

PATENT ASSIGNMENT COVER SHEET

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Assignment ID: PATI857962

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	Confirmatory Patent Assignment
SEQUENCE:	3

CONVEYING PARTY DATA

Name	Execution Date
Astec International Limited	12/04/2024

RECEIVING PARTY DATA

Company Name:	AES Global Holdings PTE, LTD.
Street Address:	9 Raffles Place
Internal Address:	#26-01 Republic Plaza
City:	Singapore
State/Country:	SINGAPORE
Postal Code:	048619

PROPERTY NUMBERS Total: 50

Property Type	Number
Application Number:	16960353
Application Number:	17664488
Application Number:	15753492
Application Number:	16952292
Application Number:	14957089
Application Number:	14957103
Application Number:	15753598
Application Number:	15411458
Application Number:	17031406
Application Number:	15951810
Application Number:	13468740
Application Number:	18712789
Application Number:	11869121
Application Number:	12417859
Application Number:	13799810
Application Number:	17144507
Application Number:	18175832
Application Number:	17034044

PATENT

Property Type	Number
Application Number:	17664903
Application Number:	16118633
Application Number:	17373975
Application Number:	13784273
Application Number:	18554815
Application Number:	17178477
Application Number:	17663975
Application Number:	16206257
Application Number:	16207897
Application Number:	17321420
Application Number:	13803893
Application Number:	16600929
Application Number:	17118724
Application Number:	17653956
Application Number:	16745700
Application Number:	17647217
Application Number:	16086245
Application Number:	17117269
Application Number:	11654707
Application Number:	13369032
Application Number:	13334809
Application Number:	15753107
Application Number:	17151885
Application Number:	15948384
Application Number:	18579390
Application Number:	17108085
Application Number:	15035712
Application Number:	17197376
Application Number:	16473486
Application Number:	17192178
Application Number:	15754547
Application Number:	12886703

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 2149657032

Email: kathryn.moore@bakermckenzie.com,docket@bakermckenzie.com

Correspondent Name: Kathryn Moore
Address Line 1: 1900 N. Pearl
Address Line 2: Suite 1500
Address Line 4: Dallas, TEXAS 75201

NAME OF SUBMITTER: Kathryn Moore

SIGNATURE: /Kathryn Moore/

DATE SIGNED: 03/05/2025

Total Attachments: 11

source=1A - 2.07 Artesyn IP Confirmatory Assignment (02-13-25)-Signed by JC & AL#page1.tiff
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CONFIRMATORY PATENT ASSIGNMENT

WHEREAS, on the December 4, 2024, ASTEC INTERNATIONAL LIMITED, an entity organized under the laws of Hong Kong, and having a place of business at 16th Floor Lu Plaza, 2 Wing Yip Street, Kwun Tong, Kowloon, 999077, Hong Kong (the "Assignor"), was the owner of the patents and applications identified in attached Schedule A ("the Patents"); and

WHEREAS, on the December 4, 2024, AES GLOBAL HOLDINGS PTE. LTD., an entity organized under the laws of Singapore, and having a place of business at 9 Raffles Place, #26-01 Republic Plaza, Singapore 048619 (the "Assignee"), was desirous of acquiring the Patents and the inventions disclosed and claimed therein;

NOW, THEREFORE Assignor confirms that effective on the December 4, 2024 for good and valuable consideration, the receipt of which was acknowledged and is hereby confirmed, Assignor sold, assigned, conveyed, agreed to deliver, and transferred unto Assignee, and Assignee's successors and assigns, all right, title and interest in and to the Patents and the inventions disclosed and claimed therein, and any and all Letters Patent which may be granted on the same in the United States and all countries throughout the world including, without limitation, any and all reissues, divisions, renewals, continuations in whole or in part, continuing prosecution applications, reexaminations, or extensions thereof, as well as rights to any and all existing causes of action and the right to past damages associated therewith, any and all priority rights worldwide and rights to claim priority, and any and all rights under the Paris Convention for the Protection of Industrial Property, the same to be held and enjoyed by Assignee, for its own use and behalf and the use and behalf of its successors, legal representatives, and assigns, as fully and entirely as the same would have been held and enjoyed by Assignor had the sale, assignment, and conveyance not been made.

Assignor hereby authorizes and request authorities including, without limitation, an official of the United States Patent and Trademark Office or an official of any non-U.S. governmental patent office, whose duty is to issue Letters Patent, registrations, documents, or other forms of intellectual property and/or industrial property protection, to grant and to issue the same throughout the world to Assignee, its successors, and assigns.

IN WITNESS WHEREOF, Assignor, by its duly authorized officer, has executed this Confirmatory Assignment in Hong Kong as of
February 14, 2025.

ON BEHALF OF ASTEC INTERNATIONAL LIMITED

By:  _____

Printed Name: Cheung Kam Hung
Title: Director

IN WITNESS WHEREOF, Assignee, by its duly authorized officer, has executed this Confirmatory Assignment in Singapore as of
February 14, 2025.

ON BEHALF OF AES GLOBAL HOLDINGS PTE. LTD.

