

12 GHz Super Low Noise FET in Hollow Plastic PKG

DESCRIPTION

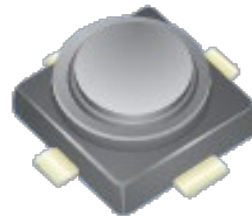
- Super Low Noise and High Gain
- Hollow (Air Cavity) Plastic package

FEATURES

- Super Low noise figure and high associated gain:
NF = 0.30 dB TYP., Ga = 13.7 dB TYP.
@V_{ds} = 2 V, I_D = 10 mA, f = 12 GHz

PACKAGE

- Micro-X plastic package



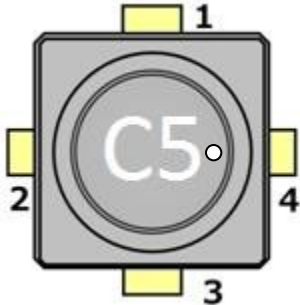
APPLICATIONS

- KU Band LNB (Low Noise Block)
Suitable for 1st Stage

ORDERING INFORMATION

| Part Number | Order Number | Package | Marking | Description |
|-------------|--------------|-------------------------|---------|--|
| CE3512K2 | CE3512K2-C1 | Micro-X plastic package | C5 | <ul style="list-style-type: none"> • Embossed tape 8 mm wide • Pin 4 (Gate) faces the perforation side of the tape • MOQ 10 kpcs/reel |

PIN CONFIGURATION AND INTERNAL BLOCK DIAGRAM



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

ABSOLUTE MAXIMUM RATINGS

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

| Parameter | Symbol | Rating | Unit |
|-------------------------|-----------|-----------------------------|---------|
| Drain to Source Voltage | V_{DS} | 4.0 | V |
| Gate to Source Voltage | V_{GS} | -3.0 | V |
| Drain Current | I_D | I_{DSS} | mA |
| Gate Current | I_G | 80 | μ A |
| Total Power Dissipation | P_{tot} | 125 | mW |
| Channel Temperature | T_{ch} | +150 | °C |
| Storage Temperature | T_{stg} | -55 to +125 | °C |
| Operation Temperature | T_{op} | -55 to +125 ^{Note} | °C |

Note Refer to Total Power Dissipation vs. Ambient Temperature graph on page 4

RECOMMENDED OPERATING RANGE

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

| Parameter | Symbol | MIN. | TYP. | MAX. | Unit |
|-------------------------|----------|------|------|------|------|
| Drain to Source Voltage | V_{DS} | +1 | +2 | +3 | V |
| Drain Current | I_D | 5 | 10 | 15 | mA |

ELECTRICAL CHARACTERISTICS

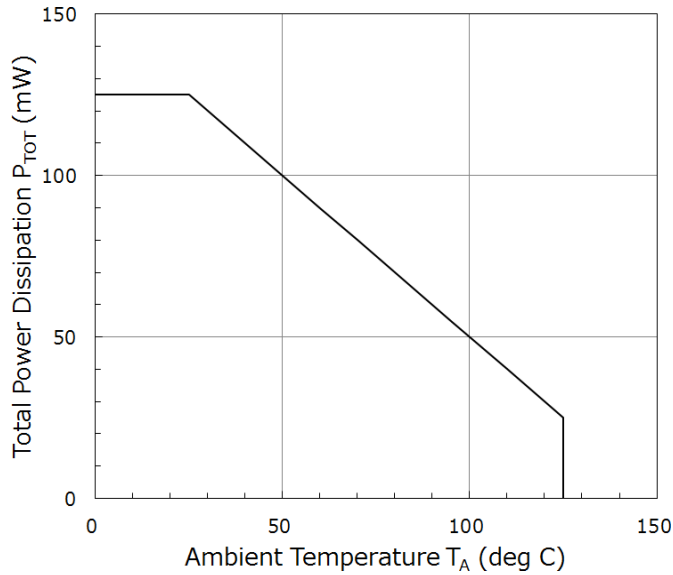
(TA = +25°C, unless otherwise specified)

| Parameter | Symbol | Condition | MIN. | TYP. | MAX. | Unit |
|--------------------------------|---------------|---|-------|-------|-------|---------|
| Gate to Source Leak Current | I_{GSO} | $V_{GS} = -3.0V$ | - | 0.4 | 10 | μA |
| Saturated Drain Current | I_{DSS} | $V_{DS} = 2V, V_{GS} = 0V$ | 27 | 47.5 | 68 | mA |
| Gate to Source Cut-off Voltage | $V_{GS(off)}$ | $V_{DS} = 2V, I_D = 120\mu A$ | -1.10 | -0.75 | -0.39 | V |
| Transconductance | Gm | $V_{DS} = 2V, I_D = 10mA$ | 54 | 69 | - | mS |
| Noise Figure | NF | $V_{DS} = 2V, I_D = 10mA,$ $f = 12GHz$ | - | 0.30 | 0.50 | dB |
| Associated Gain | Ga | | 12.5 | 13.7 | - | dB |

