

Ordering number : EN5820

N-Channel GaAs MESFET



**SGF25**

**For C- to X-band local oscillator and amplifier**

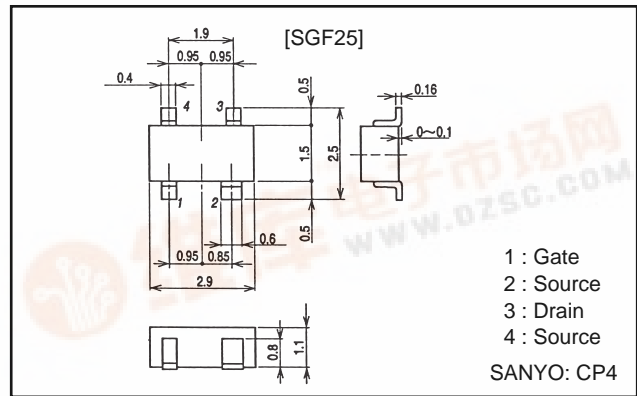
**Features**

- Super miniaturized plastic-mold package(CP4).
- High reliability achieved by original manufacturing technology(adopting a protection coat).
- Available for surface mounting and automatic inserting.

**Package Dimensions**

unit: mm

**2134A**



**Absolute Maximum Ratings** at Ta=25°C

| Parameter               | Symbol           | Conditions | Ratings     | Unit |
|-------------------------|------------------|------------|-------------|------|
| Drain to source voltage | V <sub>DS</sub>  |            | 6.0         | V    |
| Gate to source voltage  | V <sub>GS</sub>  |            | -5.0        | V    |
| Drain current           | I <sub>D</sub>   |            | 100         | mA   |
| Dissipation power       | P <sub>D</sub>   |            | 200         | mW   |
| Junction temperature    | T <sub>j</sub>   |            | 150         | °C   |
| Storage temperature     | T <sub>stg</sub> |            | -55 to +150 | °C   |

**Electrical Characteristics** at Ta=25°C

| Parameter                        | Symbol               | Conditions   | Ratings |      |      | Unit |
|----------------------------------|----------------------|--|---------|------|------|------|
|                                  |                      |  | min     | typ  | max  |      |
| Gate to source breakdown voltage | V(BR)GSO             | I <sub>GS</sub> =-10μA                               | -5.0    |      |      | V    |
| Zero gate voltage drain current  | I <sub>DSS</sub>     | V <sub>DS</sub> =3V, V <sub>GS</sub> =0              | 30      | 45   | 65   | mA   |
| Gate to source cutoff voltage    | V <sub>GS(off)</sub> | V <sub>DS</sub> =3V, I <sub>D</sub> =100μA           | -0.5    | -1.5 | -3.0 | V    |
| Forward transfer admittance      | Y <sub>fs</sub>      | V <sub>DS</sub> =3V, I <sub>D</sub> =10mA            |         | 40   |      | mS   |
| Minimum noise figure             | NF <sub>min</sub>    | V <sub>DS</sub> =3V, I <sub>D</sub> =10mA<br>f=12GHz |         | 2.5  |      | dB   |
| Associated gain                  | G <sub>a</sub>       |  |         | 5.5  |      | dB   |
| Maximum available gain           | MAG                  |  |         | 7.0  |      | dB   |



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Vds=3V, Ids=10mA  
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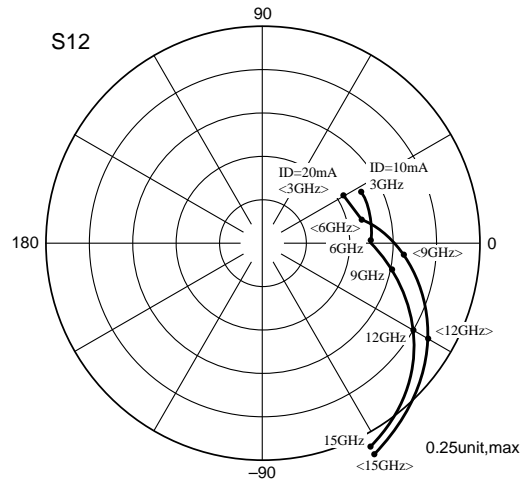
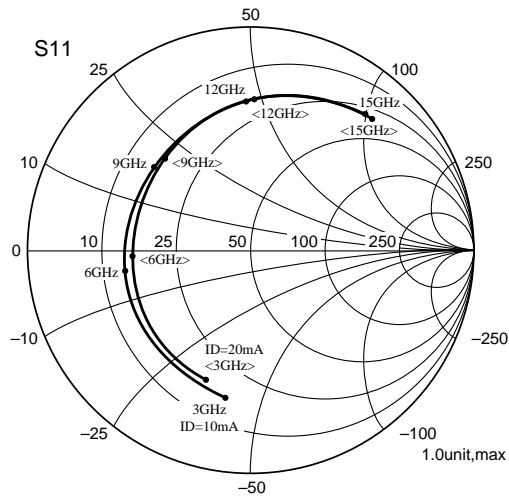
| Frequency<br>(MHz) | S11   |        | S21   |        | S12   |       | S22   |        |
|--------------------|-------|--------|-------|--------|-------|-------|-------|--------|
|                    | MAG   | ANG    | MAG   | ANG    | MAG   | ANG   | MAG   | ANG    |
| 3000.0000          | 0.680 | -98.6  | 3.086 | 93.5   | 0.131 | 27.6  | 0.556 | -68.8  |
| 4000.0000          | 0.621 | -123.5 | 2.750 | 72.2   | 0.130 | 16.3  | 0.480 | -85.8  |
| 5000.0000          | 0.584 | -147.0 | 2.445 | 51.8   | 0.128 | 8.1   | 0.418 | -102.7 |
| 6000.0000          | 0.564 | -168.7 | 2.175 | 32.6   | 0.128 | 2.7   | 0.372 | -120.5 |
| 7000.0000          | 0.561 | 171.7  | 1.943 | 14.4   | 0.133 | -1.3  | 0.343 | -140.0 |
| 8000.0000          | 0.570 | 153.6  | 1.747 | -2.9   | 0.141 | -5.5  | 0.332 | -161.5 |
| 9000.0000          | 0.590 | 136.8  | 1.579 | -19.6  | 0.152 | -10.4 | 0.339 | 175.7  |
| 10000.0000         | 0.616 | 120.9  | 1.431 | -35.9  | 0.166 | -16.1 | 0.364 | 153.2  |
| 11000.0000         | 0.648 | 105.7  | 1.297 | -51.8  | 0.183 | -22.7 | 0.403 | 131.8  |
| 12000.0000         | 0.684 | 91.1   | 1.174 | -67.3  | 0.203 | -30.6 | 0.454 | 112.2  |
| 13000.0000         | 0.724 | 77.1   | 1.059 | -82.4  | 0.225 | -39.9 | 0.511 | 94.1   |
| 14000.0000         | 0.765 | 63.5   | 0.951 | -97.1  | 0.247 | -50.6 | 0.570 | 77.0   |
| 15000.0000         | 0.805 | 50.1   | 0.847 | -111.4 | 0.266 | -62.2 | 0.627 | 60.6   |

