

Ascent Solar Technologies, Inc.  
Form 8-A12B  
June 19, 2006

As filed with the Securities and Exchange Commission on June 19, 2006

**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**  
WASHINGTON, D.C. 20549

**FORM 8-A**

FOR REGISTRATION OF CERTAIN CLASSES OF SECURITIES  
PURSUANT TO SECTION 12(b) OR (g) OF THE  
SECURITIES EXCHANGE ACT OF 1934

**ASCENT SOLAR TECHNOLOGIES, INC.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State of incorporation)

**20-3672603**  
(I.R.S. Employer Identification No.)

**8120 Shaffer Parkway**  
**Littleton, CO**  
(Address of principle executive offices)

**80127**  
(Zip code)

If this form relates to the registration of a class of securities pursuant to Section 12(b) of the Exchange Act and is effective pursuant to General Instruction A.(c), check the following box.

If this form relates to the registration of a class of securities pursuant to Section 12(g) of the Exchange Act and is effective pursuant to General Instruction A.(d), check the following box.

Securities Act registration statement file number to which this form relates: Registration No. 333-123827

**Securities to be registered pursuant to Section 12(b) of the Act:**

Units, each consisting of one share of Common Stock, one Class A warrant and two Class B warrants

Common Stock, \$0.0001 par value  
Class A warrants, each to purchase one share of Common Stock  
Class B warrants, each to purchase one share of Common Stock  
(Title of Each Class to be So Registered)

Nasdaq Capital Market  
Boston Stock Exchange  
(Name of Each Exchange on Which  
Each Class is to be Registered)

**Securities to be registered pursuant to Section 12(g) of the Act:**

Not applicable  
(Title of Class)

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ITEM 1. DESCRIPTION OF REGISTRANT'S SECURITIES TO BE REGISTERED.

Incorporated herein by reference is the Registrant's Registration Statement on Form SB-2 (File No. 333-131216), filed on January 23, 2006, as amended on March 13, 2006, April 20, 2006, May 26, 2006 and June 19, 2006, and as further amended from time to time thereafter (the Registration Statement). See the section of the Registration Statement titled "Description of Securities."

ITEM 2. EXHIBITS

<b>EXHIBIT NO.</b>	<b>DESCRIPTION</b>
1.	Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Registration Statement).
2.	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 of the Registration Statement).
3.	Bylaws (incorporated by reference to Exhibit 3.3 of the Registration Statement).
4.	Form of Common Stock certificate (incorporated by reference to Exhibit 4.1 of the Registration Statement).
5.	Form of Class A warrant (incorporated by reference to Exhibit 4.5 of the Registration Statement).
6.	Form of Class B warrant (incorporated by reference to Exhibit 4.5 of the Registration Statement).
7.	Form of Unit certificate (incorporated by reference to Exhibit 4.4 of the Registration Statement).
8.	Form of Warrant Agreement (incorporated by reference to Exhibit 4.5 of the Registration Statement).

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereto duly authorized.

ASCENT SOLAR TECHNOLOGIES, INC.

Date: June 19, 2006

By:

/s/ Matthew B. Foster

**Matthew B. Foster**

**President and Chief Executive Officer**