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PRODUCT CHANGE NOTICE FORM				
		DATE: <u>09 March 2017</u>		
CUSTOMER:	Standard Product	CUSTOMER P/N: <u>DS1600SPE-3 & -001</u>		
FAX NO:		VENDOR P/N: <u>DS1600SPE-3 & -001</u>		
TEL. NO: ORIGINATOR EN CHECKED BY:	IGINEER: Jon Karlo Lee Emerson Cua	POWER SUPPLY WATTAGE: <u>1600W</u>		
FORWARD TO N	AME: <u>Richard Daniel Caubang</u>	Jun S		
DEPARTMENT: RESPONSIBLE E PRIORITY: IMPACT	Team 1 ENGINEER: Jon Karlo Lee [] EMERGENCY [] URGENT [X] NO COST [] COST AMOUNT	[X] ROUTINE [] SCHEDULE		
TYPE OF REQUE [] PROCESS CH [] SECOND SOU	EST: IANGE [X] DESIGN CHANGE [] QUALITY JRCE [] OTHERS:	[]RELIABILITY []COMPONENT APPLICATION []SAFETY		
ACCOMPANYING []CUSTOMER S []DRAWING []FRU Specs REQUESTED DA CUSTOMER BUY	G MATERIAL: SPEC [] ARTWORK [] SOURCE LIST M TEST DATA [] B.O.M. [] PSMI Compliance Specs Other TE OF COMPLETION: <u>AS SOON AS POSSIE</u> (ER AFFECTED:	[] TEST PLAN [] COMPONENTS/UNITS [] COMPONENT SPECS [] SCHEMATIC [X] OTHERS: <u>PCB Change discussion and Factory Email Approval</u> <u>BLE</u>		
	DESCRIPTION OF REQUEST	JUSTIFICATION		
 Adde (IPN: Move Repla wave Move shade 	d PCB placement for preload resistors R176 and R177 301-011709-1501) D2 and D1002 from solder side to component side. ace D119 and D10 parts to more suitable for solder side soldering process (IPN: 101-006678-0000) D1010 from solder side to component side because of ow effect wave soldering	Update the DS1600SPE-3 Main Board PCB from 509-010756- 0007 to 509-010756-0008 for manufacturing improvements		
Model Revisio 1. DS1600SPE EEPROM r	on References: 3 Rev CZ to EA egister 9Bh was CZ is EA EEPROM registe	I Rev BY to BZ er 9Bh was BY is BZ		
ASTEC SAFETY				
APPROVALS: CUSTOMER ENG				
	SINEER RESPONSE:			
SIGNATURE: Ric	hard Daniel Caubang	DATE:		
SIGNATURE: <u>Ric</u> CUT IN DATE: <u>Im</u>	amediate Implementation	DATE: SERIAL NUMBER:		
SIGNATURE: <u>Ric</u> CUT IN DATE: <u>Im</u> ASTEC-PHIL-PC	hard Daniel Caubang	DATE: SERIAL NUMBER:		
SIGNATURE: <u>Ric</u> CUT IN DATE: <u>Im</u> ASTEC-PHIL-PC	AINEER RESPONSE:	DATE: SERIAL NUMBER: INOLOGIES CONFIDENTIAL		
SIGNATURE: <u>Ric</u> CUT IN DATE: <u>Im</u> ASTEC-PHIL-PC AI	Anne Response:	DATE:		
SIGNATURE: <u>Ric</u> CUT IN DATE: <u>In</u> ASTEC-PHIL-PC AI	Anne Response:	DATE:		



DS1600SPE-3 PCB Changes from 509-010756-0007 to 0008

Preload resistor, R176 & R177



509-010756-0008

509-010756-0007

From



R176 and R177 placement and layout

Artesyn Confidential

Solder to Component side, D2



509-010756-0007



509-010756-0008



a

Solder to Component side, D2



509-010756-0007



509-010756-0008



Q

Solder to <u>Component side</u>, D1002 d___



509-010756-0007



509-010756-0008

O





509-010756-0007

509-010756-0008



Change ipn for D119 and D10 From 101-002814-0000 to 101-006678-0000



509-010756-0007



509-010756-0008



Change:

Replace current D119 and D10 parts that is suitable for wave soldering



D1010 shadow effect during <u>wave soldering</u> D1010 is move from solder side to component side

