

June 12, 2019

Patent List:

Patent No.	Issued Date	Title
6,111,365	8/29/00	Fast Starting, Surge Limited, Electronic Ballast
6,137,239	10/24/00	Electronic Ballast with Selective Load Control
6,177,769	1/23/01	Electric ballast with Selective Power Dissipation
6,291,944	9/18/01	System & Method for Limiting Through-Lamp Ground Fault Currents in Non-Isolated Electronic Ballasts
6,333,605	12/25/01	Light Modulating Electronic Ballast
7,019,662	3/28/06	LED Drive for Generating Constant Light Output
7,391,168	6/24/08	Digital Control of Electronic Ballasts Using AC Power Lines as a Communication Medium
7,394,204	7/1/08	Zero crossing detection of line voltage/current of variable amplitude
7,432,660	10/7/08	IC-based low cost reliable electronic ballast with multiple striking attempts and end of lamp life protection
7,443,113	10/28/08	Software controlled electronic dimming ballast
7,679,294	3/16/10	Method and system to eliminate fluorescent lamp striations by using capacitive energy compensation
7,705,544	4/27/10	Lamp circuit with controlled ignition pulse voltages over a wide range of ballast-to-lamp distances
7,719,204	5/18/10	Method for controlling striations in a lamp powered by an electronic ballast
7,768,755	8/3/10	Over-voltage protection and automatic re-strike circuit for an electronic ballast
7,786,391	8/31/10	Ballast housing having rolled edge lead wire exit
8,084,952	12/27/11	Method and system to detect zero current conditions in an electronic ballast by monitoring voltage across a buck inductor
8,116,089	2/14/12	Method and apparatus for securing a magnetic component to a printed circuit board for soldering
8,129,920	3/6/12	Discharge lamp ballast and fixture with controlled preheating
8,138,679	3/20/12	Organic electroluminescent light emitting device for restoring normal operation after low-voltage errors
8,143,809	3/27/12	LED illuminating device
8,143,796	3/27/12	Electronic ballast with controlled filament preheating using half-wave lamp current detection
8,154,214	4/10/12	Switching power supply for an illumination device with precision current control
8,183,791	5/22/12	System and method for preventing low dimming current startup flash
8,193,727	6/5/12	Lamp end of life protection circuit and method for an electronic dimming ballast
8,198,824	6/12/12	Electronic ballast for restarting high-pressure discharge lamps in various states of operation
8,203,273	6/19/12	Ballast circuit for a gas discharge lamp that reduces a pre-heat voltage to the lamp filaments during lamp ignition

8,203,282	6/19/12	Electronic ballast with lamp end of life detection and protection circuits
8,207,690	6/26/12	High-pressure discharge lamp ballast with rapid lamp restart circuit
8,207,680	6/26/12	Discharge lamp ballast having an auto-transformer for high voltage detection
8,212,643	7/3/12	Bobbin for an inductive electronic component
8,222,835	7/17/12	Electronic ballast with adjustable filament preheating based on output current symmetry
8,222,834	7/17/12	HID lamp ballast with controlled DC step down circuit
8,228,003	7/24/12	Electronic ballast for an hid lamp with lamp re-start control
8,232,727	7/31/12	Ballast circuit for a gas-discharge lamp having a filament drive circuit with monostable control
8,232,741	7/31/12	Electronic ballast with controlled lamp preheating
8,242,870	8/14/12	Magnetic component with a notched magnetic core structure
8,253,351	8/28/12	Electronic ballast with multimode lamp power control
8,258,712	9/4/12	Ballast circuit for reducing lamp striations
8,274,234	9/25/12	Dimming ballast with parallel lamp operation
8,274,237	9/25/12	LED driver circuit with over-current protection during a short circuit condition
8,278,835	10/2/12	Modular electronic ballast
8,288,956	10/16/12	Lamp preheat circuit for a program start ballast with filament voltage cut-back in steady state
8,294,385	10/23/12	High-pressure discharge lamp ballast with multi-mode lamp starting circuit
8,299,727	10/30/12	Anti-arcing protection circuit for an electronic ballast
8,299,723	10/30/12	Electronic ballast with lamp flicker suppression during start-to-steady state transition
8,310,160	11/13/12	Anti-arcing circuit for current-fed parallel resonant inverter
8,319,447	11/27/12	Hid lamp ballast with multi-phase operation based on a detected lamp illumination state
8,324,813	12/4/12	Electronic ballast with frequency independent filament voltage control
8,324,829	12/4/12	Startup control for a high pressure discharge lamp ballast
8,330,382	12/11/12	Electronic ballast for correcting asymmetrical current flow across a gas discharge lamp
8,330,378	12/11/12	Illumination device and method for controlling a color temperature of irradiated light
8,339,056	12/25/12	Lamp ballast with protection circuit for input arcing and line interruption
8,344,628	1/1/13	Dimming electronic ballast with lamp end of life detection
8,350,678	1/8/13	Power line dimming controller and
8,354,795	1/15/13	Program start ballast with true parallel lamp operation
8,378,579	2/19/13	Ballast circuit for a gas discharge lamp with a control loop to reduce filament heating voltage below a maximum heating level
8,405,488	3/26/13	System and method for encoding ballast control signals
8,406,007	3/26/13	Magnetic circuit board connector component
8,427,074	4/23/13	PLC controller and discharge lighting ballast receiver with high noise immunity

