%

402

COMMON

2

COMMON

S 2

30V

* 1. A

-1000mohm@10V / 75mohm@4.5V / 115mohm@2.5V 20A

1.15W

12V

GND

### 5V

VDD\_5V0\_IO\_SYS

R509

1

GND

GND

BUCK\_IO\_SNUB 1.000

GND

603

COMMON

C503 680pF

50V

5% C0G 603

COMMON

GND

2

R514

1

75k

5%

402

COMMON

### ROCL

GND

0.400

Vout = Vref \* ((Rb1 / Rb2) + 1) Vref = 0.773V

Rb1

R251 121k

1%

402

COMMON

2

R250

1

1k

5%

402

COMMON

BUCK\_FB\_IO\_MID\_R

2

C161 150pF

0.1uF

16V

10% X7R 402

COMMON

22uF

16V

20% X5R 0805LP

COMMON

220uF

COMMON 20%

6.3V@105degC TA-Polymer

1.7A@45degC,100KHz

0.045ohm SMD\_3528

100uF

6.3V

20% X5R 1206

COMMON

GND

10k

5%

402

COMMON

2

### VDD\_5V0\_IO\_SYS\_PG

R510

0ohm

### Iocl=(((Vin-Vout)\*Vout)/2\*L\*fsw\*Vin)+Vtrip/Rdson

3V3\_SYS\_BUCK\_EN

BUCK\_IO\_FB

Rb2

R256

1

50V

5% C0G 402

COMMON

GND

1 2

402 COMMON

0.05 ohm

22.1k

1%

402

COMMON

2

GND

### 19V

VDD\_MUX

8.0A

IN 9

3V3\_SYS\_EN

1R2017

402

0ohm2

NC

C125 56uF

COMMON

1

20%

25V@105degC ALE

2

2.8A@105degC,100KHz

0.03ohm SMD\_D60

C126 56uF

COMMON

1

20%

25V@105degC ALE

2

2.8A@105degC,100KHz

0.03ohm SMD\_D60

C106

1uF

50V

10% X5R 603

COMMON

C107

1uF

50V

10% X5R 603

COMMON

U16

TPS53015

R536

1ohm

BUCK\_BST

### 3.3V

0.05 ohm

3V3\_SYS\_BUCK\_EN

GND

0.773V

XSOP10

NS COMMON

5 VIN

VBST

VBST 10

0.400

1 2

402 5% COMMON

0.400

BUCK\_HSDR

C513 0.1uF

16V

10% X7R 402

D1

G11

2

Q23

SiZ918DT-T1-GE3 WPAK\_DUAL\_COPAD COMMON

### PCB CO-LAYOUT

L8 2.2uH

SMD\_6X6 NO STUFF

VDD\_3V3\_SYS\_PWR\_R

8.0A

VDD\_3V3\_SYS

4.000

D\_FORCE\_OFF\_G

C502 0.1uF

1

16V

10% X7R

2

R502 1M

5%

402

COMMON

3

D Q503

FDV301N SOT23\_1G1D1S COMMON

1G

S 2 1G1D1S

25V

0.22A

-1000mohm@10V / 4000mohm@4.5V / -1000mohm@2.5V 0.5A

0.35W

8V

C120 4.7uF

6.3V

10% X5R 603

0.200

BUCK\_VREG

4 EN

3 VREG5

2 PG

1 VFB

DRVH 9

SW 8

DRVL 7

PGND 6

BUCK\_VSW

BUCK\_LSDR

1.000

R533

2

1

COMMON

8.0A

1.000

S1/D2 7

G62

1

4.000

L7 1uH

SMD\_073X066 COMMON

### R for test and measurement

R159

1

10ohm

1%

603

COMMON

2

8.0A

C88

1uF

50V

10% X5R 603

COMMON

C76 220uF

COMMON 20%

2 1

6.3V@105degC TA-Polymer

1.7A@45degC,100KHz

4.000

402

COMMON

GND

1G1D1S

GND

3

VIN\_PWR\_BAD\_L