509-010756-0007



509-010756-0008





509-010756-0007

509-010756-0008



Component Side- Silk Screen



Overlaying 509-010756-0007 with 509-010756-0008

Component Assembly Top - 509-010756-0008



Component Assembly Top - 509-010756-0007

Solder Side- Silk Screen



Overlaying 509-010756-0007 with 509-010756-0008

Component Assembly Bottom - 509-010756-0008



Component Assembly Bottom - 509-010756-0007



Copper Top layer Overlaying 509-010756-0007 with 509-010756-0008

Copper TOP - 509-010756-0008



Copper TOP - 509-010756-0007



Copper 02 layer Overlaying 509-010756-0007 with 509-010756-0008

Copper 02 - 509-010756-0008



Copper 02 - 509-010756-0007



Copper 03 - 509-010756-0008



Copper 03 - 509-010756-0007



Copper Bottom layer

Overlaying 509-010756-0007 with 509-010756-0008

Copper BOTTOM - 509-010756-0008



Copper BOTTOM - 509-010756-0007

EFFICIENCY AND EMI SCAN TEST REPORTS

a. Efficiency Measurement (LL) @ 10% Load, 115Vac

AC Setup					
Voltage	Freq	On Angle	Off Angle	DC Offset	Range
115.0000 Vac	60.0000 Hz	0 °	0 °	0 V	LOW

Eload Setup						
Output Rail	+12V	+12VSB				
Loading	6.6600 A	350.0000 mA				
Slew Rate	1.0000 A/µS	1.0000 A/µS				

AC Efficiency						
Description	Irms	PF	PIN	POUT	PLoss	Efficiency
UpperLimit	1.2000 A	1	120.0000 W	100.0000 W	30.0000 W	100.00%
LowerLimit	800.0000 m A	800.0000 m	80.0000 W	80.0000 W	0.0000 W	80.00%
Measured	921.1000 m A	967.7000 m	103.0000 W	84.3870 W	18.6130 W	81.93%
Status	PASS	PASS	PASS	PASS	PASS	PASS

b. Efficiency Measurement (LL) @ 20% Load, 115Vac

AC Setup					
Voltage	Freq	On Angle	Off Angle	DC Offset	Range
115.0000 Vac	60.0000 Hz	0 °	0 °	0 V	LOW

Eload Setup						
Output Rail	+12V	+12VSB				
Loading	13.3300 A	700.0000 mA				
Slew Rate	1.0000 A/µS	1.0000 A/µS				

AC Efficiency						
Description	Irms	PF	PIN	POUT	PLoss	Efficiency
UpperLimit	1.8000 A	1	210.0000 W	180.0000 W	35.0000 W	100.00%
LowerLimit	1.6000 A	900.0000 m	165.0000 W	165.0000 W	0.0000 W	88.00%
Measured	1.6714 A	983.1000 m	189.7900 W	168.7241 W	21.0659 W	88.90%
Status	PASS	PASS	PASS	PASS	PASS	PASS

c. Efficiency Measurement (LL) @ 50% Load, 115Vac

AC Setup					
Voltage	Freq	On Angle	Off Angle	DC Offset	Range
115.0000 Vac	60.0000 Hz	0 °	0 °	0 V	LOW

Eload Setup						
Output Rail	+12V	+12VSB				
Loading	33.3300 A	1.7500 A				
Slew Rate	1.0000 A/µS	1.0000 A/µS				

AC Efficiency						
Description	Irms	PF	PIN	POUT	PLoss	Efficiency
UpperLimit	4.2000 A	1	480.0000 W	440.0000 W	50.0000 W	100.00%
LowerLimit	3.8000 A	950.0000 m	410.0000 W	410.0000 W	0.0000 W	92.50%
Measured	3.9620 A	996.4000 m	455.5000 W	421.7237 W	33.7763 W	92.58%
Status	PASS	PASS	PASS	PASS	PASS	PASS

d. Efficiency Measurement (LL) @ 100% Load, 115Vac

AC Setup					
Voltage	Freq	On Angle	Off Angle	DC Offset	Range
115.0000 Vac	60.0000 Hz	0 °	0 °	0 V	LOW

Eload Setup					
Output Rail	+12V	+12VSB			
Loading	66.6600 A	3.5000 A			
Slew Rate	1.0000 A/µS	1.0000 A/µS			

AC Efficiency						
Description	Irms	PF	PIN	POUT	PLoss	Efficiency
UpperLimit	8.3000 A	1	950.0000 W	860.0000 W	105.0000 W	100.00%
LowerLimit	7.9000 A	980.0000 m	830.0000 W	830.0000 W	0.0000 W	91.50%
Measured	7.9780 A	998.9000 m	917.5000 W	841.4209 W	76.0791 W	91.71%
Status	PASS	PASS	PASS	PASS	PASS	PASS

e. Efficiency Measurement (HL) @ 10% Load, 230Vac

AC Setup					
Voltage	Freq	On Angle	Off Angle	DC Offset	Range
230.0000 Vac	60.0000 Hz	0 °	0 °	0 V	HIGH