8,441,203	5/14/13	Dimming electronic ballast for true parallel lamp operation
8,449,145	5/28/13	Mounting apparatus for a light emitting diode module
8,450,946	5/28/13	Zone addressing circuit for an electronic ballast
8,471,475	6/25/13	Modular dimming ballast with decoupled half-bridge topology
8,482,944	7/9/13	Electronic ballast with inrush protection circuit
8,498,124	7/30/13	Magnetic circuit board stacking component
8,536,801	9/17/13	System and method for individually modulating an array of light emitting devices
8,564,216	10/22/13	Asymmetric end-of-life protection circuit for fluorescent lamp ballasts
8,581,497	11/12/13	Electronic ballast circuit and method for detecting removal of parallel connected lamp filaments in low level dimming
8,593,078	11/26/13	Universal dimming ballast platform
8,638,042	1/28/14	System and method for regulating an open circuit voltage of an HID lamp ballast
8,654,485	2/18/14	Electronic ballast with protected analog dimming control interface
8,680,776	3/25/14	Lighting device including a fast start circuit for regulating power supply to a PFC controller
8,699,244	4/15/14	Electronic ballast with load-independent and self-oscillating inverter topology
8,698,424	4/15/14	Power line dimming controller and receiver
8,716,937	5/6/14	Lighting ballast with reduced filament drive and pin current balancing
8,847,750	9/30/14	Network of dual technology occupancy sensors and associated lighting control method
8,847,512	9/30/14	Program start ballast having resonant filament heating circuit with clamped quality factor
8,909,382	12/9/14	Occupancy detection system and method having automatic adaptation capabilities
8,922,131	12/30/14	Series resonant inverter with capacitive power compensation for multiple lamp parallel operation
8,928,250	1/6/15	Method and circuit for LED load management
8,928,236	1/6/15	LED driver circuit with unified controller
8,947,015	2/3/15	Indirect line voltage conduction angle sensing for a chopper dimmed ballast
8,947,020	2/3/15	End of life control for parallel lamp ballast
9,095,022	7/28/15	Constant current driver based on critical condition mode buck converter
9,099,333	8/4/15	LED lamp device having a fluorescent element shaped 12/878,168for uniform light conversion
9,125,250	9/1/15	Constant current control based on indirect current sensing for critical conduction mode buck converter
9,125,259	9/1/15	Constant current drive circuit for multi-channel LED lighting
9,173,256	10/27/15	Dimmable LED driver based on parallel resonant current fed self-oscillating topology
9,183,974	11/10/15	Bobbin apparatus for reducing gap losses in magnetic components
9,190,830	11/17/15	Overcurrent protection circuit and method for an LED driver
9,203,321	12/1/15	Non-isolated resonant DC-DC converter with boost-type voltage doubler output