By:  _____

Printed Name: Ling Yang Tong
Title: Director

Schedule A

Status	Title	File Number	Country	Date Filed	Application Number	Publication Date	Publication Number	Grant Date	Patent Number
Issued	AC/DC POWER CONVERTERS INCLUDING CURRENT TRANSFORMERS FOR BIDIRECTIONAL CURRENT SENSING	PP1455	US	6-Apr-20	16841034			3-Aug-21	11081971
Issued	AC/DC POWER CONVERTERS INCLUDING CURRENT TRANSFORMERS FOR BIDIRECTIONAL CURRENT SENSING	PP1455-CON	US	15-Jul-21	17376772	4-Nov-21	US 2021-0344278 A1	17-Jan-23	11557982
Issued	AC-DC SWITCHING POWER CONVERTERS WITH FREQUENCY VARIATION IN RESPONSE TO LOAD CHANGES	PP1118	US	30-Sep-09	12589902	31-Mar-11	20110075458	6-Nov-12	8305051
Allowed	ADAPTIVE IMPEDANCE TRACKING	AE2022-058	US	29-Dec-22	18147,988				
Pending	ADAPTIVE OUTPUT START-UP RAMP	AE2022-066	US	16-Feb-23	18170,127				
Pending	ADJUSTABLE SPACER FOR MAGNETIC TRANSFORMERS AND INDUCTORS	PP1459	US	21-Aug-20	16999729	24-Feb-22	US 2022-0059274 A1		
Allowed	APPARATUS AND METHOD FOR GROUND FAULT MONITORING	AE2022-043	US	30-Dec-22	18148,508				12158508
Pending	APPARATUS AND METHOD FOR MAX CURRENT SHARING	AE2021-047	US	12-Nov-21	18709,213				
Issued	APPARATUS AND METHOD FOR SYNCHRONOUS RECTIFIER CONTROL DELAY	PP1484	US	9-Feb-21	17171,810				11575327
Issued	APPARATUS AND METHOD FOR SYNCHRONOUS RECTIFIER CONTROL DELAY	PP1484-CON	US	10-Feb-21	17172,281				11581817
Issued	APPARATUS AND METHOD FOR SYNCHRONOUS RECTIFIER CONTROL DELAY	PP1484-CON2	US	7-Feb-23	18165,487				11804784
Pending	APPARATUS AND METHOD OF POWER DELIVERY FOR A CURRENT SOURCE	AE2024-014	US	23-Oct-24	18024,180				
Issued	ARC PREVENTION IN DC POWER SYSTEMS	PP1194	US	13-Mar-13	13800458	18-Sep-14	20140268943	31-Jan-17	9559518
Issued	ASSEMBLIES AND METHODS FOR DIRECTLY CONNECTING INTEGRATED CIRCUITS TO ELECTRICALLY CONDUCTIVE SHEETS	PP1139-DIV	US	15-Jan-16	14986823	12-May-16	20160135281	11-Jul-17	8706638
Issued	AUTOMATIC TRANSFER SWITCH CIRCUITS AND CONTROL METHODS	PP1311	US	30-Aug-16	15251095	1-Mar-18	20180062426	6-Nov-18	10122207
Issued	BRIDGELESS BOOST PFC CIRCUITS AND SYSTEMS WITH REDUCED COMMON MODE EMI	PP1108	US	11-Aug-08	12539045	17-Feb-11	20110037444	16-Oct-12	8289737
Pending	BULK CAPACITOR HEATING CIRCUITS IN ELECTRICAL POWER CONVERTERS	PP1452	US	25-Aug-20	18173976				
Pending	BULK CAPACITOR HEATING CIRCUITS IN ELECTRICAL POWER CONVERTERS	PP1452	US	25-Aug-20	18173,976				
Allowed	BUS BAR ASSEMBLY	AE2021-022 (PP1491-UI)	US	31-May-21	17334,834				
Pending	BUS BAR ASSEMBLY AND METHOD OF MAKING	AE2023-046	US	12-Feb-24	18148,686				
Issued	CENTER TAPPED TRANSFORMERS FOR ISOLATED POWER CONVERTERS	PP1137	US	30-Sep-09	12570105	31-Mar-11	201100974533	15-Jul-14	8779982
Issued	CENTRALIZED CONTROLLER AND POWER MANAGER FOR ON-BOARD POWER SYSTEMS	PP946 UI	US	22-Jan-08	12008837	2-Oct-06	20080238393	7-Dec-10	7847532
Pending	CHASSIS WITH A HANDLE HAVING AN ANTENNA FOR WIRELESS COMMUNICATION	AE2022-005	US	7-Apr-23	18588,001				
Issued	CIRCUIT BOARD ASSEMBLIES AND METHODS OF ASSEMBLING CIRCUIT BOARDS AND BUS BARS	PP1357	US	21-Dec-17	15851195	27-Jun-19	20190200452	4-Jun-19	10314164
Issued	CIRCUIT BOARD ASSEMBLIES FOR ELECTRONIC DEVICES	PP1416	US	20-Dec-19	18723237	24-Jun-21	20210195788	28-Sep-21	1113459-1
Issued	CIRCUIT BOARD ASSEMBLIES FOR ELECTRONIC DEVICES	PP1416-CON	US	30-Aug-21	17446346	16-Dec-21	US 2021-0392777 A1	4-Apr-23	11622476
Issued	CIRCUIT BOARD ASSEMBLIES HAVING MAGNETIC COMPONENTS	PP1332-UI	US	5-Dec-17	15832415	14-Jun-18	2018-0166203	12-Jan-21	10892085
Issued	COIL WINDING AND COIL ARRANGEMENT FOR MULTI WINDING MAGNETIC STRUCTURES	PP1144	US	20-Oct-10	13125676	8-Aug-13	20130200974	3-Jun-14	8742877
Pending	COLD PLATE WITH PLASTIC BODY	AE2023-070	US	21-Oct-24	18621,322				
Pending	CONDUCTION MODE SWITCHING FOR SWITCHING MODE POWER SUPPLY	AE2021-033	US	11-Oct-21	18700,529				
Pending	CONFIGURABLE FAST TRANSITION PULSE POWER SUPPLY UNIT	AE2024-017	US	16-Oct-24	18616,958				
Issued	CONSTANT CURRENT LIMITING PROTECTION FOR SERIES COUPLED POWER SUPPLIES	PP1283	US	8-Oct-15	14878331	13-Apr-17	2017-0104340	30-Jun-20	10700518
Issued	CONTROL CIRCUITS AND METHODS FOR CONTROLLING SWITCHING DEVICES	PP971	US	18-May-08	12121997	19-Nov-09	20090285001	11-Apr-17	9821020
Issued	CONTROL CIRCUITS AND METHODS FOR CONTROLLING SWITCHING DEVICES	PP990	US	18-May-08	12121988	19-Nov-09	20090284302	28-Jun-12	8207778
Pending	CONTROL CIRCUITS AND METHODS FOR REGULATING OUTPUT VOLTAGES	PP1468	US	10-Nov-20	17054232	17-Aug-23	US 2023-0261583 A1		

