

(Address of Principal Executive Offices, including Zip Code)

MONOLITHIC POWER SYSTEMS, INC.

2014 EQUITY INCENTIVE PLAN

(Full title of the plan)

Michael R. Hsing

President and Chief Executive Officer

79 Great Oaks Boulevard

San Jose, CA 95119

(408) 826-0600

(Name, address, and telephone number, including area code, of agent for service)

Copies to:

Saria Tseng

Robert T. Clarkson

Vice President and General Counsel

Jones Day

Monolithic Power Systems, Inc.

1755 Embarcadero Road

79 Great Oaks Boulevard

Palo Alto, CA 94303

San Jose, CA 95119

650-739-3996

(408) 826-0600

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share (2)	Proposed maximum aggregate offering price (2)	Amount of registration fee
Common Stock \$0.001 par value	5,500,000 shares	\$40.42	\$222,310,000	\$25,832.42

Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), there are also being registered such additional shares of Common Stock as may become issuable pursuant to the adjustment provisions (1) of the Monolithic Power Systems, Inc. 2014 Equity Incentive Plan (the “Plan”), and that become issuable under the Plan by reason of any stock dividend, stock split, recapitalization or similar transaction effected without receipt of consideration which would increase the number of outstanding shares of Common Stock.

Estimated in accordance with Rules 457(c) and (h) under the Securities Act solely for the purpose of calculating (2) the registration fee on the basis of the average of the high and low prices of the Registrant’s Common Stock as reported on the Nasdaq Global Select Market on October 27, 2014.

PART I

INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

The information called for by Part I of Form S-8 is omitted from this Registration Statement in accordance with Rule 428 of the Securities Act and the instructions to Form S-8. In accordance with the rules and regulations of the Securities and Exchange Commission (the "Commission") and the instructions to Form S-8, such documents are not being filed with the Commission either as part of this Registration Statement or as prospectuses or prospectus supplements pursuant to Rule 424 under the Securities Act.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The following documents filed by the Registrant with the Commission pursuant to the Securities Act and the Securities Exchange Act of 1934, as amended (the "Exchange Act"), are incorporated herein by reference:

- (a) Annual Report on Form 10-K for the year ended December 31, 2013, filed with the Commission on March 10, 2014;
- (b) Quarterly Reports on Form 10-Q for the three months ended March 31, 2014, filed with the Commission on May 1, 2014; for the three months ended June 30, 2014, filed with the Commission on July 29, 2014; and for the three months ended September 30, 2014, filed with the Commission on October 31, 2014;
- (c) Current Reports on Form 8-K filed with the Commission on April 24, 2014, June 9, 2014, June 13, 2014, July 21, 2014, July 25, 2014, and September 15, 2014;
- (d) Form SD filed with the Commission on June 2, 2014; and
- (e) The description of the Registrant's Common Stock contained in its registration statement on Form 8-A, filed with the Commission on November 16, 2004, and any subsequent amendment and restatement or report filed with the Commission for the purposes of updating such description.

In addition, all documents subsequently filed by the Registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act prior to the filing of a post-effective amendment to the Registration Statement that indicates that all of the shares of Common Stock offered have been sold or that deregisters all of such shares then remaining unsold, shall be deemed to be incorporated by reference in this Registration Statement and to be a part hereof from the date of the filing of such documents. For the purposes of this Registration Statement, any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded to the extent that a statement contained herein or in any other subsequently filed document that also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

Not applicable.

Item 6. Indemnification of Directors and Officers

Section 145 of the General Corporation Law of the State of Delaware (“Section 145”), as the same exists or may hereafter be amended (the “General Corporation Law”) provides that a Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation) by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorney’s fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation’s best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was unlawful.

Section 145 further authorizes a corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or enterprise, against any liability asserted against such person and incurred by such person in any such capacity, arising out of such person's status as such, whether or not the corporation would otherwise have the power to indemnify such person against such liability under Section 145.

The Registrant's Amended and Restated Certificate of Incorporation contains certain provisions permitted under the General Corporation Law relating to the liability of directors. These provisions eliminate a director's personal liability for monetary damages resulting from a breach of fiduciary duty as a director to the fullest extent permitted by the General Corporation Law.

