

DATA SHEET: CKRF8513MM34

12GHz Low Noise FET in Dual mold Plastic PKG



Features :

- Low noise figure and high associated gain
NF=0.46dB TYP., $G_a=12.6$ dB TYP.
@VDS=2V, ID=10mA, f=12GHz

Description :

- Low Noise and High Gain.
- Original Dual mold Plastic package.
- Stability improvement version.
- Low price version.
- IDSS=12mA typ. (@VGS=0V/VDS=2V)

Applications :

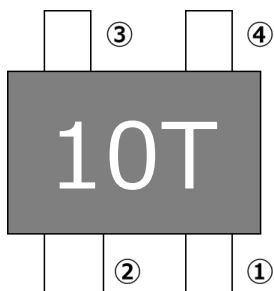
- Ku-band LNB(Low Noise Block)
*Suitable for 2nd and 3rd stage



Package :

- Flat-lead 4-pin thin-type super minimold package

PIN Configuration :



| PIN No. | PIN Name |
|---------|----------|
| 1 | Source |
| 2 | Drain |
| 3 | Source |
| 4 | Gate |

Ordering Information :

| Part Number | Order Number | Package | Marking | Supplying Form |
|-----------------|-----------------|--|---------|---|
| CKRF8513MM34-C2 | CKRF8513MM34-C2 | Flat-lead 4-pin thin-type super minimold package | 10T | <ul style="list-style-type: none"> • Embossed 8 mm wide • Pin 1 (Source), Pin 2 (Drain) • Face the perforation side of the Tape • Qty 15Kpcs/reel |

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Absolute Maximum Ratings :

| Parameter | Symbol | Rating | Unit |
|-------------------------|--------|----------------|------|
| Drain to Source Voltage | VDS | 4.0 | V |
| Gate to Source Voltage | VGS | -2.4 | V |
| Drain Current | ID | 23.0 | mA |
| Gate Current | IG | 80 | μA |
| Total Power Dissipation | Ptot | 125 | mW |
| Channel Temperature | Tch | +150 | °C |
| Storage Temperature | Tstg | -55 to +125 | °C |
| Operation temperature | Top | -55 to +125 *1 | °C |

*1 : Relationship of Ambient Temperature and Total Power Dissipation, please refer to the Page 3

Recommended Operating Range :

(TA=+25°C, unless otherwise specified)

| Parameter | Symbol | MIN. | TYP. | MAX. | Unit |
|--|--------|------|------|------|------|
| Drain to Source Voltage | VDS | +1 | +2 | +3 | V |
| Drain Current (ID constant circuit) | ID | 5 | 10 | 15 | mA |

Electrical Characteristics :

(TA=+25°C, unless otherwise specified)

| Parameter | Symbol | Condition | MIN. | TYP. | MAX. | Unit |
|--------------------------------|----------|-----------------------------|-------|-------|-------|------|
| Gate to Source Leak Current | IGSO | VGS=-3.0V | - | 0.40 | 10.0 | μA |
| Saturated Drain Current | IDSS | VDS=2V, VGS=0V | 4.8 | 12.0 | 23.0 | mA |
| Gate to Source Cut-off Voltage | VGS(off) | VDS=2V, ID=100μA | -0.67 | -0.35 | -0.09 | V |
| Transconductance | Gm | VDS=2V, ID=10mA | 53.0 | 68.0 | - | mS |
| Noise Figure | NF | VDS=2V, ID=10mA, f=12GHz | - | 0.46 | 0.66 | dB |
| Associated Gain | Ga | | 10.9 | 12.6 | - | dB |

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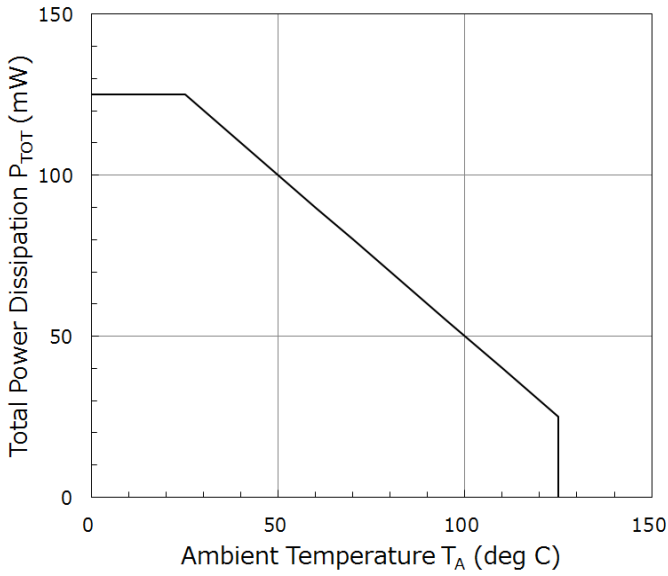