Status	Title	File Number	Country	Date Filed	Application Number	Publication Date	Publication Number	Grant Date	Patent Number
Issued	CONTROL CIRCUITS AND METHODS FOR REGULATING OUTPUT VOLTAGES	PP1466	US	10-Nov-20	17064,232				11923775
Issued	CONTROL CIRCUITS AND METHODS FOR REGULATING OUTPUT VOLTAGES BASED ON ADJUSTABLE REFERENCE VOLTAGES	PP1269	US	10-Jan-14	14372939	16-Jul-15	20150200595	4-Jul-17	9686694
Issued	CONTROL CIRCUITS AND METHODS FOR REGULATING OUTPUT VOLTAGES USING MULTIPLE AND/OR ADJUSTABLE REFERENCE VOLTAGES	PP1252	US	10-Jan-14	14151967	16-Jul-15	20150200596	22-May-18	9979307
Issued	CONTROL CIRCUITS AND METHODS FOR REGULATING OUTPUT VOLTAGES USING MULTIPLE AND/OR ADJUSTABLE REFERENCE VOLTAGES	PP1252-COIN1	US	10-Jan-14	14152105	16-Jul-15	20150200597	9-Jan-16	9866133
Issued	CONTROL CIRCUITS AND METHODS FOR REGULATING OUTPUT VOLTAGES USING MULTIPLE AND/OR ADJUSTABLE REFERENCE VOLTAGES	PP1252-COIN2	US	10-Jan-14	14152290	16-Jul-15	20150200598	9-Jan-16	9866134
Issued	CONTROL CIRCUITS AND METHODS FOR TRANSITIONING BETWEEN POWER CONVERTER CONTROL MODES	PP1302	US	8-Oct-15	14876442	13-Apr-17	20170104407	27-Feb-18	9905121
Issued	CONTROL CIRCUITS FOR POWER CONVERTERS	PP1211-COIN	US	14-Jan-14	14154917	8-May-14	20140126257	23-Jun-15	9065326
Issued	CONTROL CIRCUITS FOR SELECTIVELY APPLYING ERROR OFFSETS TO IMPROVE DYNAMIC RESPONSE IN SWITCHING POWER CONVERTERS	PP1312-CIP	US	8-Sep-16	15258597	1-Mar-18	20180062505	28-Aug-18	10063140
Issued	CONTROL CIRCUITS USING DIFFERENT MASTER-SLAVE CURRENT SHARING MODES	PP1318	US	30-Sep-16	15282335			29-Aug-17	9748830B1
Issued	CONTROL CIRCUITS WITH PEAK CURRENT LIMIT PROTECTION FOR SWITCHED MODE POWER SUPPLIES	PP1389-COIN	US	4-Feb-21	17167156	27-May-21	20210159779	25-Oct-22	11482822
Issued	CONTROL CIRCUITS WITH PEAK CURRENT LIMIT PROTECTION FOR SWITCHED MODE POWER SUPPLIES	PP1389-UTIL	US	29-May-19	16425624	19-Mar-20	20200091815	9-Feb-21	10917003
Issued	CONTROLLED POWER TRANSITIONS BETWEEN ELECTRICAL POWER SUPPLIES	PP1417	US	19-Dec-19	16720890	24-Jun-21	20210194272	19-Apr-22	11309732
Issued	CONTROLLED POWER TRANSITIONS BETWEEN ELECTRICAL POWER SUPPLIES	PP1417-COIN	US	12-Apr-22	17658654	28-Jul-22	US 2022-0239144 A1	20-Jun-23	11662921
Issued	CONTROLLING REVERSE CURRENT IN SWITCHED MODE POWER SUPPLIES TO ACHIEVE ZERO VOLTAGE SWITCHING	PP1438	US	30-Jun-20	16916613	30-Dec-21	US 2021-0408918 A1	15-Feb-22	11251705
Issued	CONTROLLING REVERSE CURRENT IN SWITCHED MODE POWER SUPPLIES TO ACHIEVE ZERO VOLTAGE SWITCHING	PP1438-COIN	US	4-Feb-22	17592806	18-May-22	US 2022-0158557 A1		
Issued	CONVERTERS AND INVERTERS FOR PHOTOVOLTAIC POWER SYSTEMS	PP1165-UM(02)	US	22-Dec-10	12978544	5-Apr-12	20120081937	5-Nov-13	8576591
Issued	CURRENT BALANCING FOR INTERLEAVED POWER STAGES	AE2021-066	US	24-Jan-22	17446,746				11990827
Issued	CURRENT BALANCING IN COUPLED TRANSFORMERS	AE2021-063	US	11-Feb-22	17450,721				11736024
Issued	CURRENT LIMITING CIRCUITS	PP1359	US	28-Nov-18	16305292	6-Feb-20	20200044439	23-Feb-21	10531106
Issued	CURRENT LIMITING CIRCUITS	PP1359-COIN	US	17-Feb-21	17177940	3-Jun-21	20210167592	13-Sep-22	11444452
Issued	DC-AC INVERTERS	PP1138	US	25-Sep-09	12567219	31-Mar-11	20110075456	16-Jul-13	8468350
Issued	DC-DC CONVERTER AND A METHOD FOR CONTROLLING A DC-DC CONVERTER	PP1364	US	16-May-19	16414482	21-Nov-19	20190356233	13-Oct-20	10604910
Issued	DC-DC POWER CONVERTER FOR USE IN DATA COMMUNICATIONS DISTRIBUTED POWER ARCHITECTURE	PP1288-UM	US	29-Jan-16	15011049	4-Aug-16	2016-0226395	8-Dec-20	10662396
Issued	DC-DC POWER CONVERTERS AND METHODS OF OPERATING DC-DC POWER CONVERTERS	PP1378	US	24-May-18	15989025	5-Mar-19			10224826
Issued	DC-DC POWER CONVERTERS INCLUDING A VALLEY SKIPPING MODE AND METHODS OF OPERATING DC-DC POWER CONVERTERS	PP1372	US	24-May-18	15988984	26-Feb-19			10218284
Issued	DELAYED EXECUTION AND AUTOMATED MODEL DETECTION FOR AIR MOVING DEVICES	PP1178	US	29-Sep-10	12893157	29-Mar-12	20120074237	25-Nov-14	8893980
Issued	DUAL PLUG ELECTRONIC DEVICE CHARGER	PP996	US	25-Jan-08	12011287	23-Jun-09	7549677		
Issued	DUTY CYCLE CONTROL FOR SWITCHING POWER CONVERTERS	PP1425	US	24-Jul-20	16938063	27-Jan-22	US 2022-0029813 A1	9-Aug-22	11411556
Issued	DYNAMIC OPERATING FREQUENCY CONTROL OF A BUCK POWER CONVERTER HAVING A VARIABLE VOLTAGE OUTPUT	PP1281	US	3-Feb-15	14612658	4-Aug-16	20160226375	30-Aug-16	9431900
Pending	EASY & REVERSIBLE FAN ASSEMBLY	AE2022-044	US	22-Nov-22	18057629				
Issued	EGG-SHAPED CONTINUOUS COILS FOR INDUCTIVE COMPONENTS	PP1343	US	8-Dec-17	15636503	13-Jun-19	20190180922	18-Nov-21	11177066
Issued	ELECTRIC POWER SYSTEMS INCLUDING CENTRALIZED SWITCHED MODE POWER SUPPLIES	PP1392	US	11-May-18	15977306	14-Nov-19	20190350354	28-Apr-20	10636561

