CR-1 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE1

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NOTES:

1. FOR LATEST CN, ASSEMBLY REVISION DATE, INDIVIDUAL FILE REVISION DATES AND DESCRIPTION FOR ALL FILES ATTACHED TO THE KAA26800ACP DATA MANAGEMENT SYSTEM RECORD, SEE CONTROL DOCUMENT, FILE KAA26800ACP_CDOC.DOC.
2. REFER TO THE FOLLOWING TABLE FOR A LIST OF FILES DESCRIBING THIS PCB ASSEMBLY

FILE	DESCRIPTION
KAA26800ACP_CDOC.DOC	CONTROL DOCUMENT (CDOC)
KAA26800ACP_BOM.XLS	BILL OF MATERIALS (BOM)
KAA26800ACP_SCH.PDF	SCHEMATIC (SCH) [THIS FILE]
KAA26800ACP_ASSY.PDF	MECHANICAL ASSEMBLY DRAWING (ASSY)

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DWG KAA26800ACP

OTIS ENGINEERING CENTER

CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	55
AUTH	CN897873	SHEET	1

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CR-2 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE2

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ARRANGEMENT TABLE

ARRANGEMENT	ACP1 (CHINA/PAA)	ACP2 (NSAA)	ACP3 (EUROPE)	ACP4 (EUROPE)
SFC	110VAC	110VAC	48VDC	110VAC
SAFETY DEVICE	PWM BUFFER + SW CONTACTOR	PWM BUFFER + 1 GATE DRIVE SAFETY RELAYS	PWM BUFFER + 2 GATE DRIVE SAFETY RELAYS	PWM BUFFER + 2 GATE DRIVE SAFETY RELAYS
CONVERTER CURRENT SENSORS	2 SENSORS	2 SENSORS	2 SENSORS	2 SENSORS
DC LINK POWER TERMINAL BLOCK	NOT INCLUDED	NOT INCLUDED	INCLUDED	INCLUDED
ASSEMBLY SECTION	ASSEMBLY_SEC1	ASSEMBLY_SEC2	ASSEMBLY_SEC3	ASSEMBLY_SEC4

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CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 2

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CR-3 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE3

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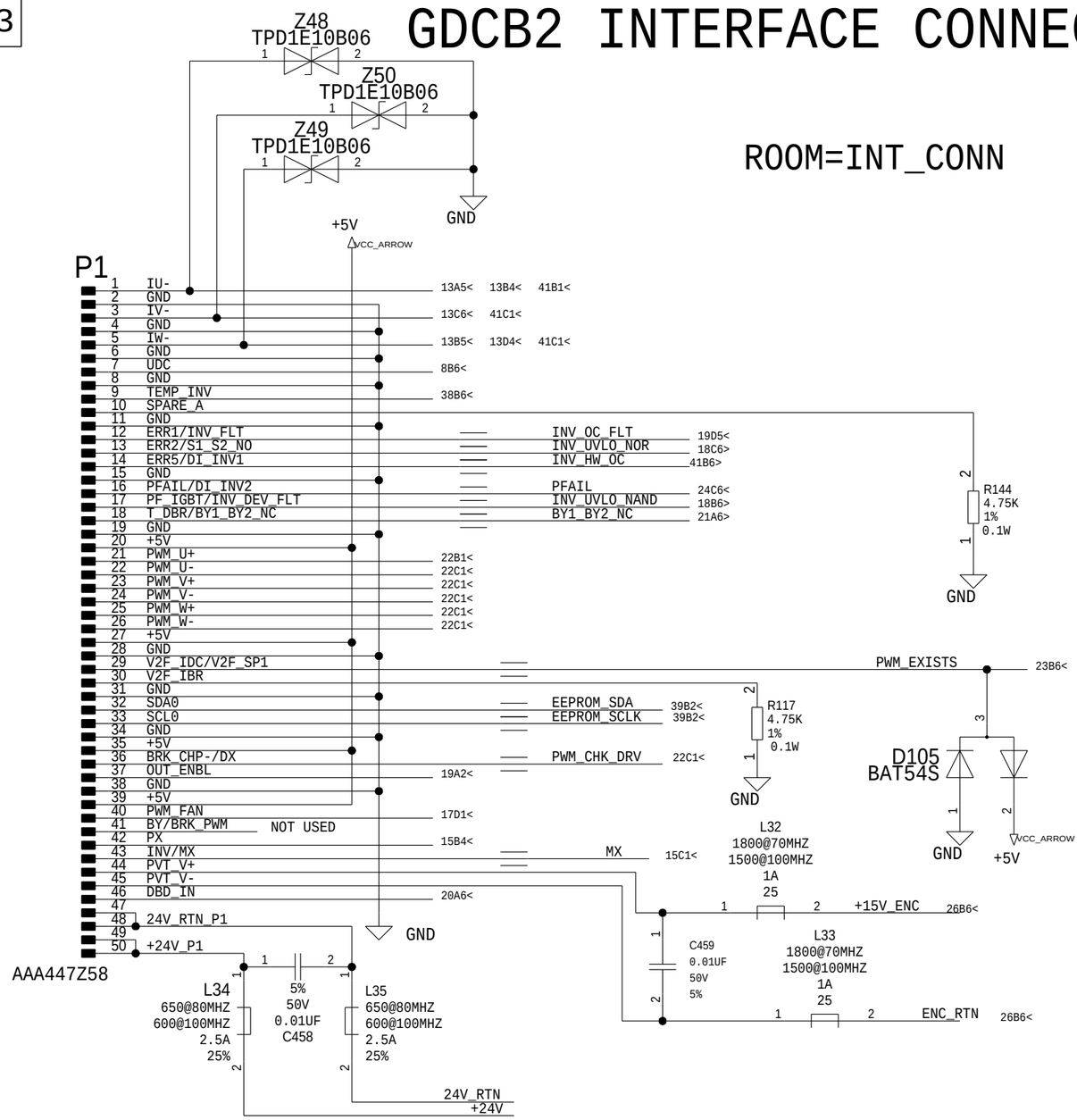
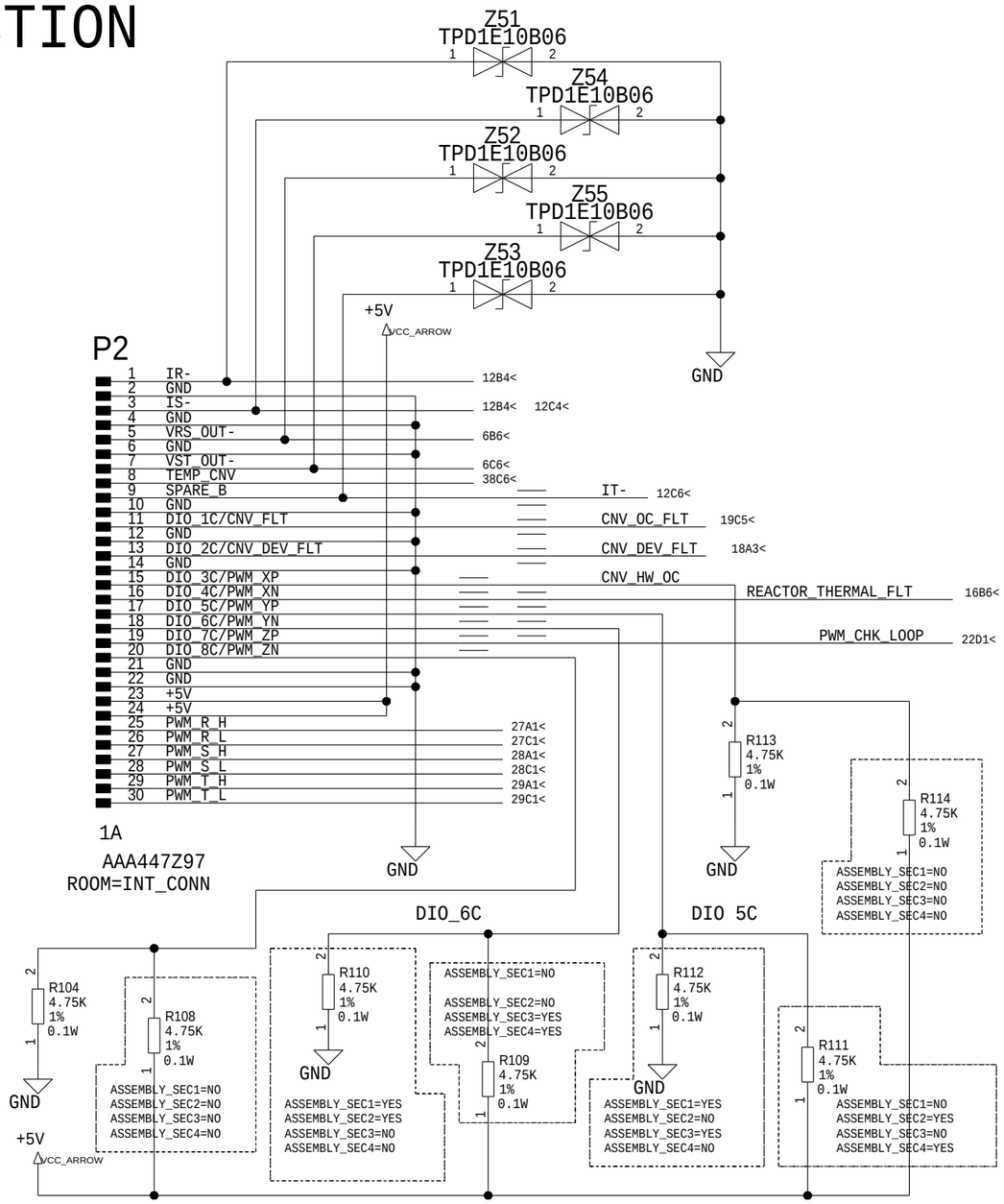
GDCB2 INTERFACE CONNECTION

ROOM=INT_CONN





ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN
ROOM=INT_CONN

P2 CONN	ACP1 (CHINA/PAA)	ACP2 (NSAA)	ACP3 (EUROPE)	ACP4 (EUROPE)
DIO_5C	LOW	HIGH	LOW	HIGH
DIO_6C	LOW	HIGH	HIGH	HIGH

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CR-4 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE4

A3

AC LINE SENSING HIGH VOLTAGE

FULL SCALE : +/- 873V PEAK @ +2.44V / 0V

ROOM = AC_SENS_HIGH

14B4< AC_T

14A4< AC_S

14A4< AC_R

R237 200K 1% 0.25W
R236 200K 1% 0.25W
R235 200K 1% 0.25W
R234 200K 1% 0.25W
R233 200K 1% 0.25W

R232 200K 1% 0.25W
R231 200K 1% 0.25W
R230 200K 1% 0.25W
R229 200K 1% 0.25W
R228 200K 1% 0.25W

R225 200K 1% 0.25W
R224 200K 1% 0.25W
R223 200K 1% 0.25W
R222 200K 1% 0.25W
R221 200K 1% 0.25W

ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH
ROOM=AC_SENS_HIGH

C120 0.01UF 50V 5%
C124 0.01UF 50V 5%
C354 0.01UF 50V 5%

R216 2K 1% 0.1W
R546 2K 1% 0.1W
R542 2K 1% 0.1W
R207 2K 1% 0.1W
R208 2K 1% 0.1W
R541 2K 1% 0.1W

GND_AC

ROOM = AC_SENS_LOW

R534 200K 1% 0.125W
R518 200K 1% 0.125W

U66 TSV914

R517 200K 1% 0.125W
R516 200K 1% 0.125W

+5V_AC
GND_AC
VRS- 6A1<

4D4< 4C4< 5B6< VREF_VAC

R547 20K 1% 0.1W
R219 20K 1% 0.1W

U66 TSV914

C118 0.1U 16V 10%

R532 200K 1% 0.125W
R515 200K 1% 0.125W

U66 TSV914

R533 200K 1% 0.125W
R548 200K 1% 0.125W

+5V_AC
GND_AC
VST- 6C1<

4D4< 4B4< 5B6< VREF_VAC

C360 0.01UF 50V 5%
C383 0.01UF 50V 5%

GND_AC

R549 200K 1% 0.125W

R550 200K 1% 0.125W
VTR-

U66 TSV914

R218 200K 1% 0.125W
R217 200K 1% 0.125W

+5V_AC
GND_AC

5B6< 4C4< 4B4< VREF_VAC

ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW

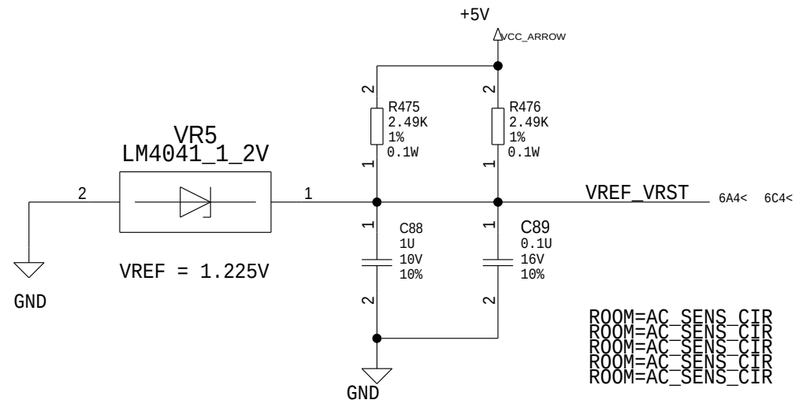
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW
ROOM=AC_SENS_LOW

A3

AC LINE SENSING SMPS

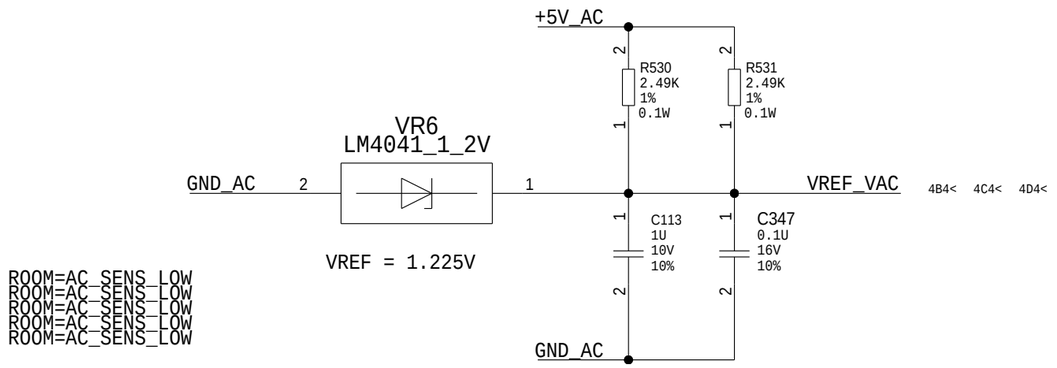
[VOLTAGE REF AT LOW VOLTAGE]

ROOM = AC_SENS_CIR



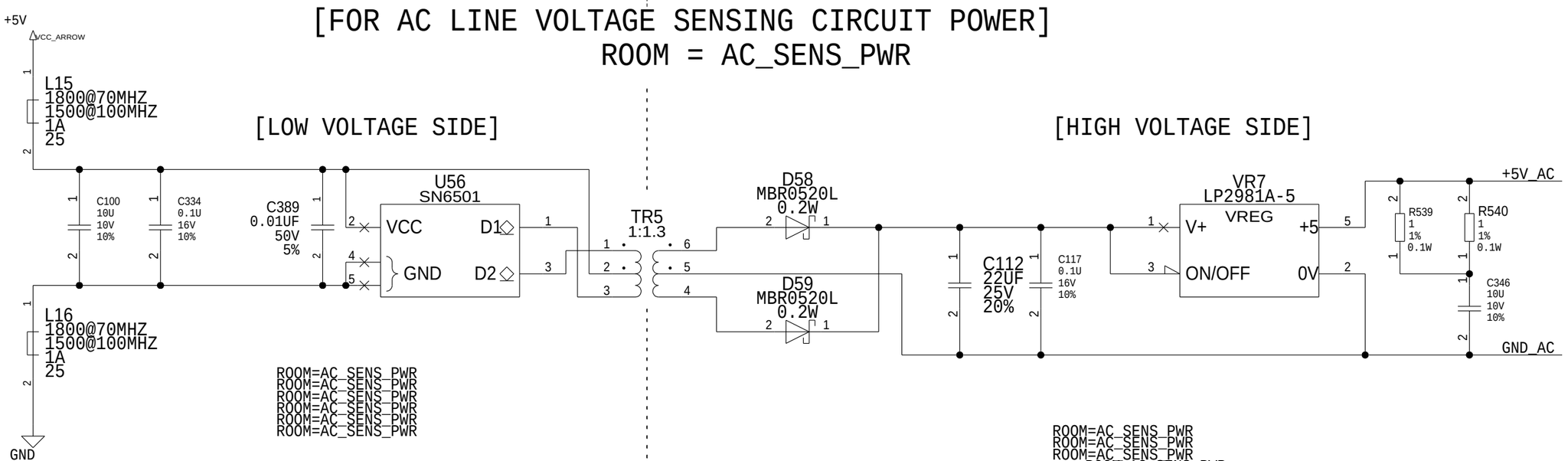
[VOLTAGE REF AT HIGH VOLTAGE]

ROOM = AC_SENS_LOW



[FOR AC LINE VOLTAGE SENSING CIRCUIT POWER]

ROOM = AC_SENS_PWR



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CHANGES

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AUTH	CN897873	SHEET	5

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CR-6 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE6

AC LINE SENSING LOW VOLTAGE

ROOM = AC_SENS_CIR

A3

ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR

4B5< VRS-
C106 100PF 50V 5%
+5V_AC
GND_AC
C105 2.2U 16V 10%
C104 0.1U 16V 10%
C281 0.01UF 50V 5%
GAIN = 1
U61 ACPL-C87
VIN
SHDN
VDD1
GND1
VOUT+
VOUT-
VDD2
GND2
+5V
VCC_ARROW
GND
R183 10K 1% 0.1W
R182 10K 1% 0.1W
C92 100PF 50V 5%
R175 10K 1% 0.1W
C325 100PF 50V 5%
R500 10K 1% 0.1W
ROOM=AC_SENS_CIR
U53 TLC2274
-
+
OUT
V+
V-/GND
-5V
R487 10K 1% 0.1W
C90 100PF 50V 5%
R163 20K 1% 0.1W
R478 20K 1% 0.1W
C320 100PF 50V 5%
5B3< 6C4<
VREF_VRST
R484 10K 1% 0.1W
R485 20K 1% 0.1W
R479 20K 1% 0.1W
VRS_OUT-
3B5<>
C322 0.1U 16V 10%
C321 0.1U 16V 10%
C380 100PF 50V 5%

ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR

C97 2.2U 16V 10%
C330 0.1U 16V 10%
C378 0.01UF 50V 5%
C324 100PF 50V 5%
C91 100PF 50V 5%

GAIN = 4
RANGE = +/-4.88V

4C6< VST-
C109 100PF 50V 5%
+5V_AC
GND_AC
C108 2.2U 16V 10%
C107 0.1U 16V 10%
C282 0.01UF 50V 5%
GAIN = 1
U60 ACPL-C87
VIN
SHDN
VDD1
GND1
VOUT+
VOUT-
VDD2
GND2
R184 10K 1% 0.1W
R185 10K 1% 0.1W
C93 100PF 50V 5%
R508 10K 1% 0.1W
C366 0.01UF 50V 5%
C98 2.2U 16V 10%
C331 0.1U 16V 10%
R176 10K 1% 0.1W
U53 TLC2274
R491 10K 1% 0.1W
C323 100PF 50V 5%
R492 20K 1% 0.1W
R493 20K 1% 0.1W
5B3< 6A4<
VREF_VRST
R486 10K 1% 0.1W
R164 20K 1% 0.1W
R477 20K 1% 0.1W
VST_OUT-
3B5<>

ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR
ROOM=AC_SENS_CIR

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CHANGES

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United Technologies

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CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 6

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DC BUS TERMINALS AND SENSING

ROOM = DC_BUS

31A6< 30A6< 29A6< 28A6< 37A2< 27A6< 36A2< 9A1< 32A6<

DC_BUS+

ASSEMBLY_SEC1=YES
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

TB5-1

1
2

AAA190CJ3

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=YES
ASSEMBLY_SEC4=YES

TB8

1
3
4
5

DC BUS+

LOCATED UNDER GDCB2

TB5

A1
B1

WAGO_2061-601_998-404
AAA303FW56
20_16AWG

VERIFY CONNECTION
DC BUS TEST

LOCATED UNDER GDCB2

2
6
7
8

DC_BUS-

24_6AWG
AAA303FW54

DC BUS POWER CONNECTION

TB6

A1
B1

WAGO_2061-601_998-404
AAA303FW56
20_16AWG

ASSEMBLY_SEC1=YES
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

TB6-1

1
2

AAA190CJ3

TB5-1 AND TB6-1 ARE LOW COST
BLADE CONNECTIONS FOR
DC BUS TEST POINTS FOR ACD4 MR

COVER REQUIRED FOR STANDALONE

C236
460UF
900V
10%

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

C326
460UF
900V
10%

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC4=NO

MOUNTING DURING
DRIVE ASSEMBLY

R483 49.9K 1W 1%
R490 49.9K 1W 1%
R489 49.9K 1W 1%
R488 49.9K 1W 1%
R482 49.9K 1W 1%

10 IN SERIES
EACH
0.289W @ 1200V
0.113W @ 750V

DC_SENS+ 8B1<

R473 2K 1% 0.1W
R474 2K 1% 0.1W

DC_SENS- 8B1<

R481 49.9K 1W 1%
R501 49.9K 1W 1%
R502 49.9K 1W 1%
R503 49.9K 1W 1%
R507 49.9K 1W 1%

ROOM = DC_BUS_MID

FULL SCALE : 1230V @ [2.46]
NOMINAL : 750V @ [1.5V]
SCALE 1V = 0.002V

ROOM=DC_BUS_MID
ROOM=DC_BUS_MID

ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS

ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS
ROOM=DC_BUS

37B2< 36B2< 9D2< DC_BUS-

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AUTH	CN897873	SHEET	7

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CR-8 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE8

A3

DC BUS SENSING ISOLATION CIRCUIT

ROOM=DC_SENS_CIR

HIGH VOLTAGE
DC BUS REFERENCED

7B5< DC_SENS+

7C5< DC_SENS-

38B3< 38A2< 8C6< +5V_DC
38D3< 38C3<

38B3< 38B2< 8D6< GND_DC
38D3< 38D2< 38C3<

C27 0.01UF 50V 5%

C309 100PF 50V 5%

C83 2.2U 16V 10%

C84 0.1U 16V 10%

C395 0.01UF 50V 5%

U46 ACPL-C87

VIN, SHDN, VDD1, GND1, VOUT+, VOUT-, VDD2, GND2

R154 10K 1% 0.1W

R156 10K 1% 0.1W

C303 0.01UF 50V 5%

R467 20K 1% 0.1W

C302 0.1U 16V 10%

C396 0.01UF 50V 5%

U45 TSV914

-, +, V+, V-

UDC 3B2<

[VOLTAGE RANGE : 4.92V / 0V]

C80 0.01UF 50V 5%

R155 20K 1% 0.1W

C400 0.01UF 50V 5%

C301 1U 10V 10%

C297 0.1U 16V 10%

R466 20K 1% 0.1W

R465 20K 1% 0.1W

U45 TSV914

ROOM=DC_SENS_CIR
ROOM=DC_SENS_CIR
ROOM=DC_SENS_CIR
ROOM=DC_SENS_CIR
ROOM=DC_SENS_CIR

ROOM=DC_SENS_CIR ROOM=DC_SENS_CIR
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ROOM=DC_SENS_CIR ROOM=DC_SENS_CIR

ROOM=DC_SENS_CIR
ROOM=DC_SENS_CIR
ROOM=DC_SENS_CIR

[FOR DC BUS VOLTAGE SENSING CIRCUIT POWER]

[LOW VOLTAGE SIDE]

L20 1800@70MHZ 1500@100MHZ 1A 25

L21 1800@70MHZ 1500@100MHZ 1A 25

C70 10U 10V 10%

C74 0.1U 16V 10%

C399 0.01UF 50V 5%

U43 SN6501

VCC, GND, D1, D2

TR4 1:1.3

D42 MBR0520L 0.2W

D41 MBR0520L 0.2W

C81 22UF 25V 20%

C82 0.1U 16V 10%

VR4 LP2981A-5

VREG, V+, ON/OFF, +5, 0V

R468 1 1% 0.1W

R471 1 1% 0.1W

C310 10U 10V 10%

+5V_DC 8B1< 38A2< 38B3< 38C3< 38D3<

GND_DC 38D2< 38D3< 8B1< 38B2< 38B3< 38C3<

HIGH VOLTAGE
DC BUS REFERENCED

ROOM=DC_BUS_MID

ROOM=DC_BUS_MID ROOM=DC_BUS_MID
ROOM=DC_BUS_MID ROOM=DC_BUS_MID
ROOM=DC_BUS_MID ROOM=DC_BUS_MID
ROOM=DC_BUS_MID ROOM=DC_BUS_MID
ROOM=DC_BUS_MID ROOM=DC_BUS_MID
ROOM=DC_BUS_MID ROOM=DC_BUS_MID
ROOM=DC_BUS_MID ROOM=DC_BUS_MID

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DWG KAA26800ACP

OTIS ENGINEERING CENTER

CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	8

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

CR-9 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE9

A3

DC BUS DISCHARGING CIRCUIT

ROOM = DC_BUS

8 IN SERIES
EACH
0.451W @ 1200V
0.176W @ 750V

10 IN SERIES
EACH
0.289W @ 1200V
0.113W @ 750V

DC_BUS+

36A2< 32A6< 28A6< 27A6< 31A6< 30A6< 7A2< 29A6< 37A2<

R330 49.9K 1W 1%
R339 49.9K 1W 1%
R345 49.9K 1W 1%
R347 49.9K 1W 1%
R346 49.9K 1W 1%
R340 49.9K 1W 1%
R334 49.9K 1W 1%
R329 49.9K 1W 1%
R338 49.9K 1W 1%
R331 49.9K 1W 1%

R449 49.9K 1W 1%	R428 49.9K 1W 1%	R399 49.9K 1W 1%	R414 49.9K 1W 1%	R433 49.9K 1W 1%	R440 49.9K 1W 1%
R400 49.9K 1W 1%	R415 49.9K 1W 1%	R434 49.9K 1W 1%	R429 49.9K 1W 1%	R450 49.9K 1W 1%	R441 49.9K 1W 1%
R442 49.9K 1W 1%	R430 49.9K 1W 1%	R451 49.9K 1W 1%	R416 49.9K 1W 1%	R401 49.9K 1W 1%	R435 49.9K 1W 1%
R436 49.9K 1W 1%	R417 49.9K 1W 1%	R443 49.9K 1W 1%	R431 49.9K 1W 1%	R402 49.9K 1W 1%	R452 49.9K 1W 1%
R363 49.9K 1W 1%	R348 49.9K 1W 1%	R390 49.9K 1W 1%	R373 49.9K 1W 1%	R395 49.9K 1W 1%	R352 49.9K 1W 1%
R349 49.9K 1W 1%	R364 49.9K 1W 1%	R374 49.9K 1W 1%	R396 49.9K 1W 1%	R353 49.9K 1W 1%	R391 49.9K 1W 1%
R375 49.9K 1W 1%	R350 49.9K 1W 1%	R392 49.9K 1W 1%	R365 49.9K 1W 1%	R397 49.9K 1W 1%	R354 49.9K 1W 1%
R398 49.9K 1W 1%	R366 49.9K 1W 1%	R351 49.9K 1W 1%	R376 49.9K 1W 1%	R355 49.9K 1W 1%	R393 49.9K 1W 1%

STGD5NB120SZ
Q5

+5V
VCC_ARROW
R328 324 0.1W 1%
C216 0.1U 16V 10%
R77 324 0.1W 1%
U20 TLP385
BZX84C12 Z39 12V 0.250W
C219 0.1UF 50V 10%
GND

37B2< 36B2< 7D2< DC_BUS-

R336 49.9K 1W 1%
R335 49.9K 1W 1%
R341 49.9K 1W 1%
R342 49.9K 1W 1%

DO NOT POPULATE IF DISCHARGE CIRCUIT IS PRESENT
THESE 4 RESISTORS ARE JUST PLACEHOLDERS AND NOT INTENDED FOR USE

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

ROOM=DC_BUS

Q5 IGBT TO BE FULLY ENCAPSULATED IN COATING

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES
2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	9

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CR-10 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE10

A3

ROOM=CNV_CURR_SENS

CONVERTER CURRENT SENSORS

CNV_R 27C6< 36C1<

CS1
T60404_N4647_X764

CS1_OUT — R7 (0 0% 0W) — CNV_I_R+ 12A2<

CNV_R_REF 12B2<

+5V (VCC_ARROW)

C392 100PF 50V 5%
C5 0.1U 16V 10%
C6 1U 10V 10%
C4 10U 10V 10%
C3 10U 10V 10%

GND

TB4

1A CNV_R1
1B
1C
1D

2A CNV_S1
2B
2C
2D

3A CNV_T1
3B
3C
3D

WAGO_2716_203
ROOM=CNV_CURR_SENS

[FROM LINE REACTOR]

CNV_S 28C6< 36C1<

CS3
T60404_N4647_X764

CS3_OUT — R13 (0 0% 0W) — CNV_I_S+ 12B2<

CNV_S_REF 12C2<

+5V (VCC_ARROW)

C393 100PF 50V 5%
C19 0.1U 16V 10%
C18 1U 10V 10%
C17 10U 10V 10%
C16 10U 10V 10%

GND

CNV_T 29C6< 36D1<

CS2
T60404_N4647_X764

CS2_OUT — R6 (0 0% 0W) — CNV_I_T+ 12C4<

CNV_T_REF 12C4<

+5V (VCC_ARROW) ROOM=CNV_CURR_SENS

R16 R12 R5 R4

C391 100PF 50V 5%
C1 0.1U 16V 10%
C2 1U 10V 10%
C8 10U 10V 10%
C7 10U 10V 10%

GND

JUMPERS FOR STANDARD VERSION OF DRIVE

3RD SENSOR FOR PARALLEL DRIVE ONLY

ROOM=CNV_CURR_SENS (×30)

```
ASSEMBLY_SEC4=NO
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC1=NO

ASSEMBLY_SEC2=NO
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
ASSEMBLY_SEC4=NO

ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
ASSEMBLY_SEC4=NO
ASSEMBLY_SEC3=NO
```

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE 2017-01-06
CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 10

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A3

INVERTER CURRENT SENSORS

ROOM=INV_CURR_SENS

ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS

13A2< INV_I_U+ — R577 (0, 0%, 0W) — CS5_OUT

13B2< INV_U_REF

CS5
T60404_N4647_X764

+5V (VCC_ARROW)

OUT
VREF
V+
0V

C131 10U 10V 10%
C133 10U 10V 10%
C135 1U 10V 10%
C137 0.1U 16V 10%
C397 100PF 50V 5%

GND

37C1< 30C6< INV_U1

ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS

13B4< INV_I_V+ — R148 (0, 0%, 0W)

13C4< INV_V_REF

CS6
T60404_N4647_X764

+5V (VCC_ARROW)

OUT
VREF
V+
0V

C140 10U 10V 10%
C141 10U 10V 10%
C142 1U 10V 10%
C143 0.1U 16V 10%
C398 100PF 50V 5%

GND

37D1< 31C6< INV_V1

ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS

13C2< INV_I_W+ — R576 (0, 0%, 0W) — CS4_OUT

13D2< INV_W_REF

CS4
T60404_N4647_X764

+5V (VCC_ARROW)

OUT
VREF
V+
0V

C130 10U 10V 10%
C132 10U 10V 10%
C134 1U 10V 10%
C136 0.1U 16V 10%
C401 100PF 50V 5%

GND

37D1< 32C6< INV_W1

WAGO_745_653
TB7

INV_U → 1
INV_V → 2
INV_W → 3

[5MM PIN LENGTH]

ROOM=INV_CURR_SENS

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CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS — United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

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APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	11

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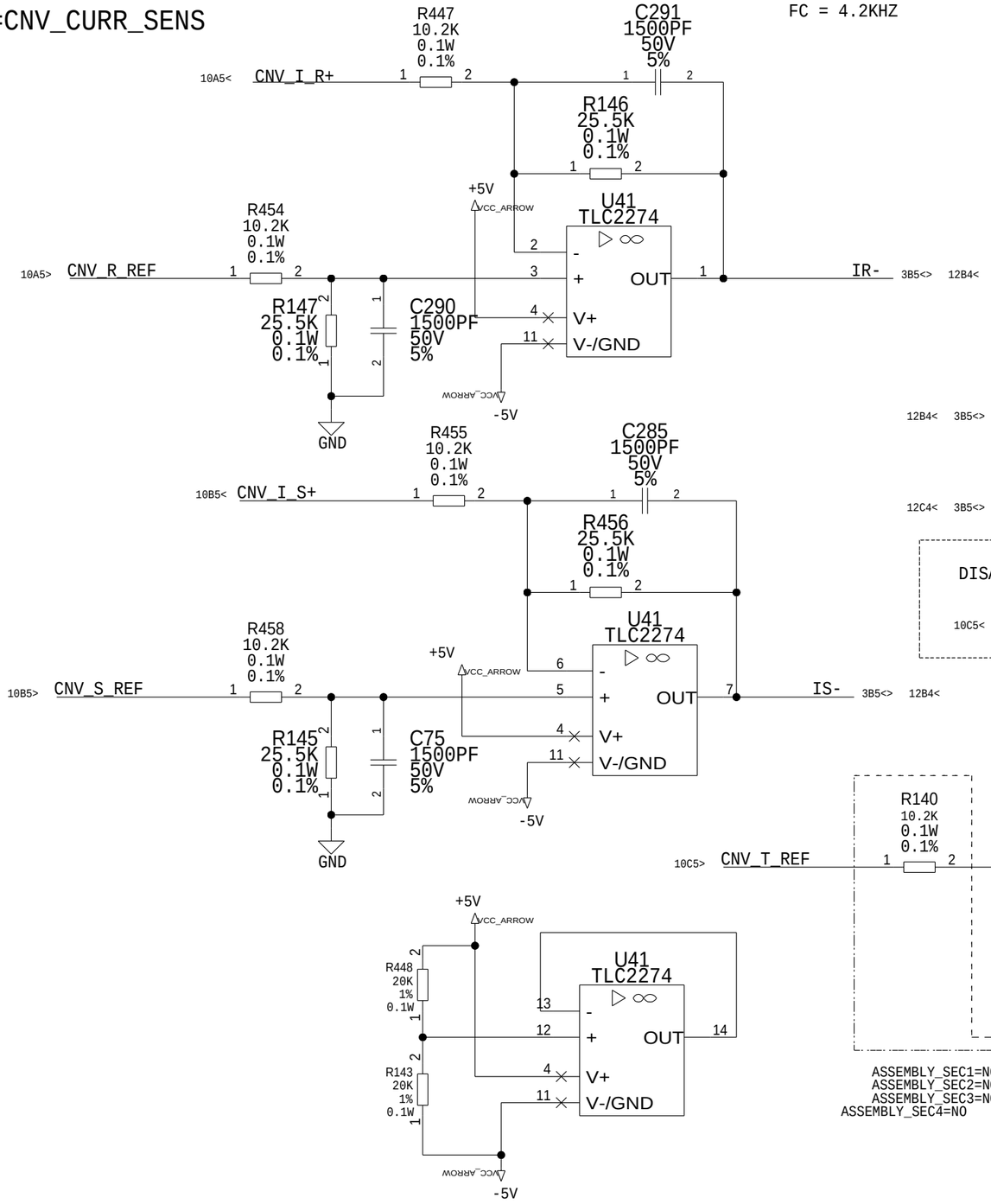
CR-12 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE12

