

MONOLITHIC POWER SYSTEMS, INC.

2004 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

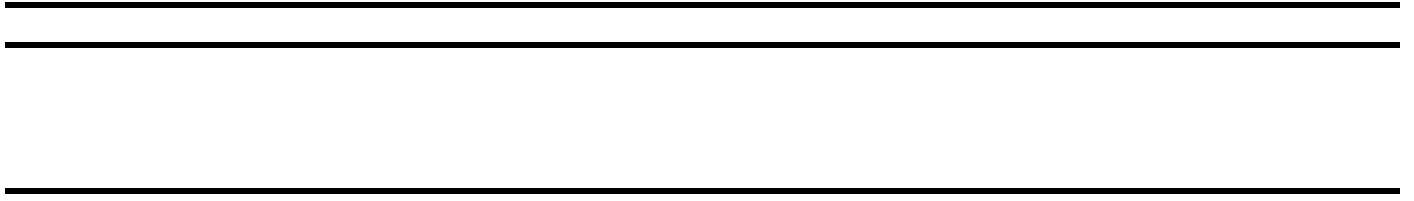
San Jose, CA 95119

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 per share, to be issued pursuant to the 2004 Equity Incentive Plan (the "Plan")	1,914,548 shares	\$45.57	\$87,245,952	\$11,237

Pursuant to Rule 416, this Registration Statement shall also cover any additional shares of Registrant's Common Stock that become issuable under the Plan by reason of any stock dividend, stock split, recapitalization or any other similar transaction effected without the Registrant's receipt of consideration that results in an increase in the number of the Registrant's outstanding shares of Common Stock.

(1) Estimated in accordance with Rules 457(c) and (h) under the Securities Act of 1933, as amended, solely for the purpose of calculating 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 September 15, 2014.

Registration of Additional Securities

Pursuant to General Instruction E

This Registration Statement registers additional shares of common stock of Monolithic Power Systems, Inc. (the “Registrant”) to be issued pursuant to the Plan. Accordingly, we incorporate by reference the contents of the Registration Statement on Form S-8 (Commission File No. 333-120886) filed by the Registrant with the Securities and Exchange Commission (“SEC”) on December 1, 2004, the Registration Statement on Form S-8 (Commission File No. 333-132411) filed with the SEC on March 14, 2006, as amended on February 8, 2007, the Registration Statement on Form S-8 (Commission File No. 333-140563) filed with the SEC on February 9, 2007, the Registration Statement on Form S-8 (Commission File No. 333-149027) filed with the SEC on February 4, 2008, the Registration Statement on Form S-8 (Commission File No. 333- 157095) filed with the SEC on February 4, 2009, the Registration on Form S-8 (Commission File No. 333-164673) filed with the SEC on February 3, 2010, the Registration Statement on Form S-8 (Commission File No. 333-172013) filed with the SEC on February 2, 2011, the Registration Statement on Form S-8 (Commission File No. 333-180047) filed with the SEC on March 12, 2012, and the Registration Statement on Form S-8 (Commission File No. 333-187117) filed with the SEC on March 8, 2013 (collectively, the “Previous Forms S-8”).

PART II

INFORMATION REQUIRED IN REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The following periodic reports that were filed after the Previous Forms S-8 to maintain current information about the Registrant, are hereby incorporated into this Registration Statement and made a part hereof by this reference:

The reports that the Registrant has most recently filed with the SEC are listed below:

(a)

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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, and for the three months ended June 30, 2014, filed with the Commission on July 29, 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;

(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 Securities Exchange Act of 1934, as amended (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 8. Exhibits.

The following exhibits are filed as part of this Registration Statement:

Exhibit No.	Description
5.1	Opinion of Jones Day.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Jones Day (included in Exhibit 5.1).
24.1	Power of attorney (included in signature page to this Registration Statement).

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 September 19, 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 statements), and all post-effective amendments thereto, 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 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
/s/ Michael R. Hsing Michael R. Hsing	President, Chief Executive Officer and Director (<i>principal executive officer</i>)	September 19, 2014
/s/ Meera Rao Meera Rao	Chief Financial Officer (<i>principal financial and accounting officer</i>)	September 19, 2014
/s/ Karen A. Smith Bogart Karen A. Smith Bogart	Director	September 19, 2014

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/s/ Herbert Chang
Herbert Chang

Director

September 19, 2014

/s/ Eugen Elmiger
Eugen Elmiger

Director

September 19, 2014

/s/ Victor K. Lee
Victor K. Lee

Director September 19, 2014

/s/ James C. Moyer
James C. Moyer

Director September 19, 2014

/s/ Jeff Zhou
Jeff Zhou

Director September 19, 2014

EXHIBIT INDEX

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