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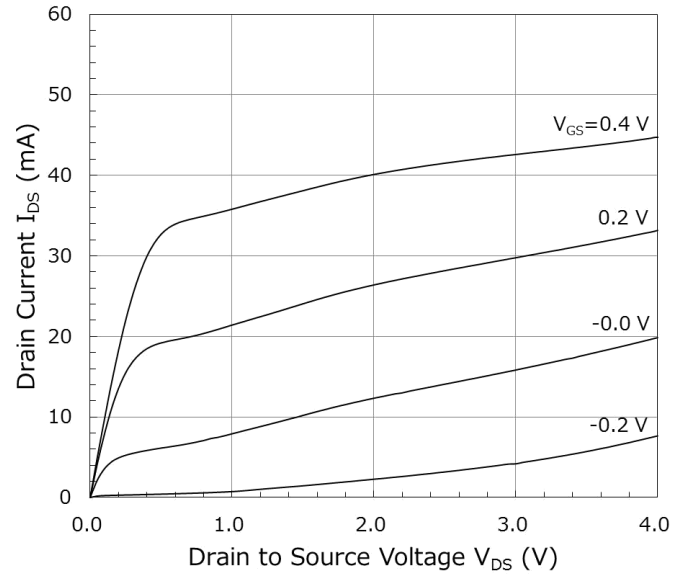
TYPICAL CHARACTERISTICS :

(TA=+25°C, unless otherwise specified)

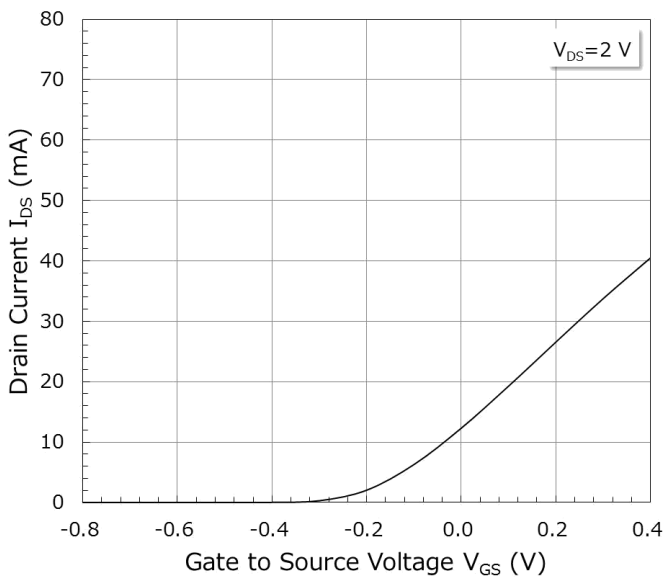
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



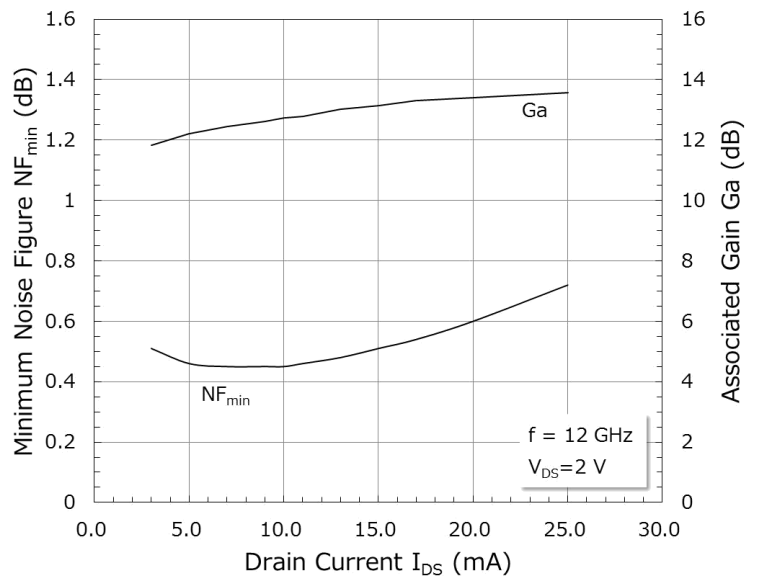
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



DRAIN CURRENT vs. GATE TO SOURCE VOLTAGE



MINIMUM NOISE FIGURE & ASSOCIATED GAIN vs. DRAIN CURRENT



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S-Parameters :

S-parameters/Noise parameters are provided on the CDK Web site.