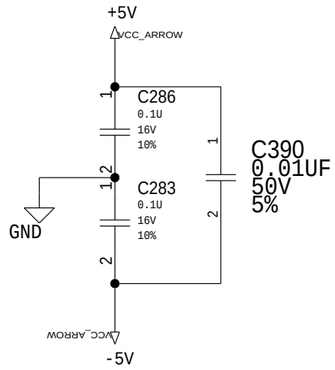
A3

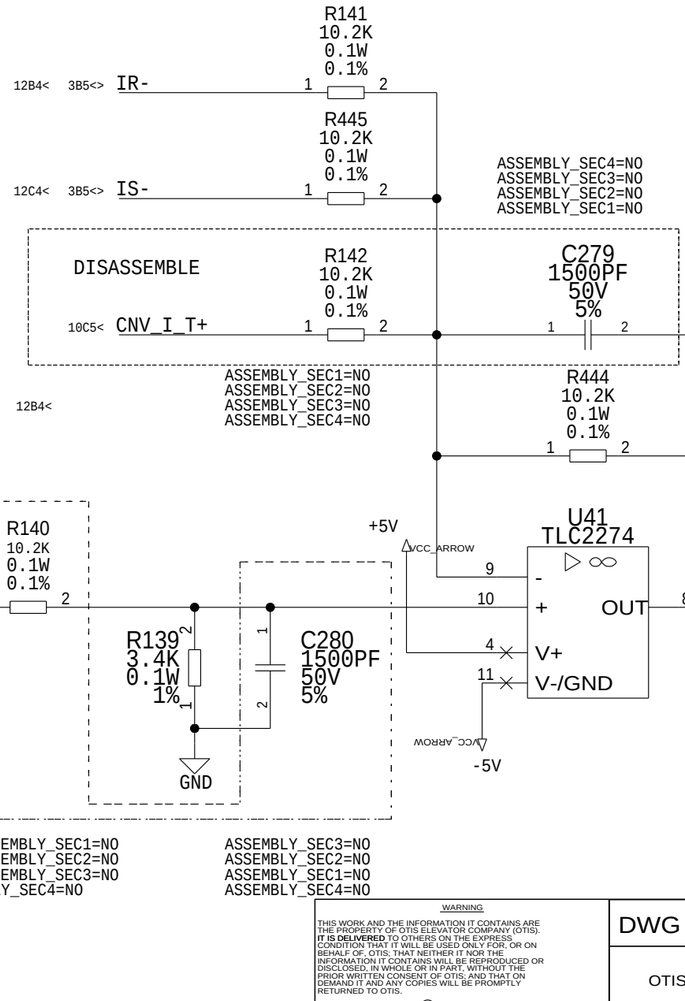
CONVERTER CURRENT SENSING CIRCUIT

ROOM=CNV_CURR_SENS

FC = 4.2KHZ







ROOM=CNV_CURR_SENS
ROOM=CNV_CURR_SENS
ROOM=CNV_CURR_SENS
ROOM=CNV_CURR_SENS
ROOM=CNV_CURR_SENS
ROOM=CNV_CURR_SENS
ROOM=CNV_CURR_SENS
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ROOM=CNV_CURR_SENS
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ROOM=CNV_CURR_SENS
ROOM=CNV_CURR_SENS
ROOM=CNV_CURR_SENS

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AUTH	CN897873	SHEET	12

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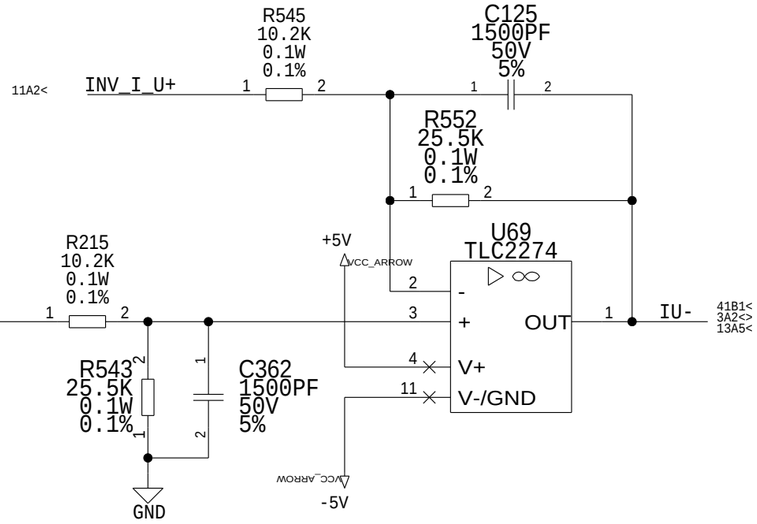
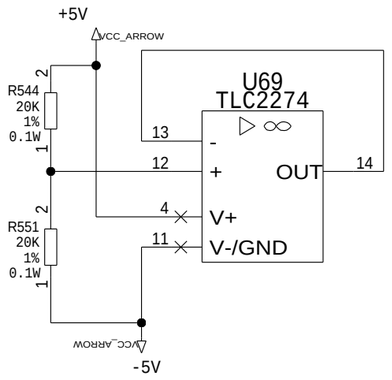
CR-13 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE13

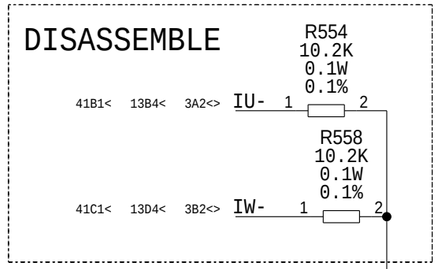
A3

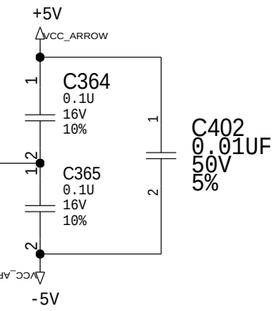
INVERTER CURRENT SENSING CIRCUIT

ROOM = INV_CURR_SENS



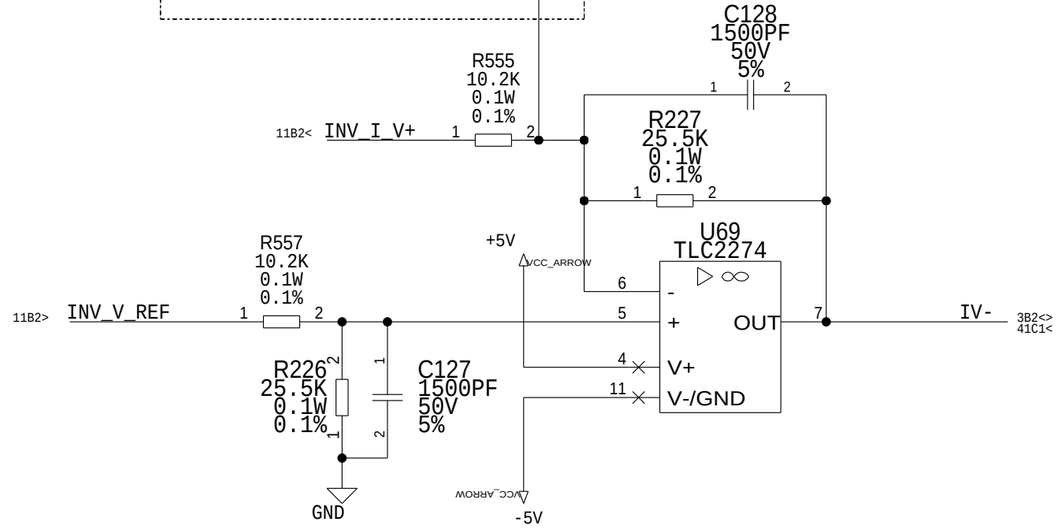


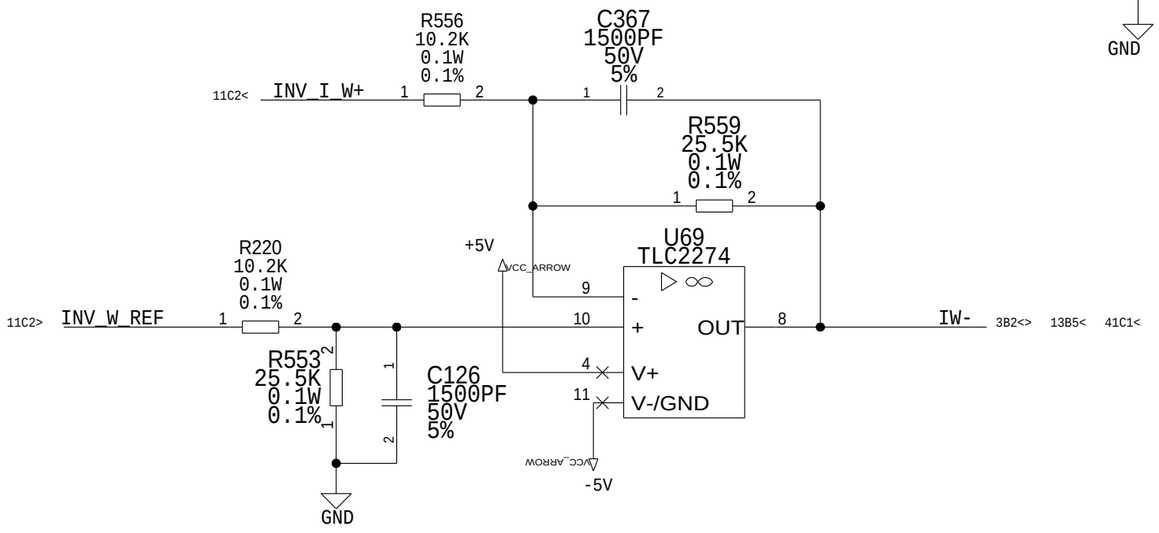




ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

ASSEMBLY_SEC4=NO
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO





ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS
ROOM=INV_CURR_SENS

A3

MX & PX RELAYS

ROOM = AC_INPUT

ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT
ROOM=AC_INPUT

P10
1
2
[TO SINGLE TRANS FOR CSA]
AAA447AF59

AC_R 4A1< 14A4< 4A1< 14A4<
AC_S 4A1< 14B4< 4A1< 14A4<
AC_T 4A1< 14B4<
[TO AC SENSING CIRCUIT]

[AC INPUT]
TB2
1A
1
AC_R
2A
2
AC_S
3A
3
AC_T
WAGO_2716_203

VR8 460VAC_WRK 615VDC_WRK 300J V
VR9 460VAC_WRK 615VDC_WRK 300J V
VR10 460VAC_WRK 615VDC_WRK 300J V
FV1 A71_H10X 1000V
GAS DISCHARGE TUBE
MTG_IP3

15B3< MX_OUT
D103 BAV99
DUMMY_P14_1
REL3
L18 1800@70MHZ 1500@100MHZ 1A 25
L19 1800@70MHZ 1500@100MHZ 1A 25
+24V
MX RELAY

R247 150 7W 5%
R251 150 7W 5%
L25 1800@70MHZ 1500@100MHZ 1A 25
R241 150 7W 5%
R243 150 7W 5%
+24V
D102 BAV99
REL4
REL5
DUMMY_P14_2
L26 1800@70MHZ 1500@100MHZ 1A 25
15B6< PX_OUT
AC_R3
PX RELAYS
[TO EMI FILTER]
TB3
D122 RGP02_20E
AC_T2
AC_S2
AC_R2
WAGO_2716_203

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES
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(High Voltage Power Board)
OVFR03A-406

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AUTH	CN897873	SHEET	14

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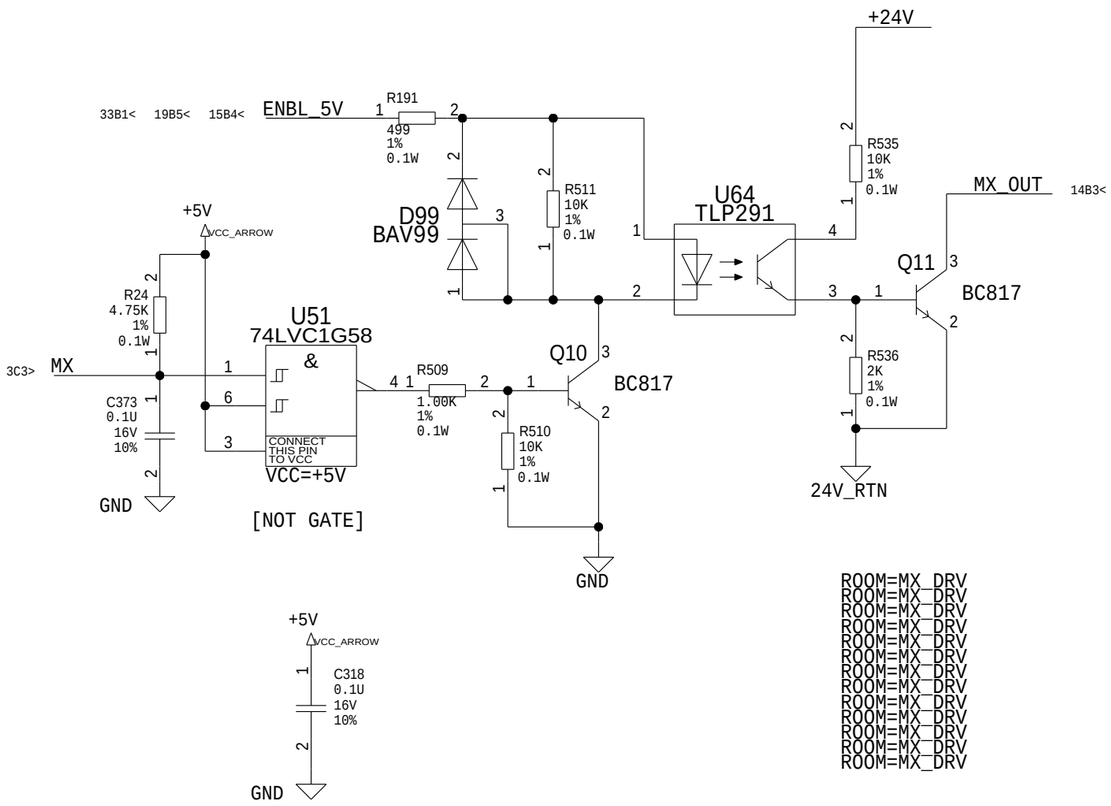
A3

MX & PX RELAY CONTROL CIRCUITS

IF MX / PX FROM GDCB IS 5V, MX / PX RELAY IS PICKED

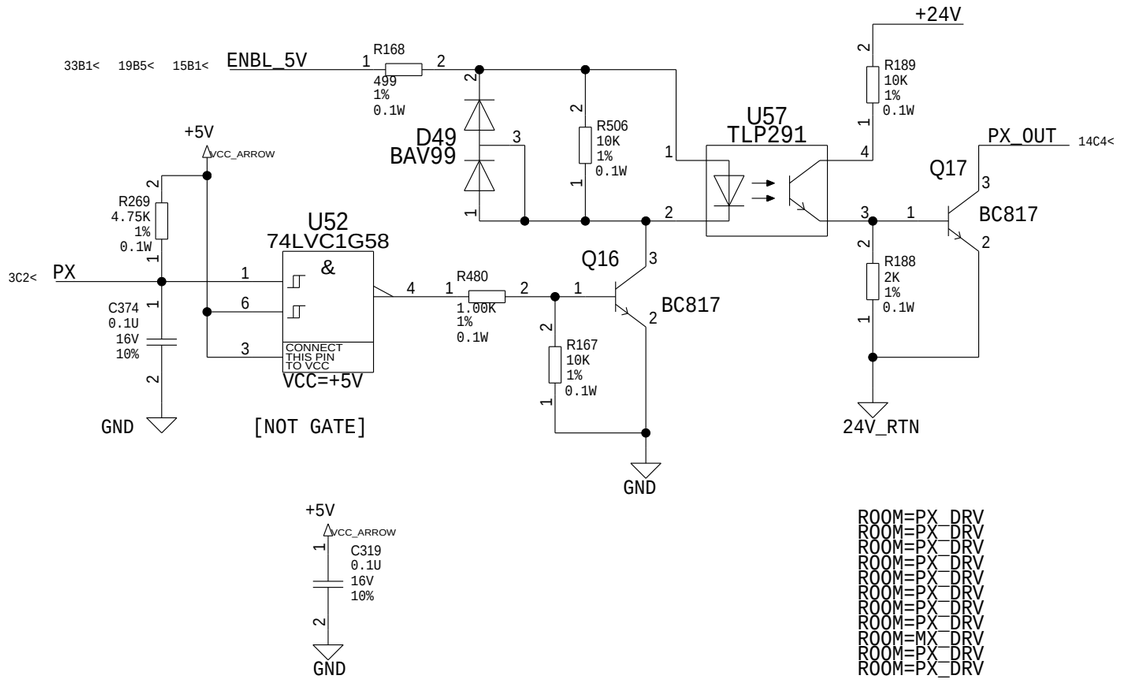
MX RELAY DRIVER

ROOM = MX_DRV



PX RELAY DRIVER

ROOM = PX_DRV



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DWG KAA26800ACP

OTIS ENGINEERING CENTER

CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	15

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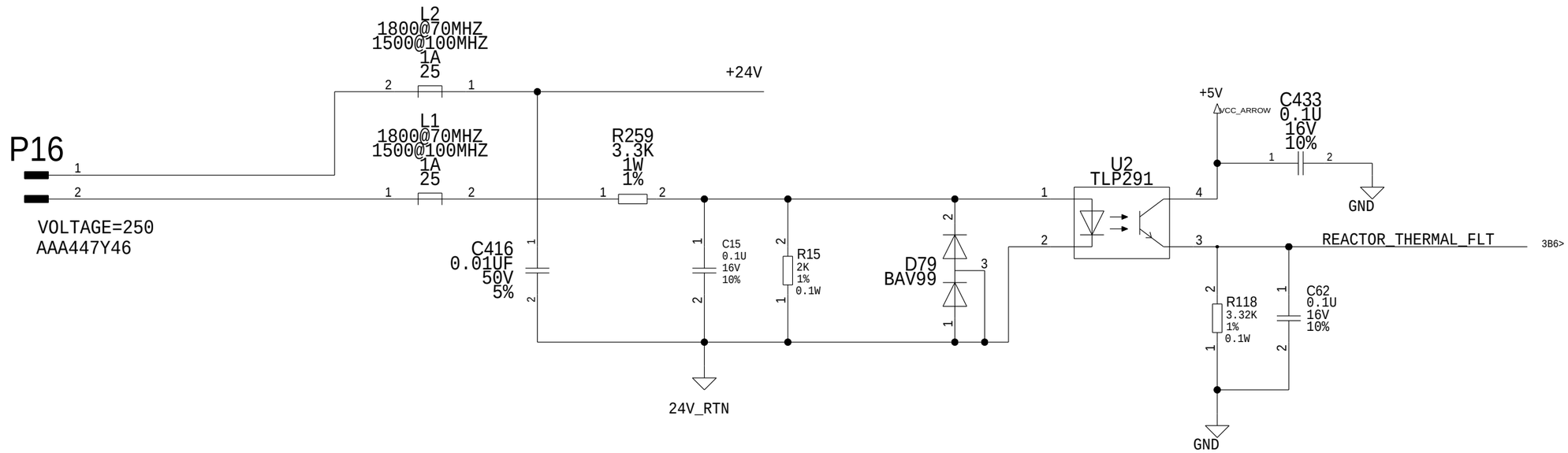
A3

LINE REACTOR THERMAL SWITCH CIRCUIT

ROOM=THERM_IN

ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN
ROOM=THERM_IN



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CHANGES

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OTIS
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HVPB
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CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 16

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CR-17 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE17

ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON
ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON
ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON
ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON
ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON

