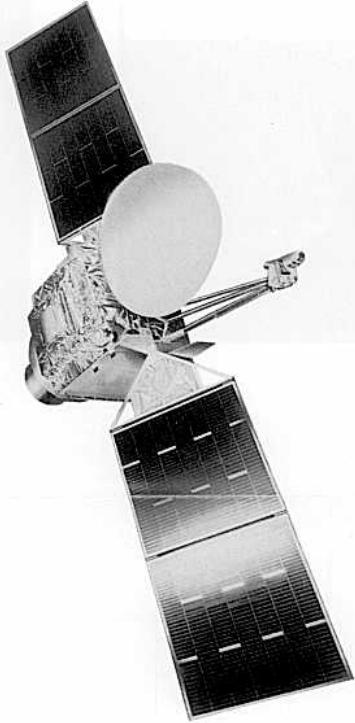


MICROWAVE HEMTS

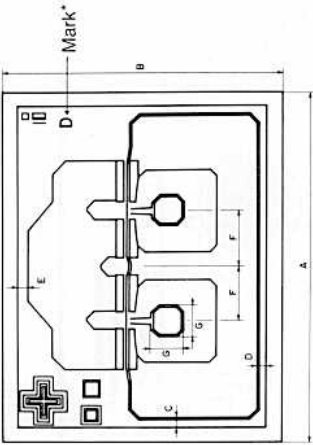


Features

- Low noise (0.7dB typ.at 12GHz)
- High gain (11dB at 12GHz)
- Chips and packaged devices
- High reliability
- MOCVD technology
- Taping supply

Applications

- DBS Satellite broadcasting reception
- Radar
- Satellite communication
- Measurement ,Optical transmission



| Symbol | Dimension (μm) |          |
|--------|----------------|----------|
|        | 2SK676H5       | 2SK677H5 |
| A      | 500±50         | 600±50   |
| B      | 400±50         | 400±50   |
| C      | 15± 3          | 15± 3    |
| D      | 10± 3          | 10± 3    |
| E      | 15± 3          | 15± 3    |
| F      | 75± 5          | 100± 5   |
| G      | 44± 5          | 44± 5    |

Chip thickness :150±30μm  
Pad meta : Ti/Au  
              : 1.0μm  
Back metal : Ti/Au  
              : 0.45μm

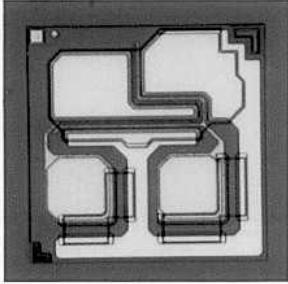
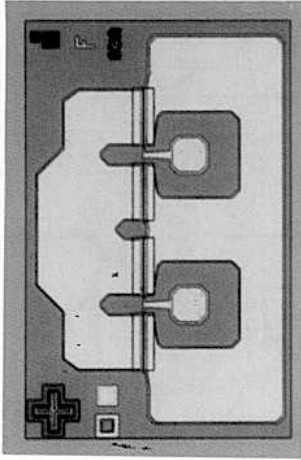
| Item                    | Package | Gate Width (μm) | RF Characteristics*             |                                     |                                 | DC Characteristics         |                               |              |                            | Maximum Ratings     |                      |                     |                     |                      |
|-------------------------|---------|-----------------|---------------------------------|-------------------------------------|---------------------------------|----------------------------|-------------------------------|--------------|----------------------------|---------------------|----------------------|---------------------|---------------------|----------------------|
|                         |         |                 | NF max. (dB)                    | Ga typ. (dB)                        | P <sub>-1dB</sub> *2 typ. (dBm) | I <sub>DSS</sub> typ. (mA) | V <sub>GS(OFF)</sub> typ. (V) | gm typ. (mS) | I <sub>gss</sub> max. (μA) | V <sub>DS</sub> (V) | V <sub>GSO</sub> (V) | I <sub>o</sub> (mA) | P <sub>o</sub> (mW) | T <sub>ch</sub> (°C) |
| SGH5712F-05             | F       | 200             | 0.8                             | 11.0                                | —                               | 30*3                       | —0.5                          | 55           | —100                       | 4                   | +0.4<br>—3.0         | 70                  | 340                 | 150                  |
| SGH5612F-03-04          | F       | 200             | 1.2<br>1.0                      | 10.5                                | —                               | 30*3                       | —0.5                          | 50           | —100                       | 4                   | +0.4<br>—3.0         | 70                  | 340                 | 150                  |
| SGH5002F-01-02-03-04-05 | F       | 200             | 1.7<br>1.6<br>1.5<br>1.4<br>1.3 | 9.5<br>10.0<br>10.5<br>11.0<br>11.0 | 8                               | 40                         | —1.5                          | 40           | —100                       | 5                   | —3.5                 | 70                  | 340                 | 150                  |
| SGH5003F-01-02-03-04-05 | F       | 300             | 1.7<br>1.6<br>1.5<br>1.4<br>1.3 | 9.5<br>10.0<br>10.5<br>11.0<br>11.0 | 9                               | 60                         | —1.5                          | 60           | —150                       | 5                   | —3.5                 | 100                 | 340                 | 150                  |
| 2SK676H5-1-2-3          | chip    | 200             | 1.0<br>1.2<br>1.4               | 11.0                                | 8                               | 40                         | —1.5                          | 40           | —100                       | 5                   | —3.5                 | 70                  | 340                 | 150                  |
| 2SK677H5-1-2-3          | chip    | 300             | 1.0<br>1.2<br>1.4               | 11.0                                | 9                               | 60                         | —1.5                          | 60           | —150                       | 5                   | —3.5                 | 100                 | 340                 | 150                  |
| SGM5102F                | F       | 200             | 2.1                             | 8.5                                 | —                               | 30                         | —1.5                          | 25           | —10                        | 5                   | —3.5                 | 70                  | 340                 | 150                  |