Eload Setup						
Output Rail	+12V	+12VSB				
Loading	13.3300 A	350.0000 mA				
Slew Rate	1.0000 A/µS	1.0000 A/µS				

AC Efficiency						
Description	Irms	PF	PIN	POUT	PLoss	Efficiency
UpperLimit	1.0000 A	1	195.5000 W	175.9560 W	25.0000 W	100.00%
LowerLimit	850.0000 m A	850.0000 m	159.8500 W	143.9640 W	0.0000 W	89.00%
Measured	891.4000 m A	890.9000 m	183.1100 W	164.3962 W	18.7138 W	89.78%
Status	PASS	PASS	PASS	PASS	PASS	PASS

f. Efficiency Measurement (HL) @ 20% Load, 230Vac

AC Setup						
Voltage	Freq	On Angle	Off Angle	DC Offset	Range	
230.0000 Vac	60.0000 Hz	0 °	0 °	0 V	HIGH	

Eload Setup						
Output Rail +12V +12VSB						
Loading	26.6600 A	700.0000 mA				
Slew Rate	1.0000 A/µS	1.0000 A/µS				

AC Efficiency						
Description	Irms	PF	PIN	POUT	PLoss	Efficiency
UpperLimit	1.7000 A	1	391.0000 W	351.9910 W	50.0000 W	100.00%
LowerLimit	1.3910 A	900.0000 m	319.9300 W	287.9920 W	0.0000 W	93.00%
Measured	1.6011 A	951.8000 m	352.0800 W	328.8965 W	23.1835 W	93.42%
Status	PASS	PASS	PASS	PASS	PASS	PASS

g. Efficiency Measurement (HL) @ 50% Load, 230Vac

AC Setup					
Voltage	Freq	On Angle	Off Angle	DC Offset	Range
230.0000 Vac	60.0000 Hz	0 °	0 °	0 V	HIGH

Eload Setup						
Output Rail	+12V	+12VSB				
Loading	66.6500 A	1.7500 A				
Slew Rate	1.0000 A/µS	1.0000 A/µS				

AC Efficiency						
Description	Irms	PF	PIN	POUT	PLoss	Efficiency
UpperLimit	4.2510 A	1	977.7300 W	879.9780 W	75.0000 W	100.00%
LowerLimit	3.4780 A	950.0000 m	799.9400 W	719.9820 W	0.0000 W	94.00%
Measured	3.8402 A	985.0000 m	873.5000 W	821.2971 W	52.2029 W	94.02%
Status	PASS	PASS	PASS	PASS	PASS	PASS

h. Efficiency Measurement (HL) @ 100% Load, 230Vac

AC Setup						
Voltage	Freq	On Angle	Off Angle	DC Offset	Range	
230.0000 Vac	60.0000 Hz	0 °	0 °	0 V	HIGH	

Eload Setup						
Output Rail +12V +12VSB						
Loading	133.3000 A	3.5000 A				
Slew Rate	1.0000 A/µS	1.0000 A/µS				

AC Efficiency						
Description	Irms	PF	PIN	POUT	PLoss	Efficiency
UpperLimit	8.5020 A	1	1.9555 K W	1.7600 K W	175.0000 W	100.00%
LowerLimit	6.9560 A	980.0000 m	1.5999 K W	1.4400 K W	0.0000 W	91.00%
Measured	7.7260 A	996.6000 m	1.7766 K W	1.6341 K W	142.5134 W	91.98%
Status	PASS	PASS	PASS	PASS	PASS	PASS

Conducted EMI Scan at Low Line (115Vac) - pass



Conducted EMI Scan at High Line (230Vac) - pass



Radiated EMI Scan at Low Line (115Vac) - pass



Final Result

	QP Measurem	ent				
No.	Frequency	Reading	c.f	Result	Limit	Margin
	[MHz]	[dB(µV)][H/V]	[dB(1/m)][H/V]	[dB(µV/m)][H/V]	[dB(µV/m)]	[dB] [H/V]
1	69.531	/ 51.1	/ -17.2	/ 33.9	44.0	/ 10.1
2	151.232	53.6/	-14.3/	39.3/	44.0	4.7/
3	151.946	/ 54.2	/ -14.3	/ 39.9	44.0	/ 4.1

Radiated EMI Scan at High Line (230Vac) - pass



Final Result

QP Measurement	
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No.	Frequency	Reading	c.f	Result	Limit	Margin
	[Mill 20]	[db(µv)][n/v]	[db(1/m/][m/v]	[db(µv/m/][m/v]	[db(µv/m/]	[[]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]
1	68.756	/ 56.4	/ -17.2	/ 39.2	44.0	/ 4.8
2	151.336	53.3/	-14.3/	39.0/	44.0	5.0/
3	151.591	/ 54.0	/ -14.3	/ 39.7	44.0	/ 4.3