A3

FAN CONTROL CIRCUIT

ROOM = FAN_CON

ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON

25B1< 24C1< 24A6< 33B2< 25B5<

LVP_SMPS

R275 20K 1% 0.1W
R286 20K 1% 0.1W
R294 20K 1% 0.1W
R299 20K 1% 0.1W
R302 20K 1% 0.1W

R527 560 1W 1%
R39 560 1W 1%
R288 560 1W 1%
R289 560 1W 1%

ALTERNATE = AAA601AW85

Q4 FQB5N50C

Z3 18V 0.250W BZX84C18

C200 10UF 35V 10%

C419 470PF 250V 5%

C179 0.22UF 250V 10%

R284 1M 1% 0.125W
R291 1M 1% 0.125W
R295 118K 0.125W 1%
R300 63.4K 0.125W 1%
R42 19.6K 0.1W 1%

FAN_RTN

LVP_SMPS_RTN

U12 LTC7138

VIN SW RUN ANODE SS VPRG1 VPRG2 VFB FBO GND ISET EP OVLO

L5 330UH 1.1A 20% 20%

D14 MBRS3201P 2W

DUMMY_P17_1
DUMMY_U12_11

C193 0.1U 16V 10%

ROOM=FAN_CON ROOM=FAN_CON ROOM=FAN_CON

R313 20K 1% 0.1W
R312 20K 1% 0.1W
R311 20K 1% 0.1W
R309 1.21K 1% 0.1W

C449 390PF 100V 5%

C45 33UF 100V 20%

FAN_OUT

P12-A AAA447Y46
P12-B AAA447Y46

JEDEC_TYPE=KAA_ACC_AAA447Y46
JEDEC_TYPE=KAA_ACC_AAA447Y46

C39 33UF 100V 20%
C146 0.1UF 100V 10%
C147 0.1UF 100V 10%
C145 33UF 100V 20%

NEAR CONNECTOR

FAN_RTN

17B6< 17D4< 17C1< 17D4< 17C6< 17C1< 17B6< 17C6<

VR2 VREG V+ +5V 0V NCP1117DT50 G

C200 10UF 35V 10%
C208 10U 10V 10%
C207 0.1U 16V 10%

FAN_5V 17C3< 17C6< 17D4<

R303 2K 1% 0.1W

FAN_2.5V

VR1 TL431AID REF

C181 1U 10V 10%
C192 0.1U 16V 10%

R310 3.32K 1% 0.1W

C43 10U 10V 10%
C42 10U 10V 10%

R61 6.34K 1% 0.1W

R49 6.34K 1% 0.1W

17C6< 17B6< 17D4<

FAN_RTN

U74 TSV911A

R60 6.34K 1% 0.1W

17C6< 17C3< FAN_5V
17C6< 17C1< 17B6< 17D4< FAN_RTN

C204 0.1U 16V 10%

FAN_5V 17C3< 17D4<

C205 0.1U 16V 10%

FAN_RTN 17B6< 17C1< 17D4<

+5V VCC_ARROW

R75 499 1% 0.1W
R76 10K 1% 0.1W

D30 BAV99

17D4< 17C6< 17C3< FAN_5V

R62 10K 1% 0.1W

U16 TLP291

U15 74LVC1G58

CONNECT THIS PIN TO VCC

VCC=FAN_5V
GND=LVP_SMPS_RTN

3C2< PWM_FAN

R318 20K 1% 0.1W

FAN_RTN 17B6< 17C1< 17C6< 17D4<

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON
ROOM=FAN_CON

CR-18 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE18

A3

GATE DRIVE UVLO DETECTION LOGIC

ROOM=CNV_FLT
ROOM=CNV_FLT
ROOM=CNV_FLT
ROOM=CNV_FLT

[CONVERTER PART]

ROOM=CNV_FLT

29C1<> 27C1<> 28C1<> 29B1<> 27B1<> 28B1<> CNV_UVLO*

R343 2K 0.1W 1%

U24 74LVC1G57 ≥1

CONNECT THIS PIN TO GND

VCC=+5V

R119 2K 1% 0.1W

205 CNV GATE FLT

CNV_DEV_FLT 3B6>

C48 0.01U 50V 10%

C394 0.01U 50V 10%

C234 0.1U 16V 10%

+5V VCC_ARROW

GND

ROOM = CNV_FLT

ROOM=INV_FLT
ROOM=INV_FLT
ROOM=INV_FLT
ROOM=INV_FLT
ROOM=INV_FLT
ROOM=INV_FLT
ROOM=INV_FLT

[INVERTER PART]

30B1<> INV_UVLO_UH* R424 2K 0.1W 1%

30C1<> INV_UVLO_UL* R421 2K 0.1W 1%

31B1<> INV_UVLO_VH* R420 2K 0.1W 1%

31C1<> INV_UVLO_VL* R419 2K 0.1W 1%

32B1<> INV_UVLO_WH* R426 2K 0.1W 1%

32C1<> INV_UVLO_WL* R425 2K 0.1W 1%

C261 0.01U 50V 10%

C262 0.01U 50V 10%

C254 0.01U 50V 10%

C255 0.01U 50V 10%

C256 0.01U 50V 10%

C260 0.01U 50V 10%

GND

NAND U36 CD4048B

NOR U35 CD4048B

A B C D KA KB KC KD EXPAND E F G H

OUTPUT VDD VSS

+5V VCC_ARROW

C61 0.1U 16V 10%

GND

OUTPUT IS HIGH IF ANY GATE DRIVE IS IN UVLO
FOR NORMAL OPERATION 107 INV GATE FLT

U33 74LVC1G58 &

R422 2K 1% 0.1W

C257 0.01U 50V 10%

CONNECT THIS PIN TO GND

VCC=+5V

INV_UVLO_NAND 3B3>

C60 0.1U 16V 10%

C59 0.1U 16V 10%

OUTPUT IS HIGH IF ALL GATE DRIVES ARE IN UVLO
TO VERIFY GATE RELAY IS OPEN 117 INV PFAI FLT

U37 74LVC1G58 &

R427 2K 1% 0.1W

C263 0.01U 50V 10%

CONNECT THIS PIN TO GND

VCC=+5V

INV_UVLO_NOR 3B3>

ROOM=INV_FLT
ROOM=INV_FLT
ROOM=INV_FLT
ROOM=INV_FLT

ROOM=INV_FLT ROOM=INV_FLT
ROOM=INV_FLT ROOM=INV_FLT
ROOM=INV_FLT ROOM=INV_FLT
ROOM=INV_FLT ROOM=INV_FLT
ROOM=INV_FLT ROOM=INV_FLT

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DWG KAA26800ACP

OTIS ENGINEERING CENTER

CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	18

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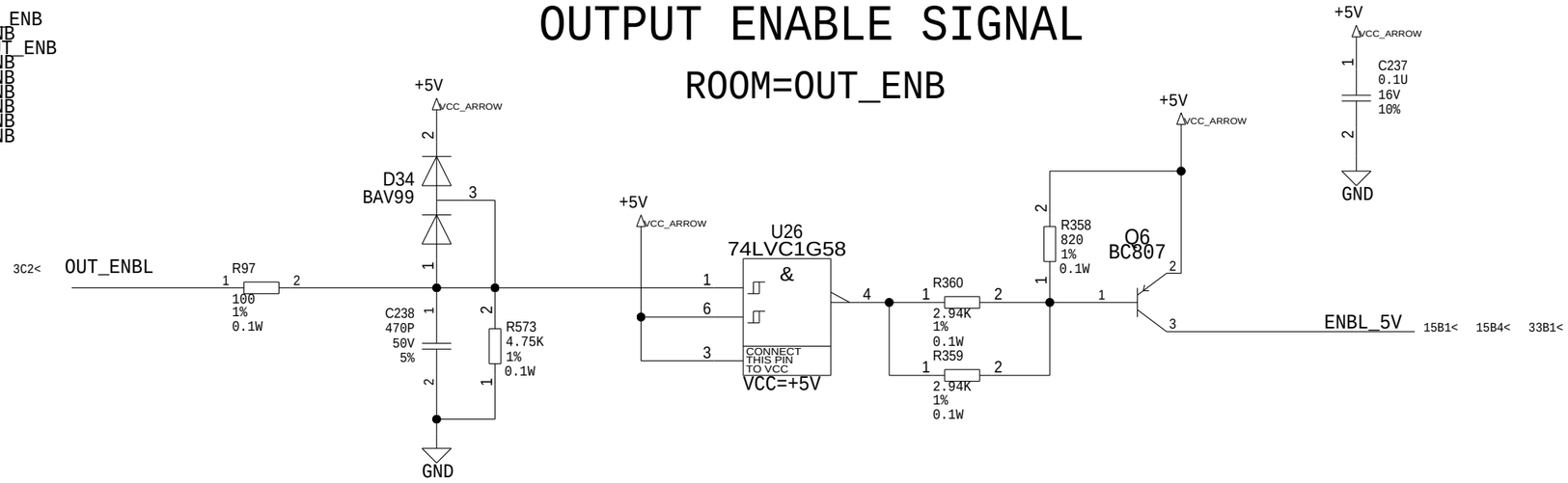
A3

OUTPUT ENABLE SIGNAL

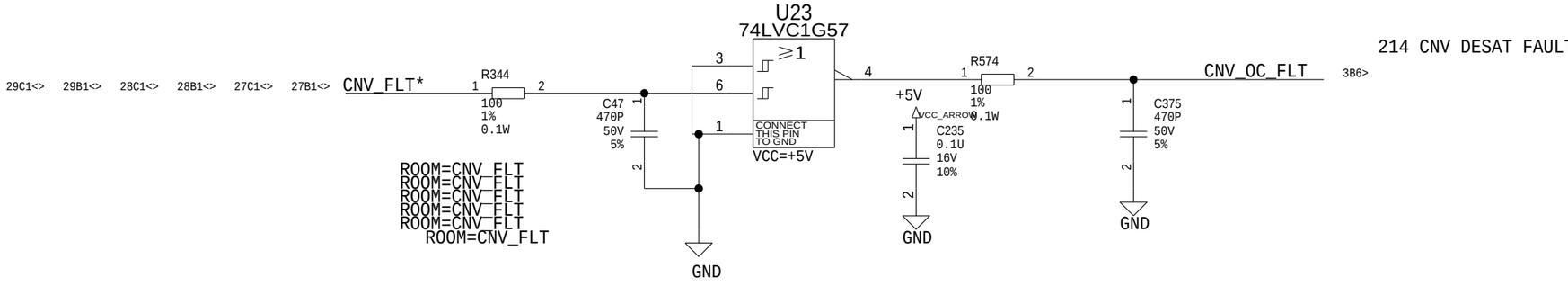
ROOM=OUT_ENB
ROOM=OUT_ENB
ROOM=OUT_ENB
ROOM=OUT_ENB
ROOM=OUT_ENB
ROOM=OUT_ENB
ROOM=OUT_ENB
ROOM=OUT_ENB
ROOM=OUT_ENB

ROOM=OUT_ENB

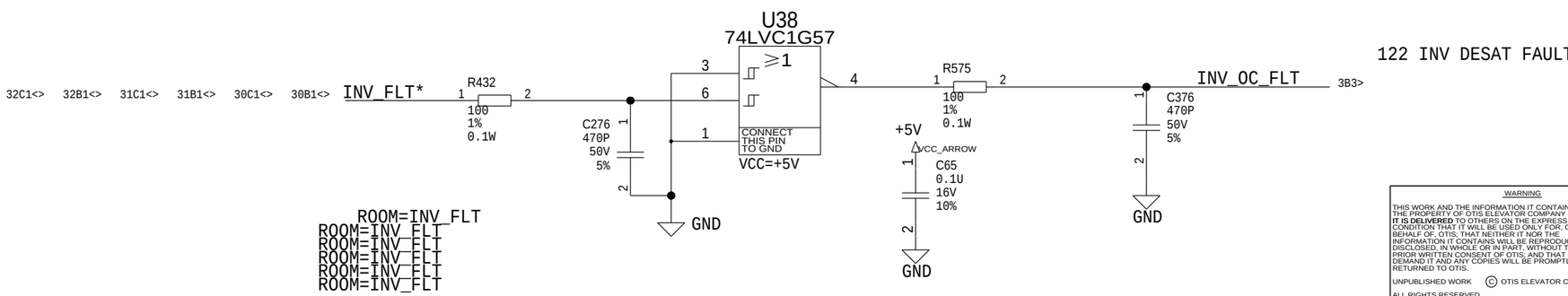


GATE DRIVE DESAT DETECTION

[CONVERTER PART]



[INVERTER PART]



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HVPB
(High Voltage Power Board)
OVFR03A-406

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CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	19

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CR-20 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE20

SAFETY RELAY CIRCUIT
[PER EN81-50]

A3

ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY

ROOM=SFC_RLY

ROOM = SFC_RLY

[FROM GDCB]

SFC_IN 21C1<

P4
1
2 SFC_RTN

AAA447AP503
WAGO_734_132
MALE, 3.5MM

R564 909 1W 1%
R569 909 1W 1%
R566 909 1W 1%
R568 909 1W 1%
R563 909 1W 1%
R567 909 1W 1%

ALT0 = ZERO OHM JUMPERS
AAA232HF11

ALT1 = 1.21K OHM
AAA232HD578

D78
DF04S

C417
0.22UF
250V
10%

C144
10UF
250V
10%

REL1

ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY

[TO SW RELAY]

P20
1
2 DUMMY_P20_1
3

AAA447Y47

L37
650@80MHZ
600@100MHZ
2.5A
25%

R570
0
MELF

L36
650@80MHZ
600@100MHZ
2.5A
25%

R257
0
MELF

[TO BRAKE MODULE]

WAGO_722_734

P102
1 SFC_2BRAKE
2 SFC_2BRAKE_RTN
3
4

BY1_BY2_NC_IN 21A1<

AAA447AP500

RT1
0.730
0.55A
PTC FUSE

SFC_2PTC

ALT_PN_NSAA=AAA226EP64
5.6UF

R256
0
--W
--%

REL2

ALT_PN_LVA=AAA613DG41

L28
1800@70MHZ
1500@100MHZ

L29
1800@70MHZ
1500@100MHZ
1A
25
+24V

1A
25

P100_MID

SFC_IN_MID

+30V_GATE_INV1

R258
0
0%
0W

L17
1800@70MHZ
1500@100MHZ
1A
25

[TO SW RLAY NC]
DBD_IN 3C2<

DBD_2RLY1

P15
MALE 2.5MM

[TO S & PL]

AAA447AP314
WAGO 733-332

L23
1800@70MHZ
1500@100MHZ
1A
25

L24
1800@70MHZ
1500@100MHZ
1A
25

P100
P100_1
P100_2

AAA447AP53

[FROM SMPS]

+30V_GATE 33B6<
+30V_GATE_RTN 33C6<

C422
100PF
50V
5%

L6
51UH
1A
30%

[TO CNV SMPS]

+30V_GATE_CNV_RTN 35B1< 35C2<
+30V_GATE_CNV 35A1<

ROOM=CNV_GATE_PWR

R249
0
0%
0W

R254
0

ZERO OHM JUMPERS (MELF)
SLOT UNDER

DBD_2RLY2

R250
0

R255
0
0%
0W

L7
51UH
1A
30%

[TO INV SMPS]

+30V_GATE_INV_RTN 34B1< 34D1<
+30V_GATE_INV 34A1<

+30V_GATE_INV_RTN1

ROOM=INV_GATE_PWR

R248
0
0%
0W

C423
100PF
50V
5%

ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY
ROOM=SFC_RLY

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES
2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE 2017-01-06
CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 20

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CR-21 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE21

A3

ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON

SAFETY RELAY MONITORING CIRCUIT

ROOM = EN81_SFC_IN_MON

ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON

[MONITORING BY1_BY2_NC]

20D2< BY1_BY2_NC_IN

L13
1800@70MHZ
1500@100MHZ

CLOSE TO P102 CONNECTOR

MOVE CLOSER TO U65

L22
1800@70MHZ
1500@100MHZ

24V_RTN

R526
3.3K
1W
1%

R202
3.3K
1W
1%

C114
0.1U
16V
10%

R529
2K
1%
0.1W

D101
BAV99

U65
TLP291

+5V
VCC_ARROW

R192
3.32K
1%
0.1W

C345
0.1U
16V

GND

U63
74LVC1G58
&
CONNECT THIS PIN TO GND
VCC=+5V

[TO GDCB2]

4 BY1_BY2_NC 3B3>

[HIGH -> BY1, BY2 PICKED]

+5V
VCC_ARROW
C343
0.1U
16V
GND

PER EN81-50

ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON

20B2< SFC_IN

R565
6.19K
1%
1W

R562
6.19K
1%
1W

R253
6.19K
1%
1W

R252
6.19K
1%
1W

ASSEMBLY_SEC3=ALT
ASSEMBLY_SEC3=ALT
ASSEMBLY_SEC3=ALT
ASSEMBLY_SEC3=ALT

D76
BAV99
D77
BAV99

SFC_RTN

Z46
22V
BZX84C22

C138
10UF
50V
10%

C370
1UF
50V
10%

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

R561
6.49K
0.1W
1%

R246
2K
1%
0.1W

R245
820
1%
0.1W

R560
56.2K
1%
0.1W
ASSEMBLY_SEC3=ALT

R242
39.2K
1%
0.1W

C369
0.1UF
50V
10%

0.3W
6.8V
2%
BZX84B6V8
Z36

ASSEMBLY_SEC3=ALT

R244
2.94K
1%
0.1W

U72
AP331A
VCOMP
X
Y
X>Y
VCC
GND

U73
PS2561D

+5V
VCC_ARROW

[NAND GATE]

U34
74LVC1G58
&
CONNECT THIS PIN TO VCC
VCC=+5V

4 SFC_OK_2BUFFER* 22B3<

C258
0.1U
16V
10%

R423
10K
1%
0.1W

C259
0.1U
16V
10%

GND

ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON

ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
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ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON
ROOM=EN81_SFC_IN_MON

WARNING

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	21

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CR-22 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE22

A3

PWM SIGNAL BUFFER OF INVERTER

+5V
VCC_ARROW
C55
0.1U
16V
10%
GND

[INVERTER PWM BUFFER]

ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF

ACCORDING TO EN81-50

SFC_OK_2BUFFER* 21C6>

ROOM = INV_PWM_BUF

U31
74VHC541
&
EN
VCC
GND

U32
74VHC541
&
EN
VCC
GND

C249
0.1U
16V
10%

R115 3.32K 1% 0.1W
R409 3.32K 1% 0.1W
R408 3.32K 1% 0.1W

3B2< PWM_U+
3B2< PWM_U-
3B2< PWM_V+
3B2< PWM_V-
3B2< PWM_W+
3B2< PWM_W-

18 PWM_U_H 23B2< 30A2<
17 PWM_U_L 23C2< 30C1<
16 PWM_V_H 23C2< 31A2<
15 PWM_V_L 23D2< 31C2<
14 PWM_W_H 23B3< 32A2<
13 PWM_W_L 23C3< 32C2<
12 PWM_CHK_OUT 23C3<
11 DUMMY_P22_4

3C3> PWM_CHK_DRV

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
R594 3.32K 1% 0.1W

U5
74LVC1G58
&
CONNECT THIS PIN TO GND
VCC=+5V

R404 107 0.1W 1%

3B6> PWM_CHK_LOOP

R405 3.32K 1% 0.1W
R406 3.32K 1% 0.1W
R407 3.32K 1% 0.1W
R403 3.32K 1% 0.1W

R383 3.32K 1% 0.1W
R384 3.32K 1% 0.1W
R385 3.32K 1% 0.1W
R386 3.32K 1% 0.1W
R387 3.32K 1% 0.1W
R388 3.32K 1% 0.1W
R389 3.32K 1% 0.1W
R410 3.32K 1% 0.1W

ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
ROOM=INV_PWM_BUF
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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

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OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

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APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	22

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A3

PWM SIGNAL MONITORING CIRCUIT

ROOM=PWM_MON

ACCORDING TO EN81-50

[TO MONITORING CIRCUIT]
[TO GDCB2 SIDE]

+5V
VCC_ARROW
R379
3.32K
1%
0.1W
C243
0.1U
16V
10%
R106
499
1%
0.1W
R107
10K
1%
0.1W
U29
PS2561D
R105
100
1%
0.1W
R369
3.32K
1%
0.1W
C242
470P
50V
5%
PWM_EXISTS
3B4<
GND

Q15
BC807
30A2<
22B6<>
PWM_U_H
R382
4.75K
1%
0.1W

Q13
BC807
22C6<>
32A2<
PWM_W_H
R380
4.75K
1%
0.1W

Q7
BC807
30C1<
22C6<>
PWM_U_L
R372
4.75K
1%
0.1W

Q12
BC807
22C6<>
32C2<
PWM_W_L
R378
4.75K
1%
0.1W

Q14
BC807
31A2<
22C6<>
PWM_V_H
R381
4.75K
1%
0.1W

Q9
BC807
22C6<>
PWM_CHK_OUT
R370
4.75K
1%
0.1W

Q8
BC807
31C2<
22C6<>
PWM_V_L
R371
4.75K
1%
0.1W

+5V
VCC_ARROW
C244
0.1U
16V
10%
GND

ROOM=PWM_MON

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
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CHANGES
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OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

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APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	23

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CR-24 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE24

A3

POWER SUPPLY INPUT CIRCUIT

ROOM=SMPS_INPUT (many)

P111
AAA447AP80
VOLTAGE=400
[MRO]

TB9
1 SMPS_MRO+
2 SMPS_MRO-
AAA447AP492
WAGO722_732
7.5MM, FEMALE

SPARK_GAP_1500UM1
MTG_IP4 MTG_IP4

Z37 90V 600W
D2 FSV10150V 1.25W
D84 MURS320T3
D8 MURS320T3
D5 MURS320T3
D80 MURS320T3
R9 0.05 5% 3W
Z38 130V 600W
C14 10UF 250V 10%
C424 0.22UF 250V 10%
NEAR L3
L3 2X0.32MH 3.25A 30%
NEAR L3
C425 470PF 250V 5%
LVP_SMPS_RTN

BIAS_VCC
R29 10K 1% 0.1W
R273 20K 1% 0.1W
R28 20K 1% 0.1W
R27 20K 1% 0.1W
C156 1UF 50V 10%
C157 1UF 50V 10%
C158 1UF 50V 10%
Q2 STD25NF20
R30 100 1% 0.1W
C10 680UF 160V 20%
C9 680UF 160V 20%
C22 0.22UF 250V 10%
R18 5 5% 5W
LVP_SMPS
33B2< 17A1< 25B1< 24C1< 25B5<

Q3 BC807
R37 4.75K 1% 0.1W
BIAS_VCC

POWER FAIL DETECTION CIRCUIT
ROOM=PWR_FAIL

25B1< 24A6< 33B2< 17A1< 25B5<
LVP_SMPS
R267 27.4K 1% 0.125W
R263 27.4K 1% 0.125W
R264 27.4K 1% 0.125W
R265 27.4K 1% 0.125W
R266 27.4K 1% 0.125W
2.5V @ 35.15V

BIAS_VCC
R34 2K 1% 0.1W
R276 2K 1% 0.1W
VR11 2.5V AAA616MA19
C166 0.01U 50V 10%
C159 0.47U 50V 10%
R271 499 1% 0.1W
R26 10K 1% 0.1W
C165 1UF 50V 10%
LVP_SMPS_RTN

U6 TL331
VCOMP
X
Y
V+
GND
X>Y

BIAS_VCC
R63 2K 1% 0.1W
R72 2K 1% 0.1W
D25 BAV99
R71 10K 1% 0.1W
PFAIL*

+5V
R593 3.32K 1% 0.1W
U17 TLP291
Q18 2N7002
PFAIL
3B3>
C64 0.033U 16V 10%
C382 100PF 50V 5%
GND

LVP >35V, PFAIL = 0V
LVP <35V, PFAIL = 3.3V

ROOM=PWR_FAIL (many)

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES
2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

HVPB
(High Voltage Power Board)
OVFR03A-406

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APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 24

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CR-25 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE25

MAIN SMPS

ROOM=MAIN_SMPS

ROOM=MAIN_SMPS ROOM=MAIN_SMPS
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ROOM=MAIN_SMPS

R283 13 1% 0.5W
C169 680PF 100V 5%
D10 FSV20100V 0.95W
25B6< 5V_PS
C461 100PF 50V 5%
C460 100PF 50V 5%
C38 470UF 6.3V 20%
C44 470UF 6.3V 20%
L14 0.47UH 5A 30% 30%
R591 1.82 0.25W 1%
C426 0.01UF 50V 5%
C377 120UF 10V 20%
C188 0.01UF 50V 5%
C197 10U 10V 10%
C210 1U 10V 10%
C203 0.1U 16V 10%
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
GND
R308 100 1% 0.1W
+5V
R44 4.75K 1% 0.1W
R56 100 1% 0.1W
R53 10K 1% 0.1W
R52 3.32K 1% 0.1W
C175 22P 50V 5%
C34 22P 50V 5%
C172 22P 50V 5%
C36 0.1U 16V 10%
R301 10K 1% 0.1W
R297 2.49K 1% 0.1W
R298 10K 1% 0.1W
C35 1U 10V 10%
D15 BAV99
U4 PS2561D
U14 TLV431B
ADJ
[1.24V]
24C1< 24A6< 33B2< 17A1< 25B5< LVP_SMPS
C13 0.22UF 250V 10%
C12 0.22UF 250V 10%
NEAR TRANSFORMER
LVP_SMPS_RTN
R20 200K 1% 0.125W
R21 200K 1% 0.125W
R578 43 0.25W 1%
C429 470PF 250V 5%
D81 0.4W MMSD103T1G
25B5< BIAS_PS
D6 0.4W MMSD103T1G
BIAS_VCC
VCC_ARROW
D104 BAV99
R262 10 1% 0.1W
Z47 BZX84C27 27V 0.35W 5%
C25 10UF 35V 10%
C150 10UF 35V 10%
C24 1UF 50V 10%
C371 0.1UF 50V 10%
C372 10UF 50V 10%
C153 220PF 50V 5%
R19 33.2K 1% 0.1W
C20 100PF 50V 5%
100PF CLOSE TO CS PIN & GND
U1 LM5021
PWM
VIN
RT
SYNC
COMP
CS
OUT
SS
VCC
GND
R14 20 1% 0.125W
Q1 STD25NF20
C434 100PF 50V 5%
R274 63.4K 0.125W 1%
R261 1.00K 1% 0.1W
C23 2.2U 16V 10%
C149 0.1U 16V 10%
C21 0.033U 16V 10%
R11 0.15 0.75W 1%
R17 0.15 0.75W 1%
R10 27 5% 0.75W
C428 220PF 250V 5%
24V_RTN_PS
25B6< 25C6< 26B1<
C11 1500PF 250VAC 10%
C421 220PF 250V 5%
C465 1500PF 250VAC 10%
C420 220PF 250V 5%
GND
LVP_SMPS_RTN
ENC_PS_RTN
25B6< 26B3<
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
TR1
SUMIDA_545_90_100_00
24V_PS 26A1<
W2
24V_RTN_PS 25A6> 25C6> 26B1<
5V_PS 25A1<
W3
GND
ENC_PS 26B3<
W4
ENC_PS_RTN 25A6> 26B3<
25C5< DRAIN
W1a/b/c
24C1< 24A6< 33B2< 17A1< 25B1< LVP_SMPS
25C1< BIAS_PS
W5
C427 680PF 100V 5%
C148 0.1UF 100V 10%
R2 30K 5% 0.75W
R1 30K 5% 0.75W
LVP_SMPS_RTN
D1 1.19W RS1G
25B5< DRAIN
MTG_IP1
IP2
R8 0 0% 0W
R3 0 0% 0W
SPARK_GAP1
GND
24V_RTN_PS
25A6> 25B6< 26B1<

ROOM=MAIN_SMPS
ROOM=MAIN_SMPS ROOM=MAIN_SMPS ROOM=MAIN_SMPS
ROOM=MAIN_SMPS ROOM=MAIN_SMPS
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AUTH	CN897873	SHEET	25

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CR-26 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE26

A3

MAIN SMPS SECONDARY SIDE

+24V I/O

C430 220PF 500V 5%

D4 1.9W ES3G

R579 180 1W 1%

R319 180 1W 1%

L27 51UH 1A 30%

ROOM=+24V_IO

25B6< 24V_PS

C164 0.1UF 50V 10%

C29 220UF 50V 20%

R571 10K 5% 0.75W

R572 10K 5% 0.75W

C432 10UF 50V 10%

C167 10UF 50V 10%

C162 1UF 50V 10%

+24V

25B6<

25A6> 25B6< 25C6< 24V_RTN_PS

24V_RTN

ROOM=+24V_IO
ROOM=+24V_IO
ROOM=+24V_IO
ROOM=+24V_IO
ROOM=+24V_IO
ROOM=+24V_IO

ENC POWER

ROOM=ENC_PWR

C431 220PF 500V 5%

R580 82 1% 1W

D11 1.19W RS1G

VR3 VREG +15V V+ 0V 7815_D2PAK

C37 47UF 35V 20%

C176 0.1UF 50V 10%

C209 0.1UF 50V 10%

C212 10UF 35V 10%

L30 1800@70MHZ 1500@100MHZ 1A 25

L31 1800@70MHZ 1500@100MHZ 1A 25

C211 10UF 35V 10%

25B6< ENC_PS

+15V_ENC 3C3<

25B6< 25A6> ENC_PS_RTN

ENC_RTN 3C3<

ROOM=ENC_PWR
ROOM=ENC_PWR
ROOM=ENC_PWR
ROOM=ENC_PWR
ROOM=ENC_PWR
ROOM=ENC_PWR
ROOM=ENC_PWR
ROOM=ENC_PWR
ROOM=ENC_PWR

-5V POWER

ROOM=-5V_PWR

C317 1U 10V 10%

C87 10U 10V 10%

C86 0.1U 16V 10%

C447 0.01UF 50V 5%

+5V

U50 TPS62120 V//V

VIN EN GND SW FB VOUT SGND PG

L8 22UH 0.75A

DUMMY_P26_1

GND

R157 200K 1% 0.125W

R469 200K 1% 0.125W

R470 30.1K 1% 0.1W

R472 82.5K 0.125W 1%

C306 22P 50V 5%

C448 0.01UF 50V 5%

C85 0.1U 16V 10%

C315 1U 10V 10%

C316 10U 10V 10%

D43 MBR0520L 0.2W

GND

-5V

VCC_ARROW -5V

ROOM=-5V_PWR
ROOM=-5V_PWR
ROOM=-5V_PWR
ROOM=-5V_PWR
ROOM=-5V_PWR
ROOM=-5V_PWR
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DWG KAA26800ACP

OTIS ENGINEERING CENTER

CHANGWON, KOREA

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AUTH	CN897873	SHEET	26

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A3

CONVERTER GATE DRIVER (R-PHASE)

ROOM = CNV_G_R_HIGH

R40 324 0.1W 1%
+5V
3C5< PWM_R_H
R287 1.00K 1% 0.1W
D88 BAV99
R281 107 0.1W 1%
+5V
VCC_ARROW
R95 10K 1% 0.1W
R93 10K 1% 0.1W
29C1<> 28C1<> 27C1<> 28B1<> 29B1<> 18A1<
CNV_UVLO*
29C1<> 28C1<> 27C1<> 28B1<> 29B1<> 19C2<
CNV_FLT*
C233 330PF 50V 5%
C231 330PF 50V 5%
GND
+5V
VCC_ARROW
C171 0.1U 16V 10%
C168 1U 10V 10%
GND

U11
ACPL-352J
VOUTP/CLAMP 11
VS 9
VOUTN 10
OC 14
SS 13
VDD2 12
VSS2 16
(LED2)NC 15
ANODE 7
CATHODE 6 8
UVLO 2
FAULT 3
GFAULT
GND 4
VDD1 5
VSS1 1

C196 470P 50V 5%
BZX84C12 Z11 12V 0.250W
D92 LL42_GS08 0.2W
R54 1.00K 1% 0.1W
R70 3 1W 1%
D120 0.48W MBR0530
D22
BAV99
DUMMY_P27_7
D18 BAV99
D28 1.25W STTH112
DC_BUS+
37A2< 32A6< 30A6< 28A6< 7A2< 9A1< 29A6< 31A6< 36A2<
ROOM=CNV_G_R_HIGH ROOM=CNV_G_R_HIGH ROOM=CNV_G_R_HIGH ROOM=CNV_G_R_HIGH
CNV_G1 36B1<
R321 2 1W 1%
R66 15 0.25W 1%
R601 2.2 0.5W 1%
R81 10K 1% 0.1W
C435 4700PF 50V 5%
Z15 BZB84_B20 20V 300MW
DUMMY_P27_5
CNV_E1 36B1<
ROOM=CNV_G_R_HIGH ROOM=CNV_G_R_HIGH

C195 22UF 25V 20%
C199 22UF 25V 20%
Z8 15V 0.375W BZT52H_B15
+23V_RH 35B6<
C180 22UF 25V 20%
C185 22UF 25V 20%
R57 806 1% 0.125W
+23V_RH_RTN 35B6<

ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH
ROOM=CNV_G_R_HIGH

ROOM = CNV_G_R_LOW

R327 324 0.1W 1%
+5V
3C5< PWM_R_L
R74 1.00K 1% 0.1W
D29 BAV99
R326 107 0.1W 1%
+5V
VCC_ARROW
R96 10K 1% 0.1W
R94 10K 1% 0.1W
29C1<> 28C1<> 27B1<> 28B1<> 29B1<> 18A1<
CNV_UVLO*
29C1<> 28C1<> 27B1<> 28B1<> 29B1<> 19C2<
CNV_FLT*
C232 330PF 50V 5%
C230 330PF 50V 5%
GND
+5V
VCC_ARROW
C213 0.1U 16V 10%
C214 1U 10V 10%
GND

U19
ACPL-352J
VOUTP/CLAMP 11
VS 9
VOUTN 10
OC 14
SS 13
VDD2 12
VSS2 16
(LED2)NC 15
ANODE 7
CATHODE 6 8
UVLO 2
FAULT 3
GFAULT
GND 4
VDD1 5
VSS1 1

C220 470P 50V 5%
BZX84C12 Z16 12V 0.250W
D93 LL42_GS08 0.2W
R78 1.00K 1% 0.1W
R84 3 1W 1%
D121 0.48W MBR0530
D32
BAV99
DUMMY_P27_8
D31 BAV99
D33 1.25W STTH112
CNV_R 10A4> 36C1<
CNV_G2 36C1<
R332 2 1W 1%
R83 15 0.25W 1%
R602 2.2 0.5W 1%
R337 10K 1% 0.1W
C446 4700PF 50V 5%
Z40 BZB84_B20 20V 300MW
DUMMY_P27_6
CNV_E2 36C1<

C218 22UF 25V 20%
C221 22UF 25V 20%
Z14 15V 0.375W BZT52H_B15
+23V_RST_LOW 28C5< 29C5< 35A6< 35B1<
C215 22UF 25V 20%
C217 22UF 25V 20%
R80 806 1% 0.125W
+23V_RST_LOW_RTN 28D5< 29D5< 35B6< 35C1<
C412 10UF 35V 10%

ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW
ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW
ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW
ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW
ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW
ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW
ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW
ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW ROOM=CNV_G_R_LOW

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES
2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE 2017-01-06
CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 27

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

CR-28 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE28

A3

CONVERTER GATE DRIVER (S-PHASE)

ROOM = CNV_G_S_HIGH

R279 324 0.1W 1%
R278 107 0.1W 1%
R35 1.00K 1% 0.1W
D86 BAV99
R89 10K 1% 0.1W
R91 10K 1% 0.1W
C229 330PF 50V 5%
C227 330PF 50V 5%
C30 0.1U 16V 10%
C28 1U 10V 10%
U7 ACPL-352J
ANODE
CATHODE
UVLO
FAULT
GFAULT
VDD1
VSS1
VOUTP/CLAMP
VS
VOUTN
OC
SS
VDD2
VSS2
(LED2)NC
C198 470P 50V 5%
BZX84C12 Z7 12V 0.250W
D90 LL42_GS08 0.2W
R55 1.00K 1% 0.1W
D20 BAV99
DUMMY_P28_7
D16 BAV99
D26 1.25W STTH112
DC_BUS+
R64 3 1W 1%
D3 0.48W MBR0530
R320 2 1W 1%
R58 15 0.25W 1%
R325 10K 1% 0.1W
R22 2.2 0.5W 1%
Z13 BZB84_B20 20V 300MW
DUMMY_P28_5
CNV_G3
CNV_E3
C436 4700PF 50V 5%
C189 22UF 25V 20%
C183 22UF 25V 20%
C174 22UF 25V 20%
C178 22UF 25V 20%
Z4 15V 0.375W BZT52H_B15
R50 806 1% 0.125W
+23V_SH
+23V_SH_RTN
CNV_UVLO*
CNV_FLT*
PWM_S_H
+5V
GND