Status	Title	File Number	Country	Date Filed	Application Number	Publication Date	Publication Number	Grant Date	Patent Number
Issued	ELECTRONIC CIRCUIT BREAKER AND METHOD	PP1079	US	28-Aug-07	11895908	5-Mar-09	20090058574	7-Dec-10	7848074
Issued	ENHANCED ONE CYCLE CONTROL FOR POWER FACTOR CORRECTION	PP892	US	18-Jul-08	12176102	21-Jan-10	20100014329	22-Oct-13	8564991
Issued	EQUIPMENT SHELF	PP1444-UM	US	8-Jul-20	16923773	2-Dec-21	US 2021-0378146 A1	28-Dec-21	1121294.1
Pending	EQUIPMENT SHELF	PP1444-Prev	US	1-Jun-20	63032684				
Issued	FAST TRANSIENT STEP LOAD RESPONSE IN A POWER CONVERTER	PP941-UM	US	24-Sep-08	12236798	2-Apr-09	20090085546	31-Jul-12	8232786
Issued	FEED THROUGH CAPACITOR ASSEMBLIES	PP1113	US	2-Jun-09	12476283	2-Dec-10	20100302702	16-Apr-12	8154846
Issued	FIXED FREQUENCY DISCONTINUOUS CONDUCTION MODE FLYBACK POWER CONVERTERS EMPLOYING ZERO VOLTAGE SWITCHING	PP1289-UM	US	2-Oct-15	14873495	23-Feb-17	20170054376	15-May-18	9973098
Pending	FLYBACK POWER CONVERTERS INCLUDING ADAPTIVE CLAMP CIRCUITS FOR ADJUSTING RESONANT FREQUENCIES	PP1300	US	19-Feb-18	15753411	31-Jan-19	20190039458		
Issued	FRONT AND REAR LOADING CONTROL CIRCUIT FOR A SERVER POWER SHELF	PP1481	US	24-Mar-21	17211377				11953327
Pending	FUSE CONNECTOR	AE2022-050	US	10-Oct-22					
Pending	FUSE CONNECTOR	AE2022-050	US	10-Oct-22	18678,790				
Pending	FUSE HOLDER	AE2022-001	US	25-May-22	17604,028				
Issued	FUSE HOLDER	AE2022-001-D1	US	25-May-22	29864,397				D1034482
Issued	FUSE HOLDER	AE2022-001-D2	US	25-May-22	29864,398				D1034483
Issued	FUSE HOLDER	AE2022-001-D3	US	25-May-22	29864,399				D1034484
Issued	FUSE HOLDER	AE2022-001-D4	US	25-May-22	29864,400				D1030684
Issued	FUSE HOLDER	AE2022-001-D5	US	25-May-22	29864,401				D1031673
Issued	GATE DRIVER CIRCUIT FOR A POWER SUPPLY VOLTAGE CONVERTER	AE2021-001-Con	US	20-Sep-22	17603,597				11855524
Pending	GROUND FAULT PROTECTION MECHANISM	AE2022-043	US	30-Dec-22	18148506				
Issued	HEALTH MONITORING FOR POWER CONVERTER CAPACITORS	PP988	US	14-Sep-07	11901278	19-Mar-09	20090072982	9-Nov-10	7830269
Issued	HEALTH MONITORING FOR POWER CONVERTER COMPONENTS	PP987	US	14-Sep-07	11901279	19-Mar-09	20090072984	28-Sep-10	7894415
Issued	HEAT SINK ASSEMBLIES FOR SURFACE MOUNTED DEVICES	PP1320	US	30-Sep-16	15282540	5-Apr-18	2018-0099414	10-Dec-19	10504613
Issued	HIGH PRECISION POWER CONTROLLER	AE2020-023-CON	US	1-Dec-22	18060,631				11791738
Pending	HIGH SIDE ACTIVE CLAMP CHARGING CIRCUIT	PP1477	US	6-Jan-21	18259889				
Pending	HIGH SIDE ACTIVE CLAMP CHARGING CIRCUIT	PP1477	US	6-Jan-21	18259,889				
Issued	HIGH VOLTAGE POWER CONVERTER WITH A CONFIGURABLE INPUT	PP1282-UM	US	10-Oct-14	14512084	11-Feb-16	20160043633	10-Oct-17	9787175
Pending	HOLD-UP TIME CIRCUIT FOR LLC CONVERTER	AE2021-023	US	21-Oct-21	18703,416				
Issued	HOLD-UP TIME ENHANCEMENT CIRCUIT FOR LLC RESONANT CONVERTER	PP1285	US	3-Mar-14	14195506	4-Sep-14	2014-0247626	22-Sep-15	9143040
Issued	HOLDUP TIME EXTENSION FOR LLC CIRCUIT	AE2021-059	US	22-Feb-22	17651,951				11705815
Issued	HORTICULTURE FACILITIES WITH CENTRALIZED POWER SUPPLIES FOR POWERING LED LUMINAIRES VIA POWER TRANSFER SWITCHES	PP1412	US	3-Jun-19	16429884			24-Mar-20	10602578
Issued	INDUCTORLESS ISOLATED POWER CONVERTERS WITH ZERO VOLTAGE AND ZERO CURRENT SWITCHING	PP1093	US	4-Sep-09	12204418	4-Mar-10	20100054008	12-Jun-12	8199529
Issued	INDUCTORS OCCUPYING SPACE ABOVE CIRCUIT BOARD COMPONENTS	PP1103UM	US	4-Apr-11	13079281	6-Oct-11	20110242776	22-Apr-14	8704108
Issued	INPUT OVER VOLTAGE PROTECTION CIRCUITS FOR POWER SUPPLIES	PP1437	US	8-Jan-20	16737403	8-Jul-21	US 2021-0210949 A1	22-Feb-22	11268248
Issued	INPUT OVER VOLTAGE PROTECTION CIRCUITS FOR POWER SUPPLIES	PP1437-CON	US	8-Feb-22	17650308	26-May-22	US 2022-0166212 A1	30-May-23	11664654
Issued	INPUT REDUNDANT CIRCUIT	PP1243	US	18-Oct-14	14516317	23-Apr-15	20150108708	31-Oct-17	9806519
Issued	INPUT REDUNDANT CIRCUIT	PP1243-CON	US	12-Jun-17	15620304	28-Sep-17	20170279257	2-Jul-19	10340386
Issued	INRUSH CURRENT LIMITING AND SURGE PROTECTION CIRCUIT AND SYSTEM	PP1463	US	21-Oct-20	17076045	21-Apr-22	US 2022-0123648 A1	1-Nov-22	11489438
Issued	INRUSH CURRENT LIMITING AND SURGE PROTECTION CIRCUIT AND SYSTEM	PP1463-CON	US	31-Oct-22	18051208	25-May-23	US 2023-0163977 A1	10-Oct-23	11784556
Issued	INRUSH CURRENT LIMITING AND SURGE PROTECTION CIRCUIT AND SYSTEM	PP1463	US	21-Oct-20	17076,045				11489438
Issued	INRUSH CURRENT LIMITING AND SURGE PROTECTION CIRCUIT AND SYSTEM	PP1463-CON	US	31-Oct-22	18051,208				11784556
Pending	INTEGRATED CURRENT BALANCING IN COUPLED TRANSFORMERS	AE2021-085	US	24-May-22	17664,758				
Issued	INTERLEAVED POWER SUPPLIES AND CORRESPONDING CONTROL METHODS	PP1325	US	20-Oct-16	15298923	28-Apr-18	20180115235	17-Jul-18	10027220
Issued	INTERPOLATION CONTROL FOR BALANCING CURRENTS IN INTERLEAVED POWER CONVERTERS	PP1460	US	28-Jul-20	18941153			7-Dec-21	11196345

