

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

SCHEDULE 13G

Under the Securities Exchange Act of 1934

Monolithic Power Systems, Inc.

(Name of Issuer)

Common Stock

(Title of Class of Securities)

609839 10 5

(CUSIP Number)

December 31, 2006

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)

Rule 13d-1(c)

Rule 13d-1(d)

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.**

SEC 1745 (03-00)

1. Names of Reporting Persons.  
I.R.S. Identification Nos. of above persons (entities only).

James C. Moyer

2. Check the Appropriate Box if a Member of a Group (See Instructions)

- (a)   
(b)

3. SEC Use Only

4. Citizenship or Place of Organization

United States

5. Sole Voting Power

NUMBER OF  
SHARES  
BENEFICIALLY  
OWNED BY  
EACH  
REPORTING  
PERSON  
WITH:

858,484(1)

6. Shared Voting Power

987,598(2)

7. Sole Dispositive Power

858,484(1)

8. Shared Dispositive Power

987,598(2)

9. Aggregate Amount Beneficially Owned by Each Reporting Person

1,846,082(1)(2)

10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)

6.08%

12. Type of Reporting Person (See Instructions)

IN

- (1) Includes (i) options to purchase 160,416 shares of Common Stock that are exercisable within 60 days of December 31, 2006, (ii) 3750 shares subject to repurchase by Issuer within 60 days of December 31, 2006 at original purchase price in the event of termination of Mr. Moyer's employment with the Issuer, which right lapses over time, and (iii) 143,000 shares held in the name of First Trust Company of Onaga Cust. FBO James C. Moyer IRA #4100569500.
- (2) Includes (i) 518,504 shares held in the name of James C. Moyer and Frances K. Moyer, husband and wife, as joint tenants, (ii) 326,094 shares held in the Moyer Family Revocable Trust. For each of these entities, the voting and/or dispositive power is held or shared by James Moyer and/or Frances Moyer, (iii) 143,000 shares held in the name of First Trust Company of Onaga Cust. FBO Frances K. Moyer IRA #4100569400.

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- Item 1.** (a) Name of Issuer  
Monolithic Power Systems, Inc.
- (b) Address of Issuer's Principal Executive Offices  
6409 Guadalupe Mines Road, San Jose, CA 95120
- Item 2.** (a) Name of Person Filing  
James C. Moyer
- (b) Address of Principal Business Office or, if none, Residence  
6409 Guadalupe Mines Road, San Jose, CA 95120
- (c) Citizenship  
United States
- (d) Title of Class of Securities  
Common Stock
- (e) CUSIP Number  
609839 10 5

**Item 3.**

N/A

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**Item 4. Ownership**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount beneficially owned: 1,846,082 Common Shares held at 12/31/2006(1)(2)
- (b) Percent of class: 6.08%
- (c) Number of shares as to which the person has:
  - (i) Sole power to vote or to direct the vote 858,484(1)
  - (ii) Shared power to vote or to direct the vote 987,598(2)
  - (iii) Sole power to dispose or to direct the disposition of 858,484(1)
  - (iv) Shared power to dispose or to direct the disposition of 987,598(2)

*Instruction.* For computations regarding securities which represent a right to acquire an underlying security *see* §240.13d-3(d)(1).

**Item 5. Ownership of Five Percent or Less of a Class**

N/A

**Item 6. Ownership of More than Five Percent on Behalf of Another Person**

N/A

**Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company of Control Person**

N/A

**Item 8. Identification and Classification of Members of the Group**

N/A

**Item 9. Notice of Dissolution of Group**

N/A

**Item 10. Certification**

- (a) The following certification shall be included if the statement is filed pursuant to §240.13d-1(b):

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

- (b) The following certification shall be included if the statement is filed pursuant to §240.13d-1(c):

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

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- (1) Includes (i) options to purchase 160,416 shares of Common Stock that are exercisable within 60 days of December 31, 2006, (ii) 3750 shares subject to repurchase by Issuer within 60 days of December 31, 2006 at original purchase price in the event of termination of Mr. Moyer's employment with the Issuer, which right lapses over time, and (iii) 143,000 shares held in the name of First Trust Company of Onaga Cust. FBO James C. Moyer IRA #41005695004100569500.
  - (2) Includes (i) 518,504 shares held in the name of James C. Moyer and Frances K. Moyer, husband and wife, as joint tenants, (ii) 326,094 shares held in the Moyer Family Revocable Trust. For each of these entities, the voting and/or dispositive power is held or shared by James Moyer and/or Frances Moyer. , (iii) 143,000 shares held in the name of First Trust Company of Onaga Cust. FBO Frances K. Moyer IRA #4100569400.

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**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set in this statement is true, complete and correct.

February 7, 2007

\_\_\_\_\_  
Date

/s/ James C. Moyer

\_\_\_\_\_  
Signature

James C. Moyer

\_\_\_\_\_  
Name/Title

The original statement shall be signed by each person on whose behalf the statement is filed or his authorized representative. If the statement is signed on behalf of a person by his authorized representative other than an executive officer or general partner of the filing person, evidence of the representative's authority to sign on behalf of such person shall be filed with the statement, provided, however, that a power of attorney for this purpose which is already on file with the Commission may be incorporated by reference. The name and any title of each person who signs the statement shall be typed or printed beneath his signature.

*NOTE:* Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties for whom copies are to be sent.

**Attention: Intentional misstatements or omissions of fact constitute Federal criminal violations (See 18 U.S.C. 1001)**