ROOM = CNV_G_S_LOW

R270 324 0.1W 1%
R31 107 0.1W 1%
R32 1.00K 1% 0.1W
D87 BAV99
R90 10K 1% 0.1W
R92 10K 1% 0.1W
C228 330PF 50V 5%
C226 330PF 50V 5%
C26 0.1U 16V 10%
C152 1U 10V 10%
U3 ACPL-352J
C151 470P 50V 5%
BZX84C12 Z1 12V 0.250W
D83 LL42_GS08 0.2W
R23 1.00K 1% 0.1W
D82 BAV99
DUMMY_P28_8
D7 BAV99
D85 1.25W STTH112
CNV_S
R25 3 1W 1%
D106 0.48W MBR0530
R272 2 1W 1%
R268 15 0.25W 1%
R69 10K 1% 0.1W
R581 2.2 0.5W 1%
Z12 BZB84_B20 20V 300MW
DUMMY_P28_6
CNV_G4
CNV_E4
C437 4700PF 50V 5%
C161 22UF 25V 20%
C160 22UF 25V 20%
C154 22UF 25V 20%
C155 22UF 25V 20%
C407 10UF 35V 10%
Z2 15V 0.375W BZT52H_B15
R33 806 1% 0.125W
+23V_RST_LOW
+23V_RST_LOW_RTN
CNV_UVLO*
CNV_FLT*
PWM_S_L
+5V
GND

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE 2017-01-06
CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 28

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

CR-29 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE29

A3

ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH

ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH

CONVERTER GATE DRIVER (T-PHASE)

ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH

ROOM = CNV_G_T_HIGH

R41 324 0.1W 1%
+5V
3C5< PWM_T_H
R292 107 0.1W 1%
R293 1.00K 1% 0.1W
D12 BAV99
+5V
VCC_ARROW
R87 10K 1% 0.1W
R85 10K 1% 0.1W
CNV_UVLO*
CNV_FLT*
19C2< 28B1<> 29C1<> 28B1<> 27B1<> 27C1<> 28C1<>
C225 330PF 50V 5%
C223 330PF 50V 5%
GND
ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH
+5V
VCC_ARROW
C32 0.1U 16V 10%
C33 1U 10V 10%
GND
ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH

U13
ACPL-352J
ANODE
CATHODE
UVLO
FAULT
GFAULT
VDD1
VSS1
VOUTP/CLAMP
VS
VOUTN
OC
SS
VDD2
VSS2
(LED2)NC

ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH

C41 470P 50V 5%
BZX84C12 Z10 12V 0.250W
D91 LL42_GS08 0.2W
R315 1.00K 1% 0.1W
D21 BAV99
DUMMY_P29_7
D17 BAV99
D27 1.25W STTH112
DC_BUS+
37A2< 32A6< 30A6< 27A6< 7A2< 9A1< 28A6< 31A6< 36A2<
R67 3 1W 1%
D107 0.48W MBR0530
R73 2 1W 1%
CNV_G5 36B4<
R322 15 0.25W 1%
R582 2.2 0.5W 1%
R79 10K 1% 0.1W
Z17 BZB84_B20 20V 300MW
DUMMY_P29_5
C438 4700PF 50V 5%
CNV_E5 36B4<
35C6< ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH ROOM=CNV_G_T_HIGH
ROOM=CNV_G_T_HIGH
C206 22UF 25V 20%
C201 22UF 25V 20%
C182 22UF 25V 20%
C187 22UF 25V 20%
+23V_TH
Z9 15V 0.375W BZT52H_B15
R59 806 1% 0.125W
+23V_TH_RTN

ROOM = CNV_G_T_LOW

R282 324 0.1W 1%
+5V
3C5< PWM_T_L
R36 107 0.1W 1%
R277 1.00K 1% 0.1W
D9 BAV99
+5V
VCC_ARROW
R88 10K 1% 0.1W
R86 10K 1% 0.1W
29B1<> 28B1<> 27B1<> 27C1<> 28C1<> 18A1<>
CNV_UVLO*
CNV_FLT*
19C2<
C224 330PF 50V 5%
C222 330PF 50V 5%
GND
+5V
VCC_ARROW
C163 0.1U 16V 10%
C31 1U 10V 10%
GND

ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW

U8
ACPL-352J
ANODE
CATHODE
UVLO
FAULT
GFAULT
VDD1
VSS1
VOUTP/CLAMP
VS
VOUTN
OC
SS
VDD2
VSS2
(LED2)NC

C191 470P 50V 5%
BZX84C12 Z6 12V 0.250W
D89 LL42_GS08 0.2W
R314 1.00K 1% 0.1W
D23 BAV99
DUMMY_P29_8
D19 BAV99
D24 1.25W STTH112
CNV_T 10C4<> 36D1<>
R65 3 1W 1%
D108 0.48W MBR0530
R317 2 1W 1%
R68 15 0.25W 1%
CNV_G6 36C4<
R592 2.2 0.5W 1%
R82 10K 1% 0.1W
Z18 BZB84_B20 20V 300MW
DUMMY_P29_6
C439 4700PF 50V 5%
CNV_E6 36C4<
C408 10UF 35V 10%
C173 22UF 25V 20%
C190 22UF 25V 20%
C177 22UF 25V 20%
C184 22UF 25V 20%
+23V_RST_LOW
Z5 15V 0.375W BZT52H_B15
R51 806 1% 0.125W
+23V_RST_LOW_RTN
27C5< 28C5< 35A6< 35B1<
35C1< 27D5< 28D5< 35B6<

ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW
ROOM=CNV_G_T_LOW ROOM=CNV_G_T_LOW

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	29

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

CR-30 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE30

A3

INVERTER GATE DRIVER(U-PHASE)
PER EN81-50

ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH

ROOM = INV_G_U_HIGH

R522 324 0.1W 1%

+5V

23B2< 22B6<> PWM_U_H

R525 107 0.1W 1%

R524 1.00K 1% 0.1W

D63 BAV99

R120 10K 1% 0.1W

R126 10K 1% 0.1W

18B1< INV_UVLO_UH*

32C1<> 31C1<> 30C1<> 31B1<> 32B1<> 19D2< INV_FLT*

C275 330PF 50V 5%

C269 330PF 50V 5%

GND

C110 0.1U 16V 10%

C111 1U 10V 10%

U62 ACPL-352J

ANODE

CATHODE

UVLO

FAULT

GFAULT

VDD1

VSS1

VOUTP/CLAMP

VS

VOUTN

OC

SS

VDD2

VSS2

(LED2)NC

C96 470P 50V 5%

BZX84C12 Z45 12V 0.250W

D56 LL42_GS08 0.2W

R505 1.00K 1% 0.1W

R171 3 1W 1%

D51 BAV99

DUMMY_P30_7

D98 BAV99

D44 1.25W STTH112

DC_BUS+ 9A1< 36A2< 31A6< 28A6< 7A2< 27A6< 29A6< 32A6< 37A2<

D109 0.48W MBR0530

R499 2 1W 1%

R177 15 0.25W 1%

R595 2.2 0.5W 1%

INV_G1 37B1<

R166 10K 1% 0.1W

Z21 BZB84_B20 20V 300MW

DUMMY_P30_5

C440 4700PF 50V 5%

INV_E1 37B1<

C341 22UF 25V 20%

C338 22UF 25V 20%

C342 22UF 25V 20%

C335 22UF 25V 20%

+23V_UH 34C6<

Z29 15V 0.375W BZT52H_B15

R187 806 1% 0.125W

+23V_UH_RTN 34D6<

ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH ROOM=INV_G_U_HIGH

ROOM = INV_G_U_LOW

R537 324 0.1W 1%

+5V

23C2< 22C6<> PWM_U_L

R200 107 0.1W 1%

R538 1.00K 1% 0.1W

D67 BAV99

R122 10K 1% 0.1W

R128 10K 1% 0.1W

18B1< INV_UVLO_UL*

31C1<> 30B1<> 31B1<> 32B1<> 32C1<> 19D2< INV_FLT*

C273 330PF 50V 5%

C267 330PF 50V 5%

GND

C122 0.1U 16V 10%

C121 1U 10V 10%

U68 ACPL-352J

ANODE

CATHODE

UVLO

FAULT

GFAULT

VDD1

VSS1

VOUTP/CLAMP

VS

VOUTN

OC

SS

VDD2

VSS2

(LED2)NC

C115 470P 50V 5%

BZX84C12 Z31 12V 0.250W

D64 LL42_GS08 0.2W

R213 1.00K 1% 0.1W

R195 3 1W 1%

D73 BAV99

DUMMY_P30_8

D74 BAV99

D69 1.25W STTH112

INV_U1 11B3< 37C1<

D110 0.48W MBR0530

R523 2 1W 1%

R199 15 0.25W 1%

R596 2.2 0.5W 1%

INV_G2 37C1<

R190 10K 1% 0.1W

Z28 BZB84_B20 20V 300MW

DUMMY_P30_6

C441 4700PF 50V 5%

INV_E2 37C1<

C350 22UF 25V 20%

C349 22UF 25V 20%

C348 22UF 25V 20%

C351 22UF 25V 20%

C409 10UF 35V 10%

+23V_UVW_LOW 31C5< 32C5< 34A6< 34B1<

Z32 15V 0.375W BZT52H_B15

R205 806 1% 0.125W

34B6< 32D5< 31D5< 34C1<

+23V_UVW_LOW_RTN

ROOM=INV_G_U_LOW ROOM=INV_G_U_LOW ROOM=INV_G_U_LOW

CR-31 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE31

A3

INVERTER GATE DRIVER(V-PHASE)
PER EN81-50

ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH

ROOM = INV_G_V_HIGH

R513 324 0.1W 1%
+5V
23C2< 22C6<> PWM_V_H
R512 1.00K 1% 0.1W
R197 107 0.1W 1%
D57 BAV99
R121 10K 1% 0.1W
R127 10K 1% 0.1W
VCC_ARROW
18C1< INV_UVLO_VH*
32C1<> 31C1<> 30B1<> 30C1<> 32B1<> 19D2< INV_FLT*
C274 330PF 50V 5%
C268 330PF 50V 5%
GND
C102 0.1U 16V 10%
C103 1U 10V 10%

U59 ACPL-352J
ANODE
CATHODE
UVLO
FAULT
GFAULT
VDD1
VSS1
VOUTP/CLAMP
VS
VOUTN
OC
SS
VDD2
VSS2
(LED2)NC

C95 470P 50V 5%
BZX84C12 Z25 12V 0.250W
D46 LL42_GS08 0.2W
R186 1.00K 1% 0.1W
D53 BAV99
DUMMY_P31_7
D54 BAV99
R172 3 1W 1%
D116 0.48W MBR0530
R497 2 1W 1%
R169 15 0.25W 1%
D48 1.25W STTH112
DC_BUS+
37A2< 30A6< 27A6< 7A2< 9A1< 28A6< 32A6< 29A6< 36A2<
INV_G3 37B3<
Z20 BZB84_B20 20V 300MW
R165 10K 1% 0.1W
R598 2.2 0.5W 1%
C443 4700PF 50V 5%
DUMMY_P31_5
INV_E3 37B3<

C333 22UF 25V 20%
C337 22UF 25V 20%
C329 22UF 25V 20%
C340 22UF 25V 20%
+23V_VH 34C6<
Z27 15V 0.375W BZT52H_B15
R180 806 1% 0.125W
+23V_VH_RTN 34C6<

ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH
ROOM=INV_G_V_HIGH

ROOM = INV_G_V_LOW

R194 324 0.1W 1%
+5V
23D2< 22C6<> PWM_V_L
R193 1.00K 1% 0.1W
R196 107 0.1W 1%
D61 BAV99
R123 10K 1% 0.1W
R129 10K 1% 0.1W
VCC_ARROW
18C1< INV_UVLO_VL*
31B1<> 30B1<> 30C1<> 32B1<> 32C1<> 19D2< INV_FLT*
C272 330PF 50V 5%
C266 330PF 50V 5%
GND
C101 0.1U 16V 10%
C344 1U 10V 10%

U58 ACPL-352J
ANODE
CATHODE
UVLO
FAULT
GFAULT
VDD1
VSS1
VOUTP/CLAMP
VS
VOUTN
OC
SS
VDD2
VSS2
(LED2)NC

C94 470P 50V 5%
BZX84C12 Z23 12V 0.250W
D45 LL42_GS08 0.2W
R181 1.00K 1% 0.1W
D52 BAV99
DUMMY_P31_8
D55 BAV99
R174 3 1W 1%
D117 0.48W MBR0530
R495 2 1W 1%
R170 15 0.25W 1%
D47 1.25W STTH112
INV_V1 11C3< 37D1<
INV_G4 37C3<
Z19 BZB84_B20 20V 300MW
R162 10K 1% 0.1W
R597 2.2 0.5W 1%
C442 4700PF 50V 5%
DUMMY_P31_6
INV_E4 37C3<

C336 22UF 25V 20%
C332 22UF 25V 20%
C339 22UF 25V 20%
C327 22UF 25V 20%
C410 10UF 35V 10%
+23V_UVW_LOW 30C5< 32C5< 34A6< 34B1<
Z26 15V 0.375W BZT52H_B15
R179 806 1% 0.125W
+23V_UVW_LOW_RTN 30D5< 32D5< 34B6< 34C1<

ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW
ROOM=INV_G_V_LOW

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES
2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE 2017-01-06
CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 31

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

CR-32 : @KAA26800ACP_LIB_KAA26800ACP_LIB(SCH_1):PAGE32

A3

INVERTER GATE DRIVER(W-PHASE) PER EN81-50

ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH

ROOM = INV_G_W_HIGH

R210 324 0.1W 1%
+5V
23B3< 22C6<> PWM_W_H
R214 1.00K 1% 0.1W
R209 107 0.1W 1%
D72 BAV99
+5V
VCC_ARROW
R124 10K 1% 0.1W
R130 10K 1% 0.1W
18C1<
INV_UVLO_WH*
32C1<> 31B1<> 30B1<> 30C1<> 31C1<> 19D2<
INV_FLT*
C271 330PF 50V 5%
C265 330PF 50V 5%
GND
+5V
VCC_ARROW
C119 0.1U 16V 10%
C352 1U 10V 10%
GND

U67 ACPL-352J

VOUTP/CLAMP	11	
VS	9	
VOUTN	10	
OC	14	
SS	13	
VDD2	12	
VSS2	16	
(LED2)NC	15	
ANODE	7	
CATHODE	6, 8	
UVLO	2	
FAULT	3	
GFAULT	4	
VDD1	5	
VSS1	1	

C123 470P 50V 5%
BZX84C12 Z33 12V 0.250W
D70 LL42_GS08 0.2W
R204 1.00K 1% 0.1W
D66 BAV99
DUMMY_P32_7
D100 BAV99
R198 3 1W 1%
D119 0.48W MBR0530
R520 2 1W 1%
R519 15 0.25W 1%
D60 1.25W STTH112
DC_BUS+
37A2< 31A6< 29A6< 27A6< 7A2< 9A1< 28A6< 30A6< 36A2<
INV_G5 37B5<
R599 2.2 0.5W 1%
R178 10K 1% 0.1W
Z24 BZB84_B20 20V 300MW
DUMMY_P32_5
C444 4700PF 50V 5%
INV_E5 37B5<

C357 22UF 25V 20%
C358 22UF 25V 20%
C359 22UF 25V 20%
C356 22UF 25V 20%
+23V_WH 34B6<
Z35 15V 0.375W BZT52H_B15
R212 806 1% 0.125W
+23V_WH_RTN 34B6<

ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH
ROOM=INV_G_W_HIGH

ROOM = INV_G_W_LOW

R239 324 0.1W 1%
+5V
23C3< 22C6<> PWM_W_L
R238 1.00K 1% 0.1W
R240 107 0.1W 1%
D75 BAV99
+5V
VCC_ARROW
R125 10K 1% 0.1W
R131 10K 1% 0.1W
18C1<
INV_UVLO_WL*
32B1<> 31B1<> 30B1<> 30C1<> 31C1<> 19D2<
INV_FLT*
C270 330PF 50V 5%
C264 330PF 50V 5%
GND
+5V
VCC_ARROW
C129 0.1U 16V 10%
C368 1U 10V 10%
GND

U71 ACPL-352J

VOUTP/CLAMP	11	
VS	9	
VOUTN	10	
OC	14	
SS	13	
VDD2	12	
VSS2	16	
(LED2)NC	15	
ANODE	7	
CATHODE	6, 8	
UVLO	2	
FAULT	3	
GFAULT	4	
VDD1	5	
VSS1	1	

C116 470P 50V 5%
BZX84C12 Z30 12V 0.250W
D62 LL42_GS08 0.2W
R211 1.00K 1% 0.1W
D68 BAV99
DUMMY_P32_8
D71 BAV99
R203 3 1W 1%
D118 0.48W MBR0530
R528 2 1W 1%
R201 15 0.25W 1%
D65 1.25W STTH112
INV_W1 11D3< 37D1<
INV_G6 37C5<
R600 2.2 0.5W 1%
R173 10K 1% 0.1W
Z22 BZB84_B20 20V 300MW
DUMMY_P32_6
C445 4700PF 50V 5%
INV_E6 37C5<

C411 10UF 35V 10%
C363 22UF 25V 20%
C353 22UF 25V 20%
C355 22UF 25V 20%
C361 22UF 25V 20%
+23V_UVW_LOW 30C5< 31C5< 34A6< 34B1<
Z34 15V 0.375W BZT52H_B15
R206 806 1% 0.125W
+23V_UVW_LOW_RTN 30C5< 31C5<

ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW
ROOM=INV_G_W_LOW

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	32

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CR-33 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE33

A3

ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR

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ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR
ROOM=GATE_INPUT_PWR

GATE 30V INPUT SMPS

ROOM=GATE_INPUT_PWR

19B5< 15B4< 15B1< 25B5< 25B1< 24C1< 24A6< 17A1<

ENBL_5V
R304 499 1% 0.1W
R46 10K 1% 0.1W
GND
U9 TLP188
R38 1M 1% 0.125W
R285 1M 1% 0.125W
R290 118K 0.125W 1%
R296 63.4K 0.125W 1%
R43 19.6K 0.1W 1%
LVP_SMPS
C404 470PF 250V 5%
C405 470PF 250V 5%
C170 0.22UF 250V 10%
LVP_SMPS_RTN

U10 LTC7138
VIN
RUN
SS
VPRG1
VPRG2
GND
EP
SW
ANODE
VFB
FBO
ISET
OVLO
C186 0.033U 16V 10%
D13 MBRS3201P 2W
L4 330UH 1.1A 20% 20%
DUMMY_P33_2
R48 200K 1% 0.125W
ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO
R307 20K 1% 0.1W
R306 20K 1% 0.1W
R305 10K 1% 0.1W
R47 10K 1% 0.1W
+30V_GATE 20B6<
C202 0.1UF 50V 10%
C40 47UF 50V 20%
C194 10UF 50V 10%
C406 0.01UF 50V 5%
+30V_GATE_RTN 20B6<