2

2,9,12,15

OU T

GND

COMMON

GND

BUCK\_SNUB 1.000

GND

3.3ohm

5%

603

COMMON

C508 680pF

50V

5% C0G 603

COMMON

GND

R535

75k

5%

402

COMMON

S2 3

4

5

GND

Vout = Vref \* ((Rb1 / Rb2) + 1) Vref = 0.773V

Rb1

BUCK\_FB\_MID

R162 71.5k

1

1

1%

402

COMMON

2

R161

1k

5%

402

COMMON

2

BUCK\_FB\_MID\_R

C97

C90 0.1uF

16V

10% X7R 402

COMMON

C85

220uF

1

COMMON 20%

6.3V@105degC TA-Polymer

2

1.7A@45degC,100KHz

0.045ohm SMD\_3528

GND

0.045ohm

SMD\_3528

C86

220uF

1

COMMON 20%

6.3V@105degC TA-Polymer

2

1.7A@45degC,100KHz

0.045ohm SMD\_3528

D Q502

NTS4001NT1G SOT323\_1G1D1S COMMON

1G

BUCK\_FB

150pF

50V

5% C0G

1

S 2

30V

0.27A

1500mohm@10V / 1500mohm@4.5V / 1500mohm@2.5V 0.8A

0.33W

20V

GND

### 3.3V

VDD\_3V3\_SYS

R513

1

10k

5%

402

COMMON

2

Rb2

GND

R166 21.5k

1%

402

COMMON

2

402

COMMON

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### A B C D E F G H

1 1

## 3.3V

### VDD\_3V3\_SLP

1V8 POWER SUPPLY AND 3V3\_SYS

6..8,15

5V

VDD\_5V0\_IO\_SYS

OUT

## 1.8V

### VDD\_1V8

5,6,8,13,15

OUT

## 3.3V

6,8,15

OUT

## 5V

### VDD\_5V0\_IO\_SYS

VDD\_3V3\_SYS

13,15

OUT

OUT 2,9

2

### RESET\_OUT\_L

R322

1

R120

1

U9 GND

### C57 33uF

COMMON

2 1

20%

16V@105degC TA-Polymer

1.291A@45degC,100KHz

0.045ohm SMD\_3528

2

### C67 0.1uF

402 16V 10% X7R

## 5V

### VDD\_5V0\_IO\_SYS

NS

0ohm

0.05 ohm 402 COMMON

2

### 0ohm

0.05 ohm 402 COMMON

### APW8805

0.8V DFN10 COMMON

2

### 9

PGOOD

0.400

### 3

VIN

SYNV18DBC\_3\_BST

OpenVReg

SYNV18DBC\_3\_SW

10

EN/FS

NO STUFF

## 1.8V

### VDD\_1V8

2 1.8k

NO STUFF 5%

### R1251

402 8

2

MODE/BOOT/NC

### 1V8\_EN

SYNV18DBC\_3\_VCC

1

0.400

VCC

### 6 L6

SW SW GND GND THERM

1uH

3.0A

1

VDD\_1V8\_IO

IN 9

### R127

C66 0.1uF

C59 0.1uF

SMD\_045\_041 COMMON

### 4

7

R124

0.400

### 100k

1%

402

COMMON

16V

10% X7R 402

COMMON

2

1

16V

10% X7R 402

COMMON

5

### 11

FB

GND

R123

10ohm

1%

402

COMMON

SYNV18DBC\_3\_FB2

1

2

### C62

C63 220uF

COMMON

1

20%

6.3V@105degC TA-Polymer

2

## GND GND GND

3

SYNV18DBC\_3\_FB

### 25.5k

1%

402

COMMON

2

### R122

0ohm

0.05 ohm 402 COMMON

2

### 0.1uF

16V

10% X7R 402

1

COMMON

SYNV18DBC\_3\_FB\_C