9,234,650	1/12/16	Asymmetric area lighting lens
9,236,179	1/12/16	Magnetic component apparatus with interconnectable bobbins
9,237,613	1/12/16	Constant current control for an LED driver circuit using a microcontroller-based oscillator controlled by a differential error feedback signal from a proportional and integration control loop
9,237,617	1/12/16	LED driver with inherent current limiting and soft startup capability
9,237,621	1/12/16	Current control circuit and method for floating IC driven buck-boost converter
9,237,625	1/12/16	Driver circuit with a common interface for negative temperature coefficient resistor and bi-metallic strip temperature sensing
9,237,636	1/12/16	Self-clamped resonant filament heating circuit
9,240,726	1/19/16	Dimming LED driver circuit with dynamically controlled resonant tank gain
9,279,564	3/8/16	Indirect area lighting apparatus and methods
9,293,246	3/22/16	Magnetic component with integrated component circuit board
9,295,143	3/22/16	Wireless controlled lighting system with shared signal path on output wires
9,295,145	3/22/16	Multifunction magnetic device with multiple cores and coils
9,307,623	4/5/16	Method to control striations in a lamp powered by an electronic ballast
9,307,587	4/5/16	Constant current source based on self-oscillation soft-switching LLC convertor topology
9,462,655	10/4/16	Circuit and method for monitoring functionality of an electronic surge suppressor
9,459,396	10/4/16	Linear indirect LED lighting system
9,363,862	6/7/16	Automatic current and reference gain control for wide range current control
9,362,044	6/7/16	Magnetic component with multiple pin row bobbin
9,370,061	6/14/16	High power factor constant current buck-boost power converter with floating IC driver control
9,369,050	6/14/16	Indirect current sensing method for a constant current flyback converter
9,379,533	6/28/16	Input surge protection circuit and method for an LED load
9,396,865	7/19/16	Magnetic component with auxiliary winding circuit board
9,401,237	7/26/16	Core passage step apparatus and methods
9,420,670	8/16/16	Controller and receiver for a power line communication system
9,419,514	8/16/16	High power factor DC power supply with variable gain converter and fast-averaging control loop
9,416,951	8/16/16	Compact indirect lighting system with improved thermal performance
9,431,893	8/30/16	Stability control of a power factor correction circuit using adaptive multiplier voltage feedback
9,435,527	9/6/16	Thermal venting apparatus and method for LED modules
9,459,396	10/4/16	Linear indirect LED lighting system
9,462,655	10/4/16	Circuit and method for monitoring functionality of an electronic surge suppressor
9,480,126	10/20/16	Method to detect uneven AC load or parallel load removal
9,518,716	12/13/16	Linear wide area lighting system

9,520,711	12/13/16	Gate drive integrated circuit with input line overvoltage protection for a half-bridge power converter
9,521,724	12/13/16	Method for automatically commissioning devices used in building lighting and controls
9,577,540	2/21/17	Multi-stage flyback converter for wide input voltage range applications
9,583,073	2/28/17	Adaptive startup method for constant current LED drivers
9,583,852	2/28/17	PCB holder having a leg with a passageway with a conductive pin therein to electrically connect two PCBs
9,618,164	4/11/17	Adapter for retrofitting LED lamps, method of use, and lighting fixture with retrofit adapter
9,629,206	4/18/17	Reducing output ripple current and protecting inverter switches during non-zero voltage switching for isolated buck converters
9,629,209	4/18/17	Offline tuning interface for LED drivers
9,644,833	5/9/17	Encapsulated LED lighting module with integral gas venting
9,645,597	5/9/17	Circuit and method for indirectly sensing current and voltage in a floating output power supply
9,648,678	5/9/17	LED driver circuit with dimming control and programming interfaces
9,668,309	5/30/17	LED driver providing constant output power across a wide output voltage and current range
9,674,907	6/6/17	Input surge protection circuit and method for a non-isolated buck-boost LED driver
9,680,244	6/13/17	Header apparatus for providing electrical connection to a printed circuit board, and daughter card and circuit assembly incorporating the header apparatus
9,681,512	6/13/17	Combined wireless voltage controlled dimming interface for an LED driver
9,681,520	6/13/17	Photosensor employing a fiber optic collector
9,683,717	6/20/17	Asymmetric area lens for low-profile lighting system
9,689,554	6/27/17	Asymmetric area lighting lens
9,693,404	6/27/17	Negative current sensing method for multi-channel LED driver
9,693,411	6/27/17	LED driver configuration and dimming interface for dynamic adjustment of driver operating parameters
9,719,662	8/1/17	Thin-form lens for volume lighting applications
9,721,716	8/1/17	Magnetic component having a core structure with curved openings
9,723,667	8/1/17	Output tuning and dimming interface for an LED driver
9,723,695	8/1/17	Power line communication method and apparatus using downstream current modulation
9,756,703	9/5/17	Lighting control system and method for communication of short messaging
9,769,890	9/19/17	Circuit and method for eliminating power-off flash for LED drivers
9,769,896	9/19/17	LED driver with offline tuning interface using hot and neutral inputs
9,787,195	10/10/17	Primary current sensing method for isolated LED driver
9,788,430	10/10/17	Stacked magnetic assembly
9,799,442	10/24/17	Magnetic core structures for magnetic assemblies
9,801,262	10/24/17	Conduit knockout interface device for connecting a power over ethernet cable to an LED luminaire