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE 2017-01-06
CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 33

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

CR-34 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE34

A3

GATE SUPPLY OF INVERTER

OUTPUT VOLTAGE: 21V

ROOM=INV_GATE_PWR

+30V_GATE_INV

R514 20K 1% 0.1W

ASSEMBLY_SEC1=NO

R521 10K 1% 0.1W

C462 10UF 50V 10%

C71 47UF 50V 20%

C288 10UF 50V 10%

C289 0.1UF 50V 10%

Q19 BSP320S

R446 51 1W 1%

R460 2K 1W 1%

C284 1UF 50V 10%

RLZ5237B Z43 8.2V 0.5W

ASSEMBLY_SEC1=ALT0
ALT0 = ZERO OHM JUMPERS
AAA232HF11

C72 0.01UF 50V 5%

C403 0.01UF 50V 5%

R136 210K 1% 0.125W

R137 210K 1% 0.125W

R461 160K 5% 0.75W

C292 470PF 250V 5%

R453 43 5% 0.75W

D97 1.19W RS1G

28-32VDC

W1

+30V_GATE_INV_RTN

REINFORCED INSULATION+ PER EN81-50

+23V_UVW_LOW

R134 29.4K 0.1W 1%

R437 100 1% 0.1W

R132 1.00K 1% 0.1W

U39 TLP385

C67 0.1UF 50V 10%

U40 TL431AID

REF

R133 4.12K 0.1W 1%

+23V_UVW_LOW_RTN

UVLO: 22V

U44 DPA423G

CONTROL
LINE-SENSE
EXTERNAL CURRENT LIMIT
FREQUENCY
DRAIN
SOURCE

R135 6.8 5% 0.1W

C69 1UF 50V 10%

C68 47UF 35V 20%

C278 0.1U 16V 10%

R439 8.06K 0.1W 1%

C464 220PF 250V 5%

R316 27 1% 0.5W

+30V_GATE_INV_RTN

REINFORCED INSULATION+
PER EN81-50

ROOM=INV_GATE_PWR

C277 100PF 100V 5%

R438 27 5% 0.75W

21V +23V_UVW_LOW

D38 BAT46 0.44W

C66 18UF 35V 20%

C415 10UF 35V 10%

C457 100PF 50V 5%

+23V_UVW_LOW_RTN

C287 100PF 100V 5%

TR3 SUMIDA_545_01_342_00

W2 23V 90mA

W3 23V 30mA

W4 23V 30mA

W5 23V 30mA

R457 27 5% 0.75W

D39 BAT46 0.44W

21V +23V_WH

C454 100PF 50V 5%

C73 18UF 35V 20%

R494 20K 1% 0.1W

+23V_WH_RTN

C298 100PF 100V 5%

R464 27 5% 0.75W

D40 BAT46 0.44W

21V +23V_VH

C79 18UF 35V 20%

C456 100PF 50V 5%

R504 20K 1% 0.1W

+23V_VH_RTN

C328 100PF 100V 5%

R498 27 5% 0.75W

D50 BAT46 0.44W

21V +23V_UH

C99 18UF 35V 20%

C455 100PF 50V 5%

R496 20K 1% 0.1W

+23V_UH_RTN

ROOM=INV_GATE_PWR

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DWG KAA26800ACP

OTIS ENGINEERING CENTER

CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	34

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

CR-35 : @KAA26800ACP_LIB.KAA26800ACP_LIB(CNV_GATE_PWR)

A3

GATE SUPPLY OF CONVERTER

OUTPUT VOLTAGE: 21V

ROOM=CNV_GATE_PWR

20B6< +30V_GATE_CNV

20B6< 35C2< +30V_GATE_CNV_RTN

C56 47UF 50V 20%
C250 10UF 50V 10%
C247 1UF 50V 10%
C246 0.1UF 50V 10%
C413 0.01UF 50V 5%
C248 1UF 50V 10%
R411 2K 1W 1%
RLZ5237B Z41 8.2V 0.5W

R102 210K 1% 0.125W
R103 210K 1% 0.125W

R413 160K 5% 0.75W
C251 470PF 250V 5%
R394 43 5% 0.75W
D94 1.19W RS1G

28-32VDC
W1

UVLO: 22V

U30 DPA423G

CONTROL
LINE-SENSE
EXTERNAL CURRENT LIMIT
FREQUENCY
DRAIN
SOURCE

C463 220PF 250V 5%
R280 27 1% 0.5W

R101 6.8 5% 0.1W
C241 0.1U 16V 10%
C52 47UF 35V 20%
C51 1UF 50V 10%
R368 8.06K 0.1W 1%

+30V_GATE_CNV_RTN

20B6<
35B1<

REINFORCED INSULATION

28C5< 29C5< 35A6< 27C5< +23V_RST_LOW

R99 29.4K 0.1W 1%
R361 100 1% 0.1W
R100 1.00K 1% 0.1W
C50 0.1UF 50V 10%

U27 TLP385

U28 TL431AID
REF

R98 4.12K 0.1W 1%

29D5< 27D5< 28D5< 35B6<
+23V_RST_LOW_RTN

REINFORCED INSULATION

C240 100PF 100V 5%
R367 27 5% 0.75W
D35 BAT46 0.44W
C49 18UF 35V 20%
C414 10UF 35V 10%
C453 100PF 50V 5%

21V +23V_RST_LOW 35B1< 27C5< 29C5< 28C5<
+23V_RST_LOW_RTN 27D5< 29D5< 28D5< 35C1<

C245 100PF 100V 5%

TR2 SUMIDA_545_01_342_00

W2 23V 90mA
W3 23V 30mA
W4 23V 30mA
W5 23V 30mA

R377 27 5% 0.75W
D36 BAT46 0.44W
C54 18UF 35V 20%
C452 100PF 50V 5%
R324 20K 1% 0.1W

21V +23V_RH 27B5<
+23V_RH_RTN 27B5<

C253 100PF 100V 5%
R412 27 5% 0.75W
D37 BAT46 0.44W
C57 18UF 35V 20%
C451 100PF 50V 5%
R333 20K 1% 0.1W

21V +23V_SH 28B5<
+23V_SH_RTN 28B5<

C252 100PF 100V 5%
R418 27 5% 0.75W
D95 BAT46 0.44W
C58 18UF 35V 20%
C450 100PF 50V 5%
R323 20K 1% 0.1W

21V +23V_TH 29B5<
+23V_TH_RTN 29B5<

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	35

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

CR-36 : @KAA26800ACP_LIB.KAA26800ACP_LIB(SCH_1):PAGE36

A3

COVERTER IGBT MODULES

ROOM = CONVERTER

31A6< 30A6< 29A6< 28A6< 27A6< 9A1< 7A2< 37A2< 32A6< DC_BUS+

37B2< 9D2< 7D2< DC_BUS-

R-PHASE

U21
SKiiP26GB12T4V1

27A6< CNV_G1 G1
27B6< CNV_E1 E1
27C6< CNV_G2 G2
27D6< CNV_E2 E2
DUMMY_P36_1 +T
DUMMY_P36_2 -T

+DC, AC, -DC

S-PHASE

U18
SKiiP26GB12T4V1

28A6< CNV_G3 G1
28B6< CNV_E3 E1
28C6< CNV_G4 G2
28D6< CNV_E4 E2
+T
-T

NTC_C1 38C1<
NTC_C2 38C1<

+DC, AC, -DC

T-PHASE

U22
SKiiP26GB12T4V1

29A6< CNV_G5 G1
29B6< CNV_E5 E1
29C6< CNV_G6 G2
29D6< CNV_E6 E2
DUMMY_P36_3 +T
DUMMY_P36_4 -T

+DC, AC, -DC

[FROM LINE REACTOR]

27C6< 10A4> CNV_R
28C6< 10B4> CNV_S
29C6< 10C4<> CNV_T

IGBTS ARE PART OF MECHANICAL ASSEMBLY

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO

ROOM=CONVERTER
ROOM=CONVERTER
ROOM=CONVERTER

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	36

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CR-37 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE37

A3

INVERTER IGBT MODULES

ROOM = INVERTER

PER EN81-50

ROOM=INVERTER ROOM=INVERTER ROOM=INVERTER ROOM=INVERTER

30A6< 29A6< 28A6< 27A6< 9A1< 7A2< DC_BUS+
36A2< 32A6< 31A6<

C46 2UF 1100VDC 10%

C78 2UF 1100VDC 10%

C63 2UF 1100VDC 10%

C53 2UF 1100VDC 10%

36B2< 9D2< 7D2< DC_BUS-

U-PHASE

U54
SKiiP26GB12T4V1

30A6< INV_G1 G1 → G1
30B6< INV_E1 E1 → E1
30C6< INV_G2 G2 → G2
30D6< INV_E2 E2 → E2
DUMMY_P37_1 +T → +T
DUMMY_P37_2 -T → -T
+DC → +DC
AC → AC
-DC → -DC

ROOM=INVERTER

[TO INV CURRENT SENSOR]

30C6< 11B3< INV_U1

V-PHASE

U49
SKiiP26GB12T4V1

31A6< INV_G3 G1 → G1
31B6< INV_E3 E1 → E1
31C6< INV_G4 G2 → G2
31D6< INV_E4 E2 → E2
+T → +T
-T → -T
+DC → +DC
AC → AC
-DC → -DC

NTC_I1 38A1<
NTC_I2 38B1<

PER EN81-50

ROOM=INVERTER

31C6< 11C3< INV_V1

W-PHASE

U55
SKiiP26GB12T4V1

32A6< INV_G5 G1 → G1
32B6< INV_E5 E1 → E1
32C6< INV_G6 G2 → G2
32D6< INV_E6 E2 → E2
DUMMY_P37_3 +T → +T
DUMMY_P37_4 -T → -T
+DC → +DC
AC → AC
-DC → -DC

ROOM=INVERTER

32C6< 11D3< INV_W1

IGBTS ARE PART OF MECHANICAL ASSEMBLY

ASSEMBLY_SEC1=NO	ASSEMBLY_SEC1=NO	ASSEMBLY_SEC1=NO
ASSEMBLY_SEC2=NO	ASSEMBLY_SEC2=NO	ASSEMBLY_SEC2=NO
ASSEMBLY_SEC3=NO	ASSEMBLY_SEC3=NO	ASSEMBLY_SEC3=NO
ASSEMBLY_SEC4=NO	ASSEMBLY_SEC4=NO	ASSEMBLY_SEC4=NO

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AUTH	CN897873	SHEET	37

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CR-38 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE38

A3

IGBT TEMP SENSING CIRCUIT

[INVERTER PART]
ROOM = INV_TEMP

[CONVERTER PART]
ROOM = CNV_TEMP

REINFORCED INSULATION

ROOM=INV_TEMP
ROOM=INV_TEMP
ROOM=INV_TEMP
ROOM=INV_TEMP
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ROOM=INV_TEMP

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United Technologies

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CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 38

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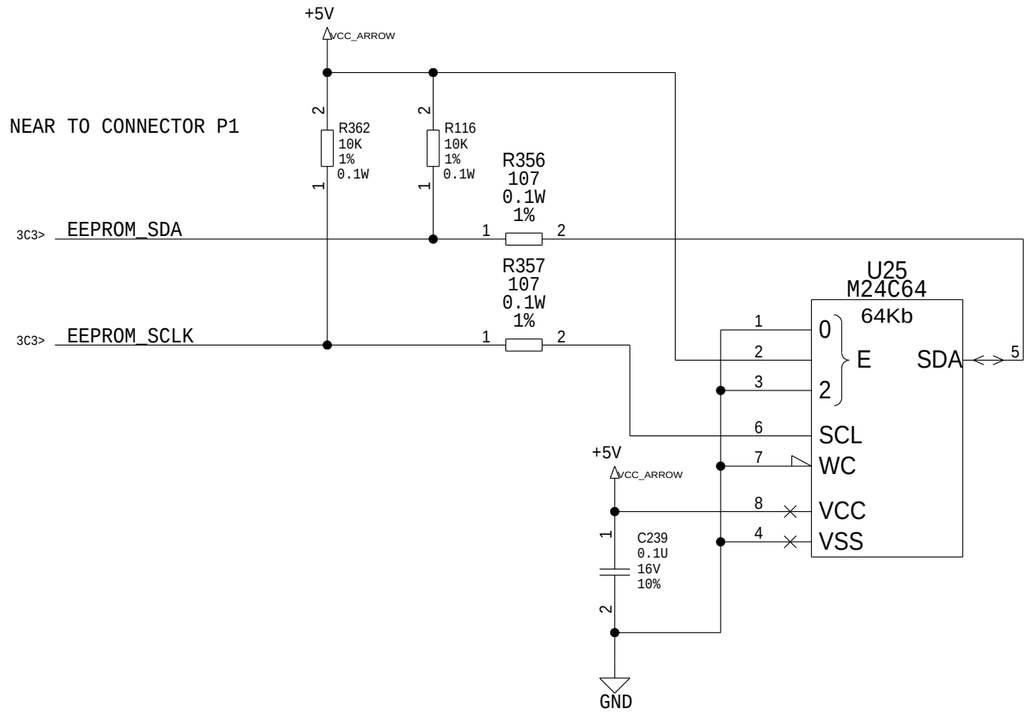
A3

EEPROM

ROOM=EEPROM



ROOM=EEPROM
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ROOM=EEPROM

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CHK	W. HUANG		
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AUTH	CN897873	SHEET	39

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CNV HW OC CIRCUIT

CONVERTER SIDE

ROOM = CNV_HW_OC

CIRCUIT WAS REMOVED BECAUSE OF NO SPACE ON PCBA FOR COMPONENTS

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(High Voltage Power Board)

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AUTH	CN897873	SHEET	40

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CR-41 : @KAA26800ACP_LIB,KAA26800ACP_LIB(SCH_1):PAGE41

A3

ROOM=INV_HW_OC
ROOM=INV_HW_OC
ROOM=INV_HW_OC
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ROOM=INV_HW_OC
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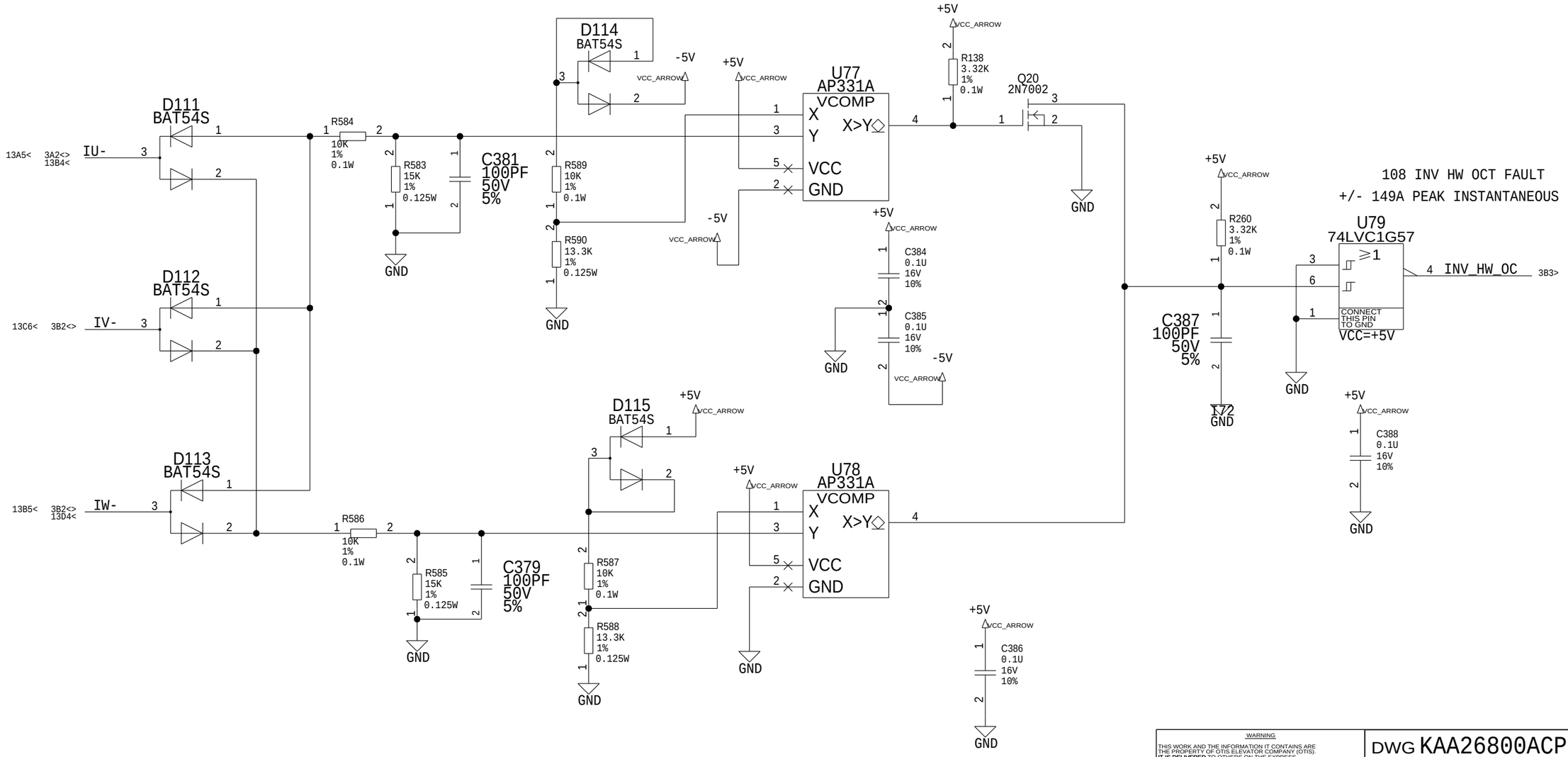
ROOM=INV_HW_OC
ROOM=INV_HW_OC
ROOM=INV_HW_OC

INV HW OC CIRCUIT

INVERTER SIDE
ROOM = INV_HW_OC



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CHANGES

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CHK	W. HUANG		
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AUTH	CN897873	SHEET	41

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Title: Basenet Report
Design: kaa26800acp_lib
Date: Aug 21 10:09:13 2017

Base nets and synonyms for kaa26800acp_lib.KAA26800ACP_LIB(@kaa26800acp_lib.kaa26800acp_lib(sch_1))