1.7A@45degC,100KHz

 0.045ohm SMD\_3528

GND

3

### R119

1

20k

1%

402

COMMON

2

## GND

3.3V

### VDD\_3V3\_SYS

4 C69

### 22uF

16V

20% X5R 0805LP

COMMON

1

### C70 22uF

16V

20% X5R 0805LP

COMMON

C71 4

### 22uF

16V

20% X5R 0805LP

COMMON

### R129

75k

5%

402

COMMON

3 8V

S 3.5W

2

-50A

## GND

GND

GND

IN 2,9

### SOC\_PWR\_REQ

R136

SW\_VDD\_3V3\_SYS\_R

### D Q21

3

FDV301N SOT23\_1G1D1S COMMON

1G

S 2 1G1D1S

1

25V

0.22A

### 2 4.7k

COMMON

5%

### R1311

402

SW\_VDD\_3V3\_SYS\_G

### C65 10nF

25V

10% X7R

G

### 4

2

1G1D3S

-1000mohm@10V / 14mohm@4.5V / 19mohm@2.5V

-13A

1

-20V

COMMON DFN3X3

D

### AM7321P

5 Q19

1M

5%

402

COMMON

-1000mohm@10V / 4000mohm@4.5V / -1000mohm@2.5V 0.5A

0.35W

8V

2

## GND GND

603

COMMON

## 3.3V

4.0A

3V3\_IO\_SLP\_R

3.000

3.000

## 3.3V

### VDD\_3V3\_SLP

5 5

## Tiiitttllle

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### Siiize

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A B C D E F

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### H

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A B C D E F G H

RAIL DISCHARGE

3.3V

VDD\_3V3\_SLP

6..8,14 OUT

5V

VDD\_5V0\_IO\_SYS

1

## 19V

### V

DD\_MUX

D7 BAT54ALT1

30V

0.2A

SOT23

COMMON VDD\_MUX\_CAP

1

3

2

R98

10k

5%

402

COMMON

R90

0ohm

0.05 ohm 402

COMMOVNDD\_MUX\_CAP\_R

VIN\_PWR\_BAD\_L

2,9,12,13 OUT

E

C53 10uF

25V

2

GND

B

DIS\_PNP\_B 1 C COMMON

20%

X5R 0603W COMMON

C52 10uF

25V

20% X5R 0603W

COMMON

R88 10M

5%

402

COMMON

R95

0ohm

0.05 ohm 402 COMMON

VIN\_PWR\_BAD\_R\_L

SOT23\_1B1C1E

MMBT4403

1G1D1S

1B1C1E

3 Q14

DIS\_PNP\_C

D

1G

S

GND

R93

10k

5%

402

COMMON

2

D5 BAT54CW

30V

0.2A SOT323 COMMON

3

Q13

NTS4001NT1G SOT323\_1G1D1S COMMON

2

30V

0.27A

1500mohm@10V / 1500mohm@4.5V / 1500mohm@2.5V 0.8A

0.33W

20V

GND

DISCHARGE\_CAT

3

DISCHARGE

6,9

C201 2.2uF

50V

20% X5R 0603W

COMMON

R105

20k

1%

402

COMMON

R94 100k

1%

402

COMMON

C49

1uF

50V

10% X5R 603

COMMON

1

OUT

R63 100k

1%

402

COMMON

19V

VDD\_MUX

GND

GND

R77

47k

5%

402

COMMON

DISCHARGE\_CAR

1G1D1S

D

IN

CARRIER\_PWR\_ON

2,9..11,13

1G

3

Q11

NTR4003NT1G SOT23\_1G1D1S COMMON

S 2

30V [ ]