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Issued	INTERPOLATION CONTROL FOR BALANCING CURRENTS IN INTERLEAVED POWER CONVERTERS	PP1450-CON	US	17-Nov-21	17455248	10-Mar-22	US 2022-0077785 A1	31-Jan-23	11589748
Issued	ISOLATED SWITCH MODE POWER SUPPLIES HAVING QUASI-PLANAR TRANSFORMERS	PP1427	US	4-Mar-20	16809112	9-Sep-21	US 2021-0280364 A1	17-Jan-23	11557426
Pending	ISOLATED SWITCH MODE POWER SUPPLIES HAVING QUASI-PLANAR TRANSFORMERS	PP1427-CON	US	17-Jan-23	18155358	18-May-23	US 2023-0154673 A1		
Issued	JOINTLESS WINDINGS FOR TRANSFORMERS	PP877	US	31-Mar-06	11398425	4-Oct-07	20070229206	20-Jan-09	7479863
Issued	LED DRIVERS AND CONTROL METHODS	PP1183	US	7-Dec-10	12662143	7-Jun-12	20120139438	19-Nov-13	8587209
Issued	LLC RESONANT CONVERTER AND METHOD FOR SUPPRESSING RIPPLES IN OUTPUT VOLTAGE THEREOF	PP1296	US	17-Jun-16	15185718	22-Dec-16	20160373016	6-Aug-18	10374619
Issued	LOW COMMON MODE NOISE TRANSFORMERS AND SWITCH MODE DC-DC POWER CONVERTERS	PP1397	US	5-Mar-19	16293231			11-Aug-20	10742123
Issued	LOW COMMON MODE NOISE TRANSFORMERS AND SWITCH MODE DC-DC POWER CONVERTERS	PP1397-DIV	US	20-Nov-19	16689786	10-Sep-20	20200287467	14-Sep-21	11121633
Pending	LOW COMMON MODE NOISE TRANSFORMERS AND SWITCH MODE DC-DC POWER CONVERTERS	PP1397-CON	US	9-Sep-21	17447237	30-Dec-21	US 2021-0408919 A1		
Pending	LOW LOSS SNUBBER CIRCUIT	PP1472	US	8-Dec-20	18256536				
Pending	LOW LOSS SNUBBER CIRCUIT	PP1472	US	8-Dec-20	18256536				
Issued	LOW NOISE PLANAR TRANSFORMER	PP867	US	30-Apr-04	10837398	3-Nov-05	20050242916	6-Nov-07	7292126
Issued	METHODS FOR EXTENDING HOLDUP TIMES AND/OR REDUCING BULK CAPACITORS IN MULTI-STAGE SWITCHING POWER SUPPLIES	PP1380	US	4-Jun-16	15997439			5-Mar-18	10224802
Issued	METHODS FOR OVERDRIVING A BASE CURRENT OF AN EMITTER SWITCHED BIPOLAR JUNCTION TRANSISTOR AND CORRESPONDING CIRCUITS	PP1286-CON	US	29-Dec-16	15394290	20-Apr-17	20170111041	29-Aug-17	8748948
Issued	METHODS FOR OVERDRIVING A BASE CURRENT OF AN EMITTER SWITCHED BIPOLAR JUNCTION TRANSISTOR AND CORRESPONDING CIRCUITS	PP1286-UNI	US	3-Dec-14	14558597	11-Jun-15	20150162906	14-Feb-17	9571091
Issued	METHODS OF FORMING COILS FOR INDUCTIVE COMPONENTS	PP1323	US	7-Dec-16	15371832	7-Jun-18	2016-0158893	17-Sep-19	10416172
Pending	MICRO CONTROLLER BANK-SWAPPING TRANSITION	AE2021-062	US	10-Dec-21					
Issued	MODIFIABLE DC-DC POWER CONVERTERS FOR PROVIDING DIFFERENT OUTPUT VOLTAGES	PP1309-UNI	US	15-Nov-16	15351645	1-Jun-17	20170155332	12-Nov-19	10476393
Pending	MULTI-DIRECTIONAL TERMINAL BLOCK AND METHOD OF MAKING	AE2024-011	US	1-Jul-24	18760,228				
Pending	MULTI-FILAR COIL	AE2022-062	US	26-Jan-23	18169,780				
Issued	MULTILAYER PRINTED CIRCUIT BOARD INDUCTOR WINDING WITH ADDED METAL FOIL LAYERS	PP848	US	8-Mar-04	10796684	8-Sep-05	20050195050	24-Jul-07	7248138
Issued	MULTILEVEL PARALLEL POWER CONVERTERS	PP1143	US	25-Apr-11	13093415	19-Apr-12	20120092908	11-Nov-14	8885371
Issued	MULTIPHASE DC TO DC CONVERTER	PP916 UNI	US	13-Oct-06	11580533	19-Apr-07	20070386224	29-Sep-09	7596007
Issued	MULTIPHASE DC/DC CONVERTERS AND CONTROL CIRCUITS FOR CONTROLLING CONVERTERS USING FIXED AND/OR VARIABLE FREQUENCIES	PP1233	US	13-Mar-13	13800143	18-Sep-14	2014-0268891	19-Jan-16	924072482
Issued	MULTIPHASE DC/DC CONVERTERS AND CONTROL CIRCUITS FOR CONTROLLING CONVERTERS USING FIXED AND/OR VARIABLE FREQUENCIES	PP1233-CON	US	21-Sep-15	14860179	14-Jan-16	2016-0013724	27-Feb-18	990613582
Issued	MULTIPHASE INTERLEAVED FORWARD POWER CONVERTERS INCLUDING CLAMPING CIRCUITS	PP1306	US	1-Dec-15	14955787	1-Jun-17	20170155334	20-Apr-21	10965847
Issued	MULTIPHASE INTERLEAVED FORWARD POWER CONVERTERS INCLUDING CLAMPING CIRCUITS	PP1306-CON	US	13-Oct-20	17068899	11-Feb-21	20210044200	5-Apr-22	11266595
Issued	MULTIPHASE INTERLEAVED FORWARD POWER CONVERTERS INCLUDING CLAMPING CIRCUITS	PP1306-CON2	US	1-Apr-22	17667653	14-Jul-22	US 2022-0224224 A1	30-May-23	11664721
Issued	MULTIPHASE INTERLEAVED POWER CONVERTERS WITH IMPROVED CURRENT BALANCING	PP1419	US	20-Jan-20	18747262	22-Jul-21	US 2021-0226528 A1	17-Jan-23	11557861
Pending	MULTIPHASE INTERLEAVED POWER CONVERTERS WITH IMPROVED CURRENT BALANCING	PP1419-CON	US	17-Jan-23	18155383	18-May-23	US 2023-0155486 A1		
Issued	MULTIPHASE POWER CONVERTERS HAVING SHARED MAGNETIC CORE SECTIONS	PP1188	US	30-Sep-11	13250780	4-Apr-13	20130083575	29-Oct-15	9185707

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Issued	MULTIPHASE POWER CONVERTERS, CONTROLLERS AND CONTROL METHODS FOR POWER SWITCHES	PP1131	US	25-Sep-09	12565892	31-Mar-11	20110074378	19-Mar-13	8400125
Issued	MULTI-PHASE SWITCHED-MODE POWER SUPPLIES	PP1458	US	31-Aug-20	17007862	3-Mar-22	US 2022-0069714 A1	1-Mar-22	11264908
Issued	MULTI-PHASE SWITCHED-MODE POWER SUPPLIES	PP1458-CON	US	24-Feb-22	17852378	8-Dec-22	US 2022-0387872 A1	10-Oct-23	11779826
Issued	MULTI-PHASE SWITCHED-MODE POWER SUPPLIES	PP1458-CON	US	24-Feb-22	17852378				11779826
Issued	MULTI-PHASE VOLTAGE CONVERTER CURRENT BALANCING	AE2022-035	US	31-Aug-22	17823,849				12101032
Pending	MULTI-PHASE VOLTAGE CONVERTER CURRENT BALANCING	AE2022-035-CON	US	23-Sep-24	18893,472				
Issued	MULTIPLE PHASE POWER CONVERTERS HAVING INTEGRATED MAGNETIC CORES FOR TRANSFORMER AND INDUCTOR WINDINGS	PP1315	US	30-Aug-16	15251171	1-Mar-18	20180051560	27-Aug-19	10395819
Issued	MULTIPLE RESONANT CONVERTER APPARATUS AND CONTROL METHOD	PP1182	US	14-Mar-12	13420078	20-Sep-12	20120236810	1-Sep-15	9124180
Issued	MULTI-STAGE POWER CONVERTERS AND METHODS FOR VARYING A REGULATED VOLTAGE OF ONE STAGE AS A FUNCTION OF AN OUTPUT CURRENT OF ANOTHER STAGE	PP1232-001	US	11-Apr-14	14261033	16-Oct-14	2014-0307483	20-Sep-16	9450496
Issued	NON-INVERTING BUCK-BOOST CONVERTER	PP1476	US	30-Dec-20	17138050	30-Jun-22	US 2022-0209670 A1	28-Feb-23	11594969
Issued	NON-INVERTING BUCK-BOOST CONVERTER	PP1476	US	30-Dec-20	17138,050				11594969
Issued	OPEN LOOP BIDIRECTIONAL CONVERTERS AND CORRESPONDING CONTROL METHODS	PP1326	US	9-Nov-16	15347539	27-Feb-18	9906150		
Issued	OPEN LOOP DC TO DC CONVERTERS WITH ENABLE/DISABLE CIRCUITS	PP1101	US	28-Aug-10	12869147	1-Mar-12	20120051096	6-Aug-13	8503193
Issued	OPTIMIZING ISOLATED POWER SUPPLY LOOP GAINS FOR OPTO-COUPLER CURRENT TRANSFER RATIO VARIATIONS	PP1183	US	30-Sep-11	13249396	4-Apr-13	20130082674	12-Aug-14	8804378
Issued	POWER CONVERTER WITH DEGRADED COMPONENT ALARM	PP984	US	14-Sep-07	11901280	19-Mar-09	20080072883	19-Oct-10	7817051
Issued	POWER CONVERTERS AND METHODS FOR REDUCING VOLTAGE CHANGES AT AN OUTPUT OF A POWER CONVERTER	PP1259	US	26-Jun-15	14752213	29-Dec-16	20160380544	11-Jul-17	9705405
Issued	POWER CONVERTER SHAVING BALANCED POWER RAIL CURRENTS	PP927	US	12-May-06	11433836	15-Nov-07	20070262752	8-Sep-09	7586769
Issued	POWER CONVERTERS WITH OPERATING EFFICIENCY MONITORING FOR FAULT DETECTION	PP983	US	15-May-07	11803706	20-Nov-08	20080285184	18-May-10	7719808
Issued	POWER CONVERTERS WITH RATE OF CHANGE MONITORING FOR FAULT PREDICTION AND/OR DETECTION	PP938	US	15-May-07	11803708	20-Nov-08	20080285192	18-May-10	7719812
Issued	POWER FACTOR CORRECTION STAGE CONTROL DURING START-UP FOR EFFICIENT USE OF A NEGATIVE TEMPERATURE COEFFICIENT THERMISTOR	PP1303	US	7-Oct-15	14782988	18-May-17	20170141678	2-Jul-19	10340787
Issued	POWER MEASUREMENTS IN SWITCHED MODE POWER SUPPLIES	PP1418	US	28-Feb-20	16960353	30-Dec-21	US 2021-0408899 A1	31-May-22	11349387
Issued	POWER MEASUREMENTS IN SWITCHED MODE POWER SUPPLIES	PP1418-CON	US	23-May-22	17654488	8-Sep-22	US 2022-0286044 A1	1-Aug-23	11716016
Issued	POWER MODULE SHAVING CURRENT SENSING CIRCUITS	PP1310	US	19-Feb-18	15753492	22-Nov-18	20180335455	29-Dec-20	10877079
Issued	POWER MODULE SHAVING CURRENT SENSING CIRCUITS	PP1310-CON	US	19-Nov-20	16952292	11-Mar-21	20210072294	17-May-22	11333691
Issued	POWER SUPPLIES AND METHODS FOR REDUCING COMMON MODE NOISE	PP1242	US	2-Dec-15	14957089	8-Jun-17	20170163146	11-Jun-19	10320279
Issued	POWER SUPPLIES HAVING A SINGLE ISOLATION DEVICE FOR FEEDBACK AND FAULT DETECTION	PP1276	US	2-Dec-15	14957103	8-Jun-17	20170163144	1-May-18	9960865
Issued	POWER SUPPLIES HAVING FEED FORWARD CONTROL USING PULSE MODULATION AND DEMODULATION	PP1317	US	31-Aug-16	15753598	20-Dec-18	20180367056	28-Mar-19	10243481
Issued	POWER SUPPLIES HAVING POWER SWITCHES CONTROLLABLE WITH A VARYING FREQUENCY, DUTY CYCLE AND/OR PHASE TO REGULATE OUTPUTS	PP1321	US	20-Jan-17	15411458	26-Jul-18	2018-0212525	27-Aug-19	10396671
Issued	POWER SUPPLIES INCLUDING SHIELDED MULTILAYER POWER TRANSMISSION BOARDS	PP1336-CON	US	24-Sep-20	17031408	7-Jan-21	20210007221	21-Sep-21	11129275
Issued	POWER SUPPLIES INCLUDING SHIELDED MULTILAYER POWER TRANSMISSION BOARDS	PP1336-001	US	12-Apr-18	16951610	18-Oct-18	20180302981	6-Oct-20	10798818