9,805,859	10/31/17	Magnetic component with elevated bobbin
9,807,830	10/31/17	LED driver circuit with step configurable output
9,816,681	11/14/17	Side lit indirect flexible lighting system
9,820,351	11/14/17	Circuit and method for abnormal fault testing in an LED driver
9,826,583	11/21/17	Auxiliary power supply with dynamically adjustable output
9,835,322	12/5/17	Flow through extended surface troffer system
9,837,194	12/5/17	Output transformer and resonant inductor in a combined magnetic structure
9,837,913	12/5/17	Control method to avoid capacitive mode switching for resonant converters
9,842,683	12/12/17	Bobbin and E-Core assembly configuration and method for E-cores and EI-cores
9,844,118	12/12/17	AC LED drive circuit
9,894,718	2/13/18	Constant current source LED driver circuit with self-clamped output.
9,913,346	3/6/18	Surge protection system and method for an LED driver
9,913,354	3/6/18	Unpowered tuning interface circuit for an LED driver
9,974,129	5/15/18	Circuit and method for LED current regulation and ripple control
9,974,147	5/15/18	Integrated LED driver for wireless communication
9,978,496	5/22/18	Stacked magnetic assembly
9,980,328	5/22/18	Apparatus, system, and method for configuring an unpowered LED driver using an RS-232 interface
9,980,396	5/22/18	Low profile magnetic component apparatus and methods
9,991,045	6/5/18	Bobbin and core assembly configuration and method for E-core and I-core combination
10,004,123	6/19/18	Failure detection and alerting circuit for a differential mode surge protection device in an LED driver
10,039,159	7/31/18	AC LED driver with capacitive switching
10,041,984	8/7/18	Input voltage sense circuit for boost power factor correction in isolated power supplies
10,045,451	8/7/18	Lighting control system, expansion pack, and method of use
10,083,790	9/25/18	Method and apparatus for attaching magnetic components to printed circuit boards
10,098,194	10/9/18	Current and Voltage Control Circuit and Method for a Class II LED Driver
10,098,202	10/9/18	Constant Current Source with Wide Output Voltage Range and Self-clamping Output Voltage
10,103,538	10/16/18	Surge Protection Circuit for a Half-Bridge Power Converter
10,128,740	11/13/18	Dynamic AC Impedance Stabilization in a Flyback LED Driver
10,178,720	1/8/19	Low Standby Power Control Circuit for LED Driver
10,186,809	1/22/19	Printed Circuit Board Connector with Integrated EMI Noise Suppression
10,186,812	1/22/19	Ferrite Wafer and Connector Assembly for EMI Noise Suppression on a Printed Circuit Board
10,243,473	3/26/19	Gate Drive IC with Adaptive Operating Mode

10,264,641	4/16/19	LIGHTING SYSTEM AND METHOD FOR DYNAMICALLY REGULATING DRIVEN CURRENT TO AN ANALOG OR DIGITAL DIMMING INTERFACE
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Products & Supporting Patents

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