\*1 f<sub>s</sub>=12GHz, V<sub>DS</sub>=2V, I<sub>o</sub>=10mA (gate width=200μm), I<sub>o</sub>=15mA (gate width=300μm). \*2 V<sub>DS</sub>=3V, I<sub>o</sub>=I<sub>DSS</sub>/2 \*3 I<sub>DS</sub> (V<sub>GS</sub>=0.4V)

UHF MESFETS

| Item        | Package | Gate Width<br>(μm) | RF Characteristics                                                                     |                    |                                                                                    |                                  | DC Characteristics                                                    |                                                                       |                                                                                                  |                    | Maximum Ratings         |                          |                          |                        |                        |                         |
|-------------|---------|--------------------|----------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------|-------------------------|--------------------------|--------------------------|------------------------|------------------------|-------------------------|
|             |         |                    | NF<br>typ.<br>(dB)                                                                     | PG<br>typ.<br>(dB) | C <sub>iss</sub><br>typ.<br>(pF)                                                   | C <sub>rss</sub><br>typ.<br>(fF) | I <sub>DSS</sub><br>(mA)                                              | V <sub>GS15</sub><br>typ.<br>(V)                                      | V <sub>GS25</sub><br>typ.<br>(V)                                                                 | gm<br>typ.<br>(mS) | V <sub>DSX</sub><br>(V) | V <sub>GS1S</sub><br>(V) | V <sub>GS2S</sub><br>(V) | I <sub>O</sub><br>(mA) | P <sub>O</sub><br>(mW) | T <sub>ch</sub><br>(°C) |
|             |         |                    |                                                                                        |                    |                                                                                    |                                  |                                                                       |                                                                       |                                                                                                  |                    |                         |                          |                          |                        |                        |                         |
|             |         |                    | f=800MHz*5<br>V <sub>DS</sub> =5V<br>I <sub>O</sub> =10mA*4<br>V <sub>GS2S</sub> =1.5V |                    | f=1MHz<br>V <sub>DS</sub> =5V<br>I <sub>O</sub> =10mA*4<br>V <sub>GS2S</sub> =1.5V |                                  | V <sub>DS</sub> =5V<br>V <sub>GS1S</sub> =0V<br>V <sub>GS2S</sub> =0V | V <sub>DS</sub> =5V<br>I <sub>O</sub> =100μA<br>V <sub>GS2S</sub> =0V | V <sub>DS</sub> =5V<br>I <sub>O</sub> =100μA<br>V <sub>GS1S</sub> =0V<br>V <sub>GS2S</sub> =1.5V |                    |                         |                          |                          |                        |                        |                         |
| SGM2004M*2  | M       | 400                | 1.6                                                                                    | 18*3               | 0.9                                                                                | 25                               | 8~28                                                                  | -1.9                                                                  | -1.9                                                                                             | 16                 | 12                      | -5                       | -5                       | 55                     | 150                    | 150                     |
| SGM2006M/P  | M/P     | 600                | 1.2                                                                                    | 22*3               | 1.1                                                                                | 28                               | 10~35                                                                 | -1.3                                                                  | -1.3                                                                                             | 26                 | 12                      | -5                       | -5                       | 55                     | 150                    | 150                     |
| ☆SGM2014M*2 | M       | 400                | 1.5                                                                                    | 18*3               | —                                                                                  | —                                | —                                                                     | —                                                                     | —                                                                                                | —                  | —                       | —                        | —                        | —                      | —                      | —                       |
| ☆SGM2016M/P | M/P     | 600                | 1.2                                                                                    | 22*3               | —                                                                                  | —                                | —                                                                     | —                                                                     | —                                                                                                | —                  | —                       | —                        | —                        | —                      | —                      | —                       |
| 3SK165      | M       | 300                | 1.2                                                                                    | 20                 | 0.5                                                                                | 7.5                              | 20~55*1                                                               | -1.7                                                                  | -1.7                                                                                             | 22                 | 8                       | -6                       | -6                       | 80                     | 150                    | 150                     |
| 3SK166      | M       | 1200               | 1.2                                                                                    | 20                 | 1.3                                                                                | 25                               | 20~80*1                                                               | -1.5                                                                  | -1.5                                                                                             | 40                 | 8                       | -6                       | -6                       | 80                     | 150                    | 150                     |

☆ Under Development \*1 I<sub>DSS</sub> selections available \*2 Low cross modulation model \*3 Ga \*4 I<sub>o</sub>=8mA for SGM2004M \*5 f<sub>s</sub>=900MHz for SGM2016



HEMT

MESFET