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Issued	POWER SUPPLIES RESPONSIVE TO MULTIPLE CONTROL SIGNAL FORMATS	PP1200	US	10-May-12	13468740	29-Aug-13	20130221944	22-Dec-15	9219413
Pending	POWER SUPPLY FULL-BRICK MODULE WITH INTERNAL INRUSH CURRENT LIMIT CIRCUIT	AE2021-046	US	24-Nov-21	18/12,789				
Issued	POWER SUPPLY PROVIDING ULTRAFAST MODULATION OF OUTPUT VOLTAGE	PP1076(U)	US	9-Oct-07	11669121	18-Sep-08	20080224769	28-Dec-10	7859336
Issued	POWER SUPPLY PROVIDING ULTRAFAST MODULATION OF OUTPUT VOLTAGE	PP1076-DIV	US	3-Apr-09	12417859	23-Jul-09	20090184764	5-Oct-10	7806313
Issued	POWER SUPPLY SYSTEMS WITH FILTERS	PP1222	US	13-Mar-13	13799810	16-Sep-14	2014-0266507	1-Dec-15	920329682
Issued	POWER SUPPLY UNIT WITH AUTONOMOUS INPUT POWER LIMITING	PP1430	US	8-Jan-21	17144507	14-Jul-22	US 2022-0224242 A1	7-Mar-23	11601063
Pending	POWER SUPPLY UNIT WITH AUTONOMOUS INPUT POWER LIMITING	PP1430-CON	US	28-Feb-23	18175832	7-Sep-23	US 2023-0283192 A1		
Issued	POWER SUPPLY UNIT WITH AUTONOMOUS INPUT POWER LIMITING	PP1430-CON	US	28-Feb-23	18175,832				11942870
Issued	POWER SUPPLY UNIT WITH AUTONOMOUS INPUT POWER LIMITING	PP1430	US	8-Jan-21	17144,507				11601063
Issued	POWER SUPPLY UNIT WITH AUXILIARY BOOST CONTROL IN BOOTLOADER MODE	PP1468	US	28-Sep-20	17034044	31-Mar-22	US 2022-0103071 A1	5-Jul-22	11391169
Issued	POWER SUPPLY UNIT WITH AUXILIARY BOOST CONTROL IN BOOTLOADER MODE	PP1468-CON	US	25-May-22	17664903	6-Sep-22	US 2022-0286052 A1	17-Oct-23	11791729
Issued	POWER SUPPLY UNIT WITH AUXILIARY BOOST CONTROL IN BOOTLOADER MODE	PP1468-CON	US	25-May-22	17664,903				11791729
Issued	POWER TRANSFORMERS AND METHODS OF MANUFACTURING TRANSFORMERS AND WINDINGS	PP1295-DIV	US	31-Aug-18	16118633	27-Dec-18	2018-0374637	27-Jul-21	11075032
Pending	POWER TRANSFORMERS AND METHODS OF MANUFACTURING TRANSFORMERS AND WINDINGS	PP1295-CON	US	13-Jul-21	17373975	9-Dec-21	US 2021-0383970 A1		
Issued	PRECISION OUTPUT CONTROL FOR DC VOLTAGE REGULATORS	PP1202	US	4-Mar-13	13784273	4-Sep-14	20140247023	24-Feb-15	8963516
Pending	PRINTED CIRCUIT BOARD GROUNDING	PP1486	US	11-Oct-23	18/554,815				
Issued	PRIORITY LOAD SHARING FOR ELECTRICAL POWER SYSTEM SHAVING MULTIPLE POWER SOURCES	PP1381-CON	US	18-Feb-21	17178477	10-Jan-21	20210175723	24-May-22	11342758
Issued	PRIORITY LOAD SHARING FOR ELECTRICAL POWER SYSTEM SHAVING MULTIPLE POWER SOURCES	PP1381-CON2	US	18-May-22	17863975	1-Sep-22	US 2022-0278533 A1	7-Feb-23	11575262
Issued	PRIORITY LOAD SHARING FOR ELECTRICAL POWER SYSTEM SHAVING MULTIPLE POWER SOURCES	PP1381-U6	US	30-Nov-18	16206257	3-Oct-19	20190305562	23-Feb-21	10931116
Issued	RECTIFIER CIRCUITS FOR ELECTRICAL POWER SUPPLIES	PP1391	US	3-Dec-18	16207897			14-Apr-20	1062291.1
Issued	REDUCED CURRENT SHARING RIPPLE	AE2021-021 (PP1486)	US	15-May-21	17/321,420				11568394
Issued	REDUCING PHASE CURRENT IMBALANCES IN SINGLE PHASE REDUNDANT POWER SUPPLY SYSTEMS WITH UNBALANCED LOADS	PP1247	US	14-Mar-13	13803693	18-Sep-14	20140268947	18-Jul-17	9712080
Issued	REDUNDANT DC INPUT POWER SUPPLIES HAVING BACK-FEED PROTECTION	PP1429	US	14-Oct-19	16609929			5-Jan-21	10886777
Issued	REDUNDANT DC INPUT POWER SUPPLIES HAVING BACK-FEED PROTECTION	PP1429-CON	US	11-Dec-20	17118724	15-Apr-21	20210111583	15-Mar-22	11277025
Issued	REDUNDANT DC INPUT POWER SUPPLIES HAVING BACK-FEED PROTECTION	PP1429-CON2	US	8-Mar-22	17653956	16-Jun-22	US 2022-0190638 A1	29-Aug-23	11742684
Issued	REGULATED SWITCHED MODE POWER SUPPLIES HAVING ADJUSTABLE OUTPUT VOLTAGES	PP1414	US	17-Jan-20	16745700	22-Jul-21	US 2021-0228543 A1	11-Jan-22	11223289
Issued	REGULATED SWITCHED MODE POWER SUPPLIES HAVING ADJUSTABLE OUTPUT VOLTAGES	PP1414-CON	US	6-Jan-22	17647217	28-Apr-22	US 2022-0131473 A1	6-Jun-23	11671024
Issued	RESONANT CONVERTERS POWER SUPPLIES AND CONTROL METHODS FOR REDUCING UNBALANCED CURRENTS IN RESONANT CONVERTER POWER SUPPLIES	PP1344	US	18-Sep-16	16086245	21-May-20	20200161982	5-Jan-21	10886855
Issued	RESONANT CONVERTERS POWER SUPPLIES AND CONTROL METHODS FOR REDUCING UNBALANCED CURRENTS IN RESONANT CONVERTER POWER SUPPLIES	PP1344-CON	US	10-Dec-20	17117269	25-Mar-21	20210091673	17-Jan-23	11557856
Issued	REVERSE CURRENT PROTECTION FOR POWER CONVERTERS HAVING SYNCHRONOUS RECTIFIERS	PP882-U6	US	18-Jan-07	11654707	19-Jul-07	20070165429	31-Jul-12	8233293
Allowed	REVERSIBLE FAN ASSEMBLY WITH PRESS FIT STABILIZATION	AE2022-044	US	22-Nov-22	18/057,829				
Issued	SINGLE PHASE REDUNDANT POWER SUPPLIES FOR REDUCING PHASE CURRENT IMBALANCES	PP1216-CON	US	8-Feb-12	13389032	27-Jun-13	20130162042	17-Nov-15	9189040
Issued	SINGLE PHASE REDUNDANT POWER SUPPLY SYSTEMS FOR REDUCING PHASE CURRENT IMBALANCES	PP1216	US	22-Dec-11	13334809	27-Jun-13	20130163297	13-Feb-18	9891679