The Registrant's Amended and Restated Bylaws provide that the Registrant shall indemnify and hold harmless, to the fullest extent permitted by the General Corporation Law, its directors and officers (and may indemnify its employees and other agents) involved in any action, lawsuit or proceeding by reason of the fact that he or she is or was a director or officer (or employee or agent, if applicable) of the Registrant. The Registrant's Amended and Restated Bylaws also permit the Registrant to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in such capacity, regardless of whether the Registrant would have the power to indemnify him or her against such liability under the General Corporation Law.

The Registrant's directors and officers are covered by insurance maintained by the Registrant against specified liabilities for actions taken in their capacities as such, including liabilities under the Securities Act. In addition, the Registrant has entered into agreements with its directors and officers providing indemnification of such directors and officers by the Registrant to the fullest extent permitted by law, subject to certain limited exceptions.

Item 7. Exemption from Registration Claimed.

Not applicable.

Item 8. Exhibits

See the attached Exhibit Index, which is incorporated herein by reference.

Item 9. Undertakings

1. The undersigned Registrant hereby undertakes:

(a) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:

(i) To include any prospectus required by section 10(a)(3) of the Securities Act;

To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective Registration Statement; and

To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

(iii) *Provided, however*, that paragraphs (1)(a)(i) and (1)(a)(ii) of this Item 9 do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to section 13 or section 15(d) of the Exchange Act that are incorporated by reference herein.

That, for the purpose of determining any liability under the Securities Act, each such post effective amendment (b) shall be deemed to be a new registration statement relating to the securities offered herein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

2. The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to section 13(a) or section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Exchange Act) that is incorporated by reference in this Registration Statement shall be deemed to be a new registration statement relating to the securities offered herein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

3. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Jose, State of California, on October 31, 2014.

MONOLITHIC POWER SYSTEMS, INC.

By: /s/ Michael R. Hsing
Michael R. Hsing
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Michael R. Hsing and Meera Rao, and each of them individually, his or her attorney-in-fact, with the power of substitution, for him or her in any and all capacities, to sign any and all amendments to this Registration Statement (including post-effective amendments), and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that such attorney-in-fact, or his or her substitute, may lawfully do or cause to be done by virtue hereof. This Power of Attorney may be signed in several counterparts.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Michael R. Hsing</u> Michael R. Hsing	President, Chief Executive Officer and Director (<i>principal executive officer</i>)	October 31, 2014
<u>/s/ Meera Rao</u>	Chief Financial Officer (<i>principal financial and accounting officer</i>)	October 31, 2014

Meera Rao

/s/ Karen A. Smith

Bogart

Director

October 31,
2014

Karen A. Smith Bogart

/s/ Herbert Chang

Director

October 31,
2014

Herbert Chang

/s/ Eugen Elmiger

Director

October 31,
2014

Eugen Elmiger

/s/ Victor K. Lee

Director October 31, 2014

Victor K. Lee

/s/ James C. Moyer

Director October 31, 2014

James C. Moyer

/s/ Jeff Zhou

Director

Jeff Zhou

October 31, 2014

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporated by Reference			Filing Date	Filed Herewith
		Form	File No.	Exhibit		
4.1	Amended and Restated Certificate of Incorporation	S-1/A	333-117327	3.2	11/15/2004	
4.2	Amended and Restated Bylaws.	S-1/A	333-117327	3.4	11/15/2004	
4.3	Monolithic Power Systems, Inc. 1998 Stock Plan and form of option agreement.	S-1	333-117327	10.1	07/13/2004	
4.4	Monolithic Power Systems, Inc. 2004 Equity Incentive Plan, as amended, and form of grant agreement.					X
4.5	2004 Employee Stock Purchase Plan and form of subscription agreement	S-1/A	333-117327	10.3	07/13/2004	
4.6	Monolithic Power Systems, Inc. 2014 Equity Incentive Plan and form of grant agreement.					X
5.1	Opinion of Jones Day.					X
23.1	Consent of Independent Registered Public Accounting Firm..					X
23.2	Consent of Jones Day (included in Exhibit 5.1).					X
24.1	Power of Attorney (included on the signature page of this Registration Statement).					X