Base Signal	Location([Zone][dir])
+5V_DC	8B1< 8C6< 38A2< 38B3< 38B3< 38C3< 38C3< 38D3<
+15V_ENC	3C3< 26B6<
+23V_RH	27B5< 35B6<
+23V_RH_RTN	27B5< 35B6<
+23V_RST_LOW	27C5< 28C5< 29C5< 35A6< 35B1<
+23V_RST_LOW_RTN	27D5< 28D5< 29D5< 35B6< 35C1<
+23V_SH	28B5< 35C6<
+23V_SH_RTN	28B5< 35C6<
+23V_TH	29B5< 35C6<
+23V_TH_RTN	29B5< 35D6<
+23V_UH	30B5< 34C6<
+23V_UH_RTN	30B5< 34D6<
+23V_UVW_LOW	30C5< 31C5< 32C5< 34A6< 34B1<
+23V_UVW_LOW_RTN	30D5< 31D5< 32D5< 34B6< 34C1<
+23V_VH	31B5< 34C6<
+23V_VH_RTN	31B5< 34C6<
+23V_WH	32B5< 34B6<
+23V_WH_RTN	32B5< 34B6<
+24V_P1	3C1<
+30V_GATE	20B6< 33B6<
+30V_GATE_CNV	20B6< 35A1<
+30V_GATE_CNV_RTN	20B6< 35B1< 35C2<
+30V_GATE_INV	20C6< 34A1<
+30V_GATE_INV1	20C5<
+30V_GATE_INV_RTN	20C6< 34B1< 34D1<
+30V_GATE_INV_RTN1	20C4<
+30V_GATE_RTN	20B6< 33C6<
5V_PS	25A1< 25B6<
24V_PS	25B6< 26A1<
24V_RTN_P1	3C1<
24V_RTN_PS	25A6> 25B6< 25C6< 26B1<
AC_R	4A1< 14A4< 14A4<
AC_R2	14D6<
AC_R3	14C6<
AC_S	4A1< 14A4< 14A4<
AC_S2	14C6<
AC_T	4A1< 14B4< 14B4<
AC_T2	14C6<
BIAS_PS	25B5< 25C1<
BIAS_VCC	24B4<
BRK_CHP-/DX	3C1<
BY/BRK_PWM	3C2<
BY1_BY2_NC	3B3> 21A6>
BY1_BY2_NC_IN	20D2< 21A1<
CNV_DEV_FLT	3B6> 18A3<
CNV_E1	27B6< 36B1<
CNV_E2	27D6< 36C1<
CNV_E3	28B6< 36B3<
CNV_E4	28D6< 36C3<
CNV_E5	29B6< 36B4<
CNV_E6	29D6< 36C4<
CNV_FLT*	27B1<> 27C1<> 28B1<> 28C1<> 29B1<> 29C1<> 19C2<
CNV_FLT_FILT	19C3<
CNV_G1	27A6< 36B1<
CNV_G2	27C6< 36C1<
CNV_G3	28A6< 36B3<
CNV_G4	28C6< 36C3<
CNV_G5	29A6< 36B4<
CNV_G6	29C6< 36C4<
CNV_HW_OC	3B5<
CNV_I_R+	10A5< 12A2<
CNV_I_S+	10B5< 12B2<
CNV_I_T+	10C5< 12C4<
CNV_OC_FLT	3B6> 19C5<
CNV_R	10A4> 27C6< 36C1<
CNV_R1	10B2<
CNV_R_REF	10A5> 12B2<
CNV_S	10B4> 28C6< 36C1<
CNV_S1	10B2<
CNV_S_REF	10B5> 12C2<
CNV_T	10C4<> 29C6< 36D1<
CNV_T1	10B2<
CNV_T_REF	10C5> 12C4<
CNV_UVLO*	27B1<> 27C1<> 28B1<> 28C1<> 29B1<> 29C1<> 18A1<
CNV_UVLO_FILT	18A2<
CS1_OUT	10A4<>
CS2_OUT	10C4<>
CS3_OUT	10B4<>
CS4_OUT	11C3<>
CS5_OUT	11A3<>
DBD_2RLY1	20A4<
DBD_2RLY2	20C4<
DBD_IN	3C2< 20A6<
DC_BUS+	7A2< 9A1< 27A6< 28A6< 29A6< 30A6< 31A6< 32A6< 36A2< 37A2<
DC_BUS-	7D2< 9D2< 36B2< 37B2<
DC_SENS+	7B5< 8B1<
DC_SENS-	7C5< 8B1<
DIO_1C/CNV_FLT	3B4<
DIO_2C/CNV_DEV_FLT	3B4<
DIO_3C/PWM_XP	3B4<
DIO_4C/PWM_XN	3B4<
DIO_5C/PWM_YP	3B4<
DIO_6C/PWM_YN	3B4<
DIO_7C/PWM_ZP	3B4<
DIO_8C/PWM_ZN	3B4<
DRAIN	25B5< 25C5<
DUMMY_P14_1	14C3<
DUMMY_P14_2	14C5<
DUMMY_P17_1	17B4>
DUMMY_P20_1	20C1<
DUMMY_P22_4	22C6<>
DUMMY_P26_1	26C2>
DUMMY_P27_5	27B6<
DUMMY_P27_6	27C6<
DUMMY_P27_7	27A5<
DUMMY_P27_8	27C5<
DUMMY_P28_5	28B6<
DUMMY_P28_6	28D6<
DUMMY_P28_7	28A5<
DUMMY_P28_8	28C5<
DUMMY_P29_5	29B6<
DUMMY_P29_6	29C6<
DUMMY_P29_7	29A5<
DUMMY_P29_8	29C5<
DUMMY_P30_5	30B6<
DUMMY_P30_6	30D6<
DUMMY_P30_7	30A5<
DUMMY_P30_8	30C5<
DUMMY_P31_5	31B6<
DUMMY_P31_6	31C6<
DUMMY_P31_7	31A5<
DUMMY_P31_8	31C5<
DUMMY_P32_5	32B6<
DUMMY_P32_6	32D6<
DUMMY_P32_7	32A5<
DUMMY_P32_8	32C5<
DUMMY_P33_2	33B4>
DUMMY_P36_1	36C1<
DUMMY_P36_2	36C1<
DUMMY_P36_3	36C5<
DUMMY_P36_4	36C5<
DUMMY_P37_1	37C1<
DUMMY_P37_2	37C1<
DUMMY_P37_3	37C4<
DUMMY_P37_4	37C4<
DUMMY_U12_11	17B4<
EEPROM_SCLK	3C3> 39B2<
EEPROM_SDA	3C3> 39B2<
ENBL_5V	15B1< 15B4< 19B5< 33B1<
ENC_PS	25B6< 26B3<
ENC_PS_RTN	25A6> 25B6< 26B3<
ENC_RTN	3C3< 26B6<
ERR1/INV_FLT	3B1<
ERR2/S1_S2_NO	3B1<
ERR5/DI_INV1	3B1<
FAN_2.5V	17C4<
FAN_5V	17C3< 17C3< 17C6< 17D4<
FAN_OUT	17A6<
FAN_RTN	17B6< 17B6< 17C1< 17C6< 17D4<
GND_DC	8B1< 8D6< 38B2< 38B3< 38C3< 38C3< 38D2< 38D3<
INV/MX	3C1<
INV_E1	30B6< 37B1<
INV_E2	30D6< 37C1<
INV_E3	31B6< 37B3<
INV_E4	31D6< 37C3<
INV_E5	32B6< 37B5<
INV_E6	32D6< 37C5<
INV_FLT*	30B1<> 30C1<> 31B1<> 31C1<> 32B1<> 32C1<> 19D2<
INV_FLT_FILT	19D3<
INV_G1	30A6< 37B1<
INV_G2	30C6< 37C1<

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OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

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OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE 2017-01-06
CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 42

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A3

INV_G3	31A6< 37B3<
INV_G4	31C6< 37C3<
INV_G5	32A6< 37B5<
INV_G6	32C6< 37C5<
INV_HW_OC	3B3> 41B6>
INV_I_U+	11A2< 13A2<
INV_I_V+	11B2< 13B4<
INV_I_W+	11C2< 13C2<
INV_OC_FLT	3B3> 19D5<
INV_U	11B5<>
INV_U1	11B3< 30C6< 37C1<
INV_UVLO_FILT	18B5<
INV_UVLO_NAND	3B3> 18B6>
INV_UVLO_NOR	3B3> 18C6>
INV_UVLO_UH*	30B1<> 18B1<
INV_UVLO_UL*	30C1<> 18B1<
INV_UVLO_VH*	31B1<> 18C1<
INV_UVLO_VL*	31C1<> 18C1<
INV_UVLO_WH*	32B1<> 18C1<
INV_UVLO_WL*	32C1<> 18C1<
INV_U_REF	11A2> 13B2<
INV_V	11B6<>
INV_V1	11C3< 31C6< 37D1<
INV_V_REF	11B2> 13C4<
INV_W	11B5<>
INV_W1	11D3< 32C6< 37D1<
INV_W_REF	11C2> 13D2<
IP2	25C6<
IR-	3B5<> 12B4< 12B4<
IS-	3B5<> 12B4< 12C4<
IT-	3B6> 12C6<
IU-	3A2<> 13A5< 13B4< 41B1<
IV-	3B2<> 13C6< 41C1<
IW-	3B2<> 13B5< 13D4< 41C1<
LVP_SMPS	17A1< 24A6< 24C1< 25B1< 25B5< 33B2<
MTG_IP4	24C2<
MX	3C3> 15C1<
MX_OUT	14B3< 15B3<
NTC_C1	36C4< 38C1<
NTC_C2	36C4< 38C1<
NTC_I1	37C3< 38A1<
NTC_I2	37C3< 38B1<
OUT_ENBL	3C2< 19A2<
P100_1	20A6<
P100_2	20B6<
P100_MID	20C4<
PFAIL	3B3> 24C6<
PFAIL*	24C5<

PFAIL/DI_INV2	3B1<
PF_IGBT/INV_DEV_FLT	3B1<
PVT_V+	3C1<
PVT_V-	3C1<
PWM_CHK_DRV	3C3> 22C1<
PWM_CHK_LOOP	3B6> 22D1<
PWM_CHK_OUT	22C6<> 23C3<
PWM_EXISTS	3B4< 23B6<
PWM_FAN	3C2< 17D1<
PWM_R_H	3C5< 27A1<
PWM_R_L	3C5< 27C1<
PWM_S_H	3C5< 28A1<
PWM_S_L	3C5< 28C1<
PWM_T_H	3C5< 29A1<
PWM_T_L	3C5< 29C1<
PWM_U+	3B2< 22B1<
PWM_U-	3B2< 22C1<
PWM_U_H	22B6<> 23B2< 30A2<
PWM_U_L	22C6<> 23C2< 30C1<
PWM_V+	3B2< 22C1<
PWM_V-	3B2< 22C1<
PWM_V_H	22C6<> 23C2< 31A2<
PWM_V_L	22C6<> 23D2< 31C2<
PWM_W+	3B2< 22C1<
PWM_W-	3B2< 22C1<
PWM_W_H	22C6<> 23B3< 32A2<
PWM_W_L	22C6<> 23C3< 32C2<
PX	3C2< 15B4<
PX_OUT	14C4< 15B6<
REACTOR_THERMAL_FLT	3B6> 16B6<
SCL0	3C1<
SDA0	3C1<
SFC_2BRAKE	20D1<
SFC_2BRAKE_RTN	20D1<
SFC_2BRK	20C2<
SFC_2PTC	20D3<
SFC_IN	20B2< 21C1<
SFC_IN_MID	20C4<
SFC_OK_2BUFFER*	21C6> 22B3<
SFC_RTN	20B1<
SMPS_MRO+	24B2<
SMPS_MRO-	24B2<
SPARE_A	3B1<
SPARE_B	3B4<>
TEMP_CNV	3B5< 38C6<
TEMP_INV	3B2< 38B6<
T_DBR/BY1_BY2_NC	3B1<
UDC	3B2< 8B6<
V2F_IBR	3C1<
V2F_IDC/V2F_SP1	3B1<
VREF_VAC	4B4< 4C4< 4D4<

	5B6<
VREF_VRST	5B3< 6A4< 6C4<
VRS-	4B5< 6A1<
VRS_OUT-	3B5<> 6B6<
VST-	4C6< 6C1<
VST_OUT-	3B5<> 6C6<
VTR-	4C6<

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DWG KAA26800ACP

OTIS ENGINEERING CENTER

CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	43

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

Title: Cref Part Report
Design: kaa26800acp_lib
Date: Aug 21 10:09:13 2017

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	44

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CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	45

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C366	kaa26800acp_lib[6D 3]
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CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	46

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D20	kaa26800acp_lib[28 A5]
D21	kaa26800acp_lib[29 A5]

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CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	47

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D22	kaa26800acp_lib[27 A5]
D23	kaa26800acp_lib[29 B5]
D24	kaa26800acp_lib[29 C6]
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L22	kaa26800acp_lib[21 B2]
L23	kaa26800acp_lib[20

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CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	48

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	B5]
R59	kaa26800acp_lib[29
	B4]
R60	kaa26800acp_lib[17
	C4]
R61	kaa26800acp_lib[17
	C5]
R62	kaa26800acp_lib[17
	D3]
R63	kaa26800acp_lib[24
	C5]
R64	kaa26800acp_lib[28
	A5]
R65	kaa26800acp_lib[29
	C5]
R66	kaa26800acp_lib[27
	B6]
R67	kaa26800acp_lib[29
	A5]
R68	kaa26800acp_lib[29
	C5]
R69	kaa26800acp_lib[28
	C6]
R70	kaa26800acp_lib[27
	A5]
R71	kaa26800acp_lib[24
	C5]
R72	kaa26800acp_lib[24
	C5]
R73	kaa26800acp_lib[29
	B5]
R74	kaa26800acp_lib[27
	C2]
R75	kaa26800acp_lib[17
	C2]

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE 2017-01-06
CHK	W. HUANG	
APPD	R. MAGDA	SHEETS
AUTH	CN897873	SHEET 49

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

R76	kaa26800acp_lib[17D2]
R77	kaa26800acp_lib[9D1]
R78	kaa26800acp_lib[27C5]
R79	kaa26800acp_lib[29B6]
R80	kaa26800acp_lib[27D4]
R81	kaa26800acp_lib[27B6]
R82	kaa26800acp_lib[29C6]
R83	kaa26800acp_lib[27C5]
R84	kaa26800acp_lib[27C5]
R85	kaa26800acp_lib[29B2]
R86	kaa26800acp_lib[29C2]
R87	kaa26800acp_lib[29B1]
R88	kaa26800acp_lib[29C1]
R89	kaa26800acp_lib[28B1]
R90	kaa26800acp_lib[28C1]
R91	kaa26800acp_lib[28B2]
R92	kaa26800acp_lib[28C2]
R93	kaa26800acp_lib[27B2]
R94	kaa26800acp_lib[27C2]
R95	kaa26800acp_lib[27B1]
R96	kaa26800acp_lib[27C1]
R97	kaa26800acp_lib[19A2]
R98	kaa26800acp_lib[35C1]
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R109	kaa26800acp_lib[3C5]
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R176	kaa26800acp_lib[6C4]
R177	kaa26800acp_lib[30B5]
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R181	kaa26800acp_lib[31C5]
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R194	kaa26800acp_lib[31C2]
R195	kaa26800acp_lib[30C5]
R196	kaa26800acp_lib[31C2]
R197	kaa26800acp_lib[31B2]
R198	kaa26800acp_lib[32A5]
R199	kaa26800acp_lib[30

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CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	50

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	C5]
R200	kaa26800acp_lib[30 C2]
R201	kaa26800acp_lib[32 C5]
R202	kaa26800acp_lib[21 B2]
R203	kaa26800acp_lib[32 C5]
R204	kaa26800acp_lib[32 A5]
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R210	kaa26800acp_lib[32 A2]
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R317	kaa26800acp_lib[29 C5]
R318	kaa26800acp_lib[17 D4]
R319	kaa26800acp_lib[26 A2]
R320	kaa26800acp_lib[28 B5]
R321	kaa26800acp_lib[27 A5]
R322	kaa26800acp_lib[29 B5]

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CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	51

DRAFTED IN ACCORDANCE WITH OTIS DOCUMENT 52847

R323	kaa26800acp_lib[35D6]	R324	kaa26800acp_lib[35B6]	R325	kaa26800acp_lib[28B6]	R326	kaa26800acp_lib[27C2]	R327	kaa26800acp_lib[27C2]
R328	kaa26800acp_lib[9C1]	R329	kaa26800acp_lib[9C2]	R330	kaa26800acp_lib[9A2]	R331	kaa26800acp_lib[9C2]	R332	kaa26800acp_lib[27C5]
R333	kaa26800acp_lib[35C6]	R334	kaa26800acp_lib[9C2]	R335	kaa26800acp_lib[9C4]	R336	kaa26800acp_lib[9C4]	R337	kaa26800acp_lib[27C6]
R338	kaa26800acp_lib[9C2]	R339	kaa26800acp_lib[9A2]	R340	kaa26800acp_lib[9B2]	R341	kaa26800acp_lib[9D4]	R342	kaa26800acp_lib[9D4]
R343	kaa26800acp_lib[18A2]	R344	kaa26800acp_lib[19C2]	R345	kaa26800acp_lib[9B2]	R346	kaa26800acp_lib[9B2]	R347	kaa26800acp_lib[9B2]
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R418	kaa26800acp_lib[35C5]	R419	kaa26800acp_lib[18C2]	R420	kaa26800acp_lib[18C2]	R421	kaa26800acp_lib[18B2]	R422	kaa26800acp_lib[18B5]
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R438	kaa26800acp_lib[34A5]	R439	kaa26800acp_lib[34C3]	R440	kaa26800acp_lib[9A4]	R441	kaa26800acp_lib[9A4]	R442	kaa26800acp_lib[9B3]
R443	kaa26800acp_lib[9B3]	R444	kaa26800acp_lib[12C6]	R445	kaa26800acp_lib[12B5]	R446	kaa26800acp_lib[34		

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CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

HVPB
(High Voltage Power Board)
OVFR03A-406

DRAWN	S. MILLETT	ORIGINAL DATE	2017-01-06
CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	52

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DWG KAA26800ACP

OTIS ENGINEERING CENTER
CHANGWON, KOREA

CHANGES

2017-08-21 REVISED. SEE KAA26800ACP_CDOC.DOC FOR DETAILS (CN1037523) MILLETT S / MAGDA RF

OTIS
United Technologies

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CHK	W. HUANG		
APPD	R. MAGDA	SHEETS	
AUTH	CN897873	SHEET	54

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AUTH	CN897873	SHEET	55

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