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Issued	SNUBBER CIRCUITS FOR POWER CONVERTERS	PP1327	US	30-Sep-16	15763107	27-Dec-18	20180375425	19-Mar-19	10235764
Issued	STACKED MOSFET CIRCUITS AND METHODS OF OPERATING STACKED MOSFET CIRCUITS	PP1333-CON	US	19-Jan-21	17151885	13-May-21	20210143814	5-Jul-22	11381240
Issued	STACKED MOSFET CIRCUITS AND METHODS OF OPERATING STACKED MOSFET CIRCUITS	PP1333-UM	US	9-Apr-18	15948384	18-Oct-18	2018-0302085	9-Feb-21	10917089
Pending	SURGE PROTECTION CIRCUIT	AE2021-049	US	15-Jul-21	16579,390				
Issued	SWAPPABLE ELECTRONIC DEVICE AND SHELF SYSTEMS	PP1475	US	1-Dec-20	17106085	2-Jun-22	US 2022-0174637 A1	23-Aug-22	11425836
Issued	SWAPPABLE ELECTRONIC DEVICE AND SHELF SYSTEMS	PP1475	US	1-Dec-20	17106,085				11425836
Issued	SWITCH MODE POWER SUPPLIES INCLUDING PRIMARY SIDE CLAMPING CIRCUITS CONTROLLED BASED ON SECONDARY SIDE SIGNALS	PP1313	US	1-Mar-16	15035712	7-Sep-17	20170257033	5-Jun-18	9991796
Issued	SWITCHED MODE POWER SUPPLIES WITH CONFIGURABLE COMMUNICATION ADDRESSES	PP1396-Con	US	10-Mar-21	17197376	1-Jul-21	US 2021-0203240 A1	21-Feb-23	11588410
Issued	SWITCHED MODE POWER SUPPLIES WITH CONFIGURABLE COMMUNICATION ADDRESSES	PP1396	US	3-Dec-18	16473486	4-Jun-20	20200177024	23-Mar-21	10958100
Issued	SWITCHED MODE POWER SUPPLIES WITH CONFIGURABLE COMMUNICATION ADDRESSES	PP1396-Con	US	4-Mar-21	17192178	8-Jul-21	US 2021-0210980 A1	17-Jan-23	11557917
Issued	SWITCHED-MODE POWER SUPPLIES HAVING BURST MODE OPERATION FOR REDUCED POWER CONSUMPTION	PP1322	US	22-Feb-18	15754547	27-Dec-18	2018-0375437	16-Jul-19	10355901
Issued	SWITCHING POWER CONVERTERS AND CONTROLLER SHAVING AUXILIARY POWER CIRCUITS	PP1106	US	21-Sep-10	12886703	22-Mar-12	20120069617	28-Jan-14	8638580
Issued	SWITCHING POWER CONVERTERS CONTROLLED WITH CONTROL SIGNALS HAVING VARIABLE ON-TIMES	PP1324-UM	US	20-Jun-17	15628231	4-Jan-18	2018-0009577	3-Dec-19	10498257
Issued	SWITCHING POWER CONVERTERS WITH ADAPTIVELY TRIGGERED ANALOG-TO-DIGITAL CONVERTERS	PP1406-CIP	US	14-Jun-19	16441946			22-Sep-20	10784767
Issued	SWITCHING SHUNT REGULATOR CIRCUITS	868,0027	US	3-Dec-14	14559029	11-Jun-15	US 2015-0162853 A1	3-Jul-18	10014771
Issued	SWITCH-MODE AC-DC POWER CONVERTER FOR REDUCING COMMON MODE NOISE	PP1421	US	8-Jan-20	16737499	6-Jul-21	US 2021-0211049 A1	23-Nov-21	11183932
Issued	SWITCH-MODE AC-DC POWER CONVERTER FOR REDUCING COMMON MODE NOISE	PP1421-CON	US	4-Nov-21	17453534	24-Feb-22	US 2022-0080112 A1	5-Sep-23	11750097
Issued	SWITCH-MODE POWER SUPPLIES INCLUDING THREE-LEVEL LLC CIRCUITS	PP1445	US	28-Feb-20	16805147	2-Sep-21	US 2021-0273567 A1	12-Oct-21	11146176
Issued	SWITCH-MODE POWER SUPPLIES INCLUDING THREE-LEVEL LLC CIRCUITS	PP1457-CIP	US	30-Jun-20	16916925	2-Sep-21	US 2021-0273578 A1	22-Mar-22	11283365
Issued	SWITCH-MODE POWER SUPPLIES INCLUDING THREE-LEVEL LLC CIRCUITS	PP1457-Con2	US	21-Mar-22	17655617	7-Jul-22	US 2022-0216801 A1	16-May-23	11652424
Issued	SWITCH-MODE POWER SUPPLIES INCLUDING THREE-LEVEL LLC CIRCUITS FOR LOW LINE AND HIGH LINE OPERATION	PP1446	US	28-Feb-20	16805175	2-Sep-21	US 2021-0273566 A1	31-Aug-21	11108329
Issued	SWITCH-MODE POWER SUPPLIES INCLUDING THREE-LEVEL LLC CIRCUITS FOR LOW LINE AND HIGH LINE OPERATION	PP1446-CON	US	21-Jul-21	17381375	11-Nov-21	US 2021-0351703 A1	7-Mar-23	11601060
Issued	SWITCH-MODE POWER SUPPLIES WITH IMPROVED ANALOG-TO-DIGITAL CURRENT CALIBRATION	PP1424	US	25-Feb-20	16800084	26-Aug-21	US 2021-0266903 A1	21-Dec-21	11206033
Issued	SWITCH-MODE POWER SUPPLIES WITH IMPROVED ANALOG-TO-DIGITAL CURRENT CALIBRATION	PP1424-CON	US	18-Nov-21	17455543	10-Mar-22	US 2022-0077866 A1	20-Jun-23	11683047
Pending	SYNCHRONOUS SWITCH DRIVER WITH SWITCHED FILTER	AE2022-072	US	22-Mar-23	18187,992				
Issued	SYSTEMS AND METHODS FOR AUTOMATED TESTING OF POWER SUPPLY UNITS	PP1385	US	24-Jul-18	16044214	30-Jan-20	20200033421	28-Sep-21	11131718
Pending	SYSTEMS AND METHODS FOR AUTOMATED TESTING OF POWER SUPPLY UNITS	PP1385-CON	US	30-Aug-21	17446332	16-Dec-21	US 2021-0369384 A1		
Issued	SYSTEMS AND METHODS FOR MONITORING SERIAL COMMUNICATION BETWEEN DEVICES	PP1448	US	29-Jul-20	16942417	28-Dec-21	11210260		
Issued	SYSTEMS AND METHODS FOR MONITORING SERIAL COMMUNICATION BETWEEN DEVICES	PP1448-CON	US	19-Nov-21	17455789	10-Mar-22	US 2022-0075754 A1	27-Jun-23	11687465
Issued	SYSTEMS, DEVICES AND METHODS FOR AUTOMATICALLY ADDRESSING SERIALLY CONNECTED SLAVE DEVICES	PP1460	US	29-Jul-20	16942260	3-Feb-22	US 2022-0038305 A1	26-Apr-22	11316711