-1000mohm@10V / 1500mohm@4.5V / -1000mohm@2.5V 1.7A

0.83W

20V

NS

R78 100k

1%

402

NO STUFF

5,6,8,13,14 OUT

1.8V

VDD\_1V8 1

6,8,14

OUT

3.3V

VDD\_3V3\_SYS

13,14

OUT

19V

1

VDD\_MUX

2 1

2

1

1

12,13

OUT

2 2

2

1

2

1

2

1

1

2

2

3 3

2

1

1

2

## GND

2

5V

### VDD\_5V0\_IO\_SYS

3.3V

VDD\_3V3\_SYS

1.8V

VDD\_1V8

3.3V

VDD\_3V3\_SLP

4 4

1

1

1

1

### R64

100ohm

5%

603

COMMON

2

### R65

47ohm

5%

603

COMMON

2

### R75

36ohm

5%

603

COMMON

2

### R57

47ohm

5%

603

COMMON

2

0.400

0.400

0.400

0.400

VDD\_5V0\_DISCHARGE

VDD\_3V3\_DISCHARGE

VDD\_1V8\_DISCHARGE

VDD\_3V3\_SLP\_DISCHARGE

DISCHARGE

1G1D1S D

### 1G

S

3

Q8

NTR4003NT1G SOT23\_1G1D1S COMMON

### 2

DISCHARGE

1G1D1S D

### 1G

S

3

Q9

NTR4003NT1G SOT23\_1G1D1S COMMON

### 2

DISCHARGE

1G1D1S D

### 1G

S

3

Q12

NTR4003NT1G SOT23\_1G1D1S COMMON

### 2

DISCHARGE

1G1D1S D

### 1G

S

3

Q6

NTR4003NT1G SOT23\_1G1D1S COMMON

### 2

30V [ ]

-1000mohm@10V / 1500mohm@4.5V / -1000mohm@2.5V 1.7A

0.83W

20V

30V [ ]

-1000mohm@10V / 1500mohm@4.5V / -1000mohm@2.5V 1.7A

0.83W

20V

30V [ ]

-1000mohm@10V / 1500mohm@4.5V / -1000mohm@2.5V 1.7A

0.83W

20V

30V [ ]

-1000mohm@10V / 1500mohm@4.5V / -1000mohm@2.5V 1.7A

0.83W

20V

## GND

GND

GND

GND

5 5

## Tiiitttllle

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### Siiize

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A B C D E F G H

A B C D E F G H

1 1

### S4 DTSMW67N

SMD\_4

SMD COMMON

## 3.3V

### VDD\_3V3\_SYS

13..15

OUT

2

2

POWER

2

1

1 R86 0ohm2

POWER\_BTN

50OHM\_NETCLASS2

402

COMMON

9,10

OUT

50OHM\_NETCLASS2

3

D6

ESD9X5.0ST5G SOD923

COMMON

GND

C50

1nF

16V

10% X7R 402

COMMON

4

2 1

GND GND

RECOVERY

2 1

S3 DTSMW67N

SMD\_4

SMD COMMON

3

2

1

1 R59 0ohm2

FORCE\_RECOVERY\_L

402

COMMON

2,9

OUT

3

D4

ESD9X5.0ST5G SOD923

COMMON

GND

C46

1nF

16V

10% X7R 402

COMMON

4

## GND

3

## GND

VOL DOWN

2 1

### S2 DTSMW67N

SMD\_4

SMD COMMON

## GND GND

2

1

SLEEP\_R

1 R34 0ohm2

402

COMMON

SLEEP

2,9

OUT

3

D3

ESD9X5.0ST5G SOD923

COMMON

GND

C35

1nF

16V

10% X7R 402

COMMON

4

4

# RESET

2 1

### S1 DTSMW67N

SMD\_4 SMD

COMMON 4

GND GND

2

1

1 R14 0ohm2

RESET\_IN\_L

50OHM\_NETCLASS2

402

COMMON

2,9

50OHM\_NETCLASS2

OUT

3

D2

ESD9X5.0ST5G SOD923

COMMON

GND

C29

1nF

16V

10% X7R 402

COMMON

4

5 5

|  |
| --- |
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| Tiiitttllle<Tiiitttllle> |
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## Code>

### A B C D E F G H