[Original Products] → [Low Noise GaAsFET for LNB] → [Device Parameters]

URL <http://www.en.cdk.co.jp/products/highfrequency/rf/LNGaAsFET/LNB/index.html>

RF Measuring Layout Pattern :

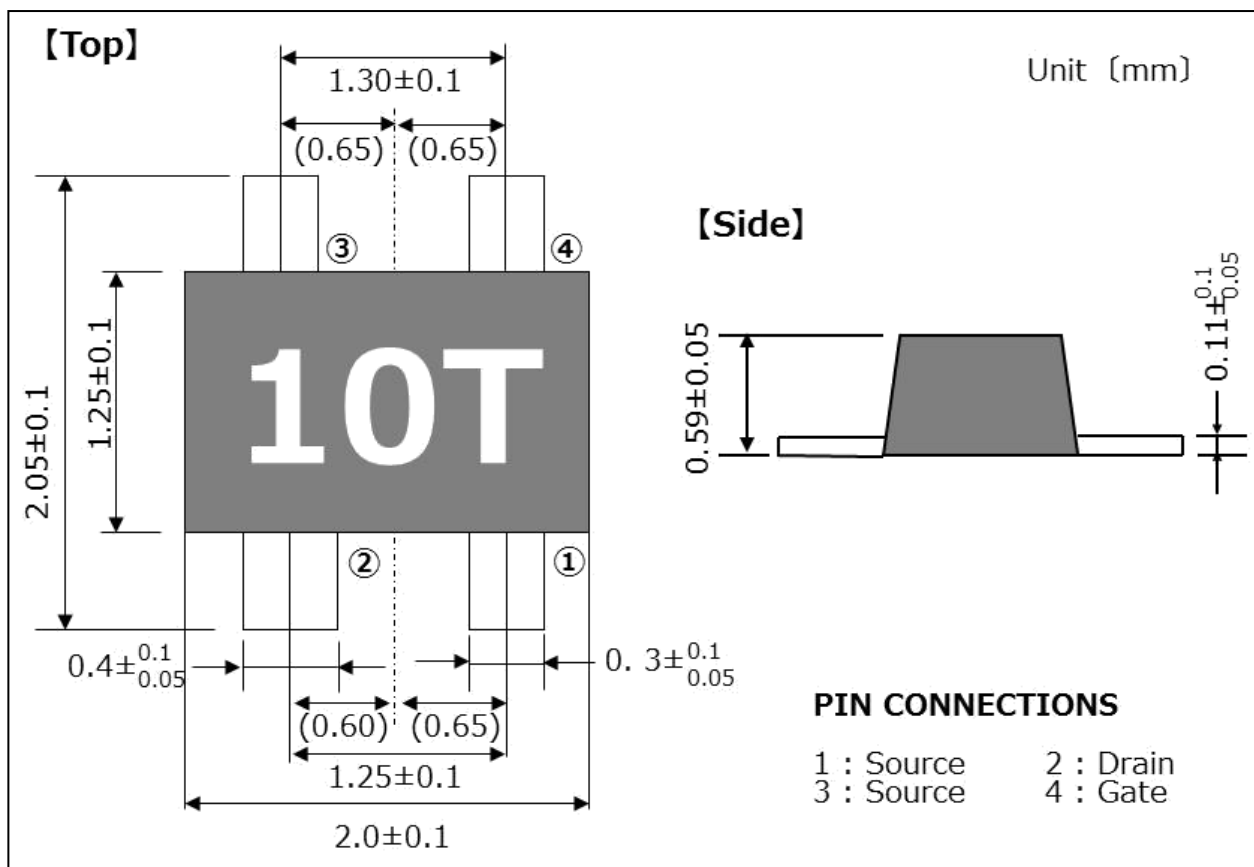
RF Measuring Layout Patterns are provided on the CDK Web site.

[Original Products] → [Low Noise GaAsFET for LNB] → [Design Support] →

[Evaluation Board Information]

URL <http://www.en.cdk.co.jp/products/highfrequency/rf/LNGaAsFET/LNB/designsupport/index.html>

Package Dimensions :



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Recommended Soldering Conditions :

Recommended Soldering Conditions are provided on the CDK Web site.

[Original Products] → [Low Noise GaAsFET for LNB] → [Design Support] → [others]

URL <http://www.en.cdk.co.jp/products/highfrequency/rf/LNGaAsFET/LNB/designsupport/index.html>

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[Caution in the gallium arsenide (GaAs) product handling]

This product uses gallium arsenide (GaAs) of the toxic substance appointed in laws and ordinances. GaAs vapor and powder are hazardous to human health if inhaled or ingested.

- Do not dispose in fire or break up this product.
- Do not chemically make gas or powder with this product.
- When discard this product, please obey the law of your country.
- Do not lick the product or in any way allow it to enter the mouth.

[CAUTION]

Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without detection. Industry-standard ESD precautions should be used at all times.

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