Vds=3V, Ids=20mA  
SGF25

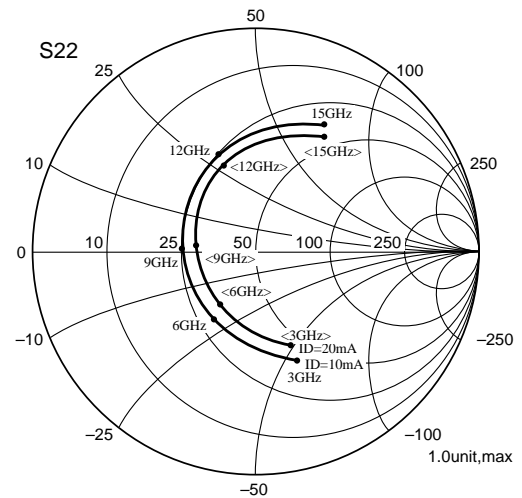
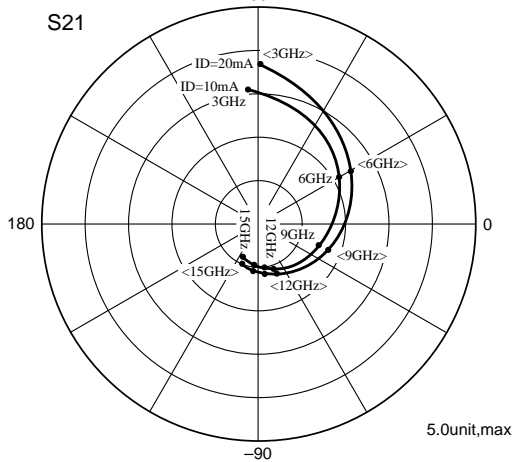
| Frequency<br>(MHz) | S11   |        | S21   |        | S12   |       | S22   |        |
|--------------------|-------|--------|-------|--------|-------|-------|-------|--------|
|                    | MAG   | ANG    | MAG   | ANG    | MAG   | ANG   | MAG   | ANG    |
| 3000.0000          | 0.626 | -107.6 | 3.654 | 89.5   | 0.112 | 30.7  | 0.465 | -71.1  |
| 4000.0000          | 0.576 | -132.7 | 3.187 | 68.6   | 0.113 | 22.4  | 0.395 | -87.4  |
| 5000.0000          | 0.548 | -155.9 | 2.779 | 49.0   | 0.116 | 16.9  | 0.340 | -103.7 |
| 6000.0000          | 0.539 | -176.8 | 2.435 | 30.6   | 0.123 | 12.8  | 0.301 | -121.4 |
| 7000.0000          | 0.544 | 164.5  | 2.153 | 13.2   | 0.134 | 8.3   | 0.278 | -141.5 |
| 8000.0000          | 0.561 | 147.3  | 1.924 | -3.3   | 0.149 | 2.6   | 0.272 | -164.0 |
| 9000.0000          | 0.586 | 131.3  | 1.735 | -19.3  | 0.165 | -4.4  | 0.283 | 172.2  |
| 10000.0000         | 0.616 | 116.0  | 1.573 | -35.0  | 0.182 | -12.1 | 0.312 | 149.1  |
| 11000.0000         | 0.650 | 101.4  | 1.428 | -50.4  | 0.200 | -20.5 | 0.355 | 127.9  |
| 12000.0000         | 0.688 | 87.5   | 1.297 | -65.5  | 0.220 | -29.7 | 0.409 | 108.8  |
| 13000.0000         | 0.728 | 74.0   | 1.176 | -80.4  | 0.240 | -40.0 | 0.469 | 91.2   |
| 14000.0000         | 0.771 | 60.8   | 1.063 | -95.0  | 0.259 | -51.2 | 0.530 | 74.7   |
| 15000.0000         | 0.812 | 47.9   | 0.955 | -109.4 | 0.276 | -63.0 | 0.589 | 58.8   |

# SGF25

## S-parameter



$V_{DS}=3V$   
 $I_D=10mA, 20mA$



< > :  $I_{ds}=20mA$

START 3 GHz  
STOP 15 GHz  
STEP 1 GHz

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