Status	Title	File Number	Country	Date Filed	Application Number	Publication Date	Publication Number	Grant Date	Patent Number
Issued	SYSTEMS, DEVICES AND METHODS FOR AUTOMATICALLY ADDRESSING SERIALY CONNECTED SLAVE DEVICES	PP1460-CON	US	22-Apr-22	17680240	18-Aug-22	US 2022-0263684 A1		
Pending	SYSTEMS, DEVICES AND METHODS FOR AUTOMATICALLY ADDRESSING SERIALY CONNECTED SLAVE DEVICES	PP1460-CON2	US	13-Nov-23	18507245				
Issued	THERMALLY CONDUCTIVE COVERS FOR ELECTRIC CIRCUIT ASSEMBLIES	PP1087	US	30-Oct-08	12281803	6-May-10	20100110640	17-Aug-10	7776033
Issued	THREE-PHASE LLC POWER SUPPLY CIRCUIT FOR HIGH VOLTAGE BUS INPUT	PP1465	US	27-Nov-20	17105746	2-Jun-22	US 2022-0173662 A1	17-Jan-23	11557976
Pending	THREE-PHASE LLC POWER SUPPLY CIRCUIT FOR HIGH VOLTAGE BUS INPUT	PP1465-CON	US	17-Jan-23	18153385	18-May-23	US 2023-0155512 A1		
Issued	THREE-PHASE LLC POWER SUPPLY CIRCUIT FOR HIGH VOLTAGE BUS INPUT	PP1465	US	27-Nov-20	17105,746				11557976
Issued	THREE-PHASE LLC POWER SUPPLY CIRCUIT FOR HIGH VOLTAGE BUS INPUT	PP1465-CON	US	17-Jan-23	18155,365				11848616
Pending	THREE-PHASE MAGNETICS ASSEMBLY	PP1464	US	23-Sep-20	17029294	24-Mar-22	US 2022-0093325 A1		
Issued	THREE-PHASE MAGNETICS ASSEMBLY	PP1464	US	23-Sep-20	17029,294				11990257
Issued	TOTEM POLE BRIDGELESS PFC POWER CONVERTERS	PP1379	US	24-May-18	16332641	21-May-20	20200161952	5-Sep-23	11750087
Issued	TRANSFORMERS FOR MULTIPHASE POWER CONVERTERS	PP1454	US	6-Apr-20	16840984	7-Oct-21	US 2021-0313895 A1	25-Jul-23	11711020
Issued	TRANSFORMERS HAVING INTEGRATED MAGNETIC STRUCTURES FOR POWER CONVERTERS	PP1399	US	5-Mar-19	16293275	10-Sep-20	20200286870	5-Sep-23	11749433
Issued	TRANSFORMERS HAVING SCREEN LAYERS TO REDUCE COMMON MODE NOISE	PP1334-UI	US	5-Dec-17	15832428	14-Jun-18	2018-0168205	13-Apr-21	10978241
Issued	TRANSFORMERS INCLUDING SECONDARY WINDING TURNS HAVING DIFFERENT DIAMETERS	PP1365	US	2-Mar-18	15910777	5-Sep-19	20190272939	18-Feb-20	10566131
Issued	TWO STAGE BOOST CONVERTER TOPOLOGY	PP842	US	5-Aug-04	10913989	9-Feb-06	20090028186	4-Apr-06	7023188
Issued	VARIABLE INPUT VOLTAGE PFC CIRCUITS, SYSTEMS AND POWER SUPPLIES WITH PHASE SHIFTED POWER RAILS	PP1189	US	4-Mar-11	13041018	6-Sep-12	20120224401	25-Mar-14	8681519
Pending	VOLTAGE CONVERTER WITH WIDE OUTPUT RANGE	AE2023-004	US	9-Mar-23	18190,883				
Pending	VOLTAGE CONVERTER WITH WIDE RANGE OUTPUT	AE2023-025	US	28-Dec-23	18698,502				
Issued	VOLTAGE SENSE CIRCUIT	PP1462	US	4-Dec-20	17112000	23-Nov-21	11183927		
Issued	VOLTAGE SENSE CIRCUIT	PP1462-CON	US	4-Nov-21	17453548	5-Jun-22	US 2022-0181970 A1	15-Aug-23	11728728
Issued	VOLTAGE SENSE CIRCUIT	PP1462-CON	US	4-Nov-21	17453,548				11728728
Issued	VOLTAGE SUPPLY FOR SYNCHRONOUS RECTIFIER CONTROLLER DURING LOW VOLTAGE OUTPUT CONDITIONS	PP1388	US	31-Jul-18	16341543	21-May-20	20200161984	20-Apr-21	10985666
Issued	ZERO-VOLTAGE SWITCHING DC-DC CONVERTERS WITH SYNCHRONOUS RECTIFIERS	PP887-UI	US	12-Jul-06	11485007	4-Oct-07	20070230228	16-Jun-09	7548435
Issued	ZVS ASSIST SNUBBER FOR SWITCHING CONVERTER	AE2021-080	US	26-Apr-22	17660,708				11928882
Pending	ZVS ASSIST SNUBBER FOR SWITCHING CONVERTER	AE2021-080-CON	US	7-Mar-24	18598,089				

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RECORDED: 03/05/2025

REEL: 070404 FRAME: 0931