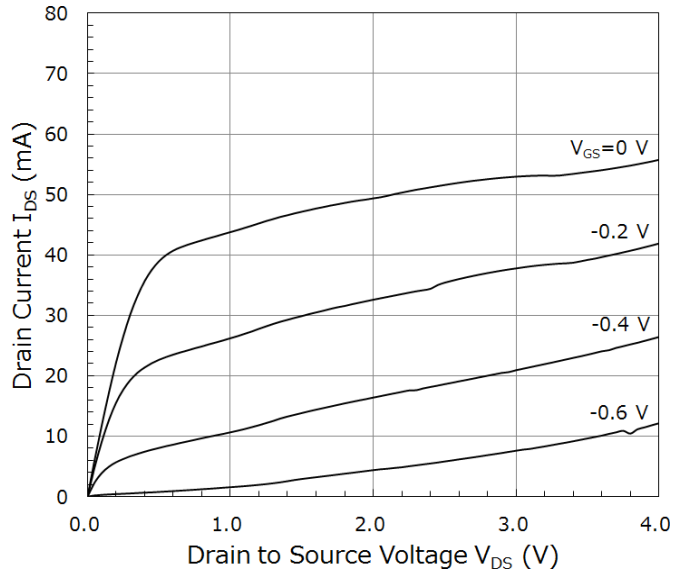
TYPICAL CHARACTERISTICS :

($T_A=+25^{\circ}\text{C}$, unless otherwise specified)

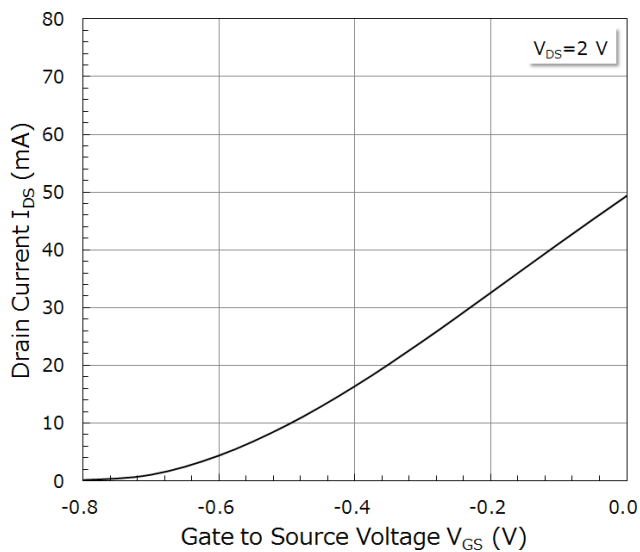
**TOTAL POWER DISSIPATION
VS. AMBIENT TEMPERATURE**



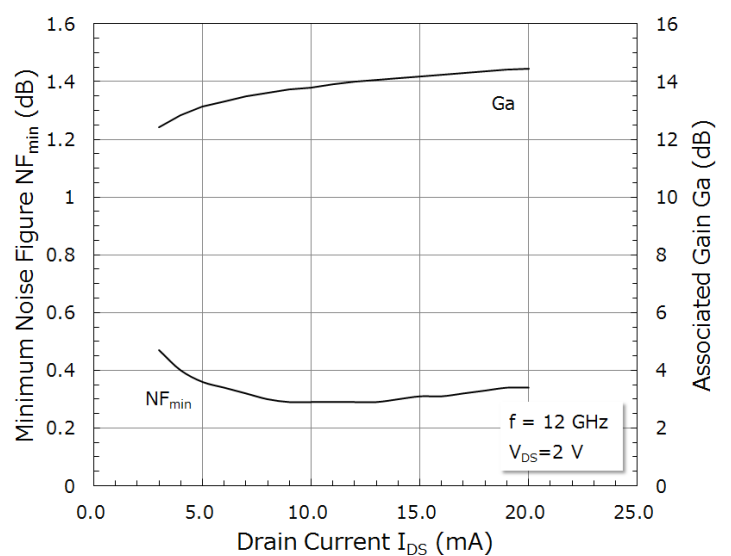
**DRAIN CURRENT VS.
DRAIN TO SOURCE VOLTAGE**



**DRAIN CURRENT VS.
GATE TO SOURCE VOLTAGE**



**MINIMUM NOISE FIGURE &
ASSOCIATED GAIN VS. DRAIN CURRENT**



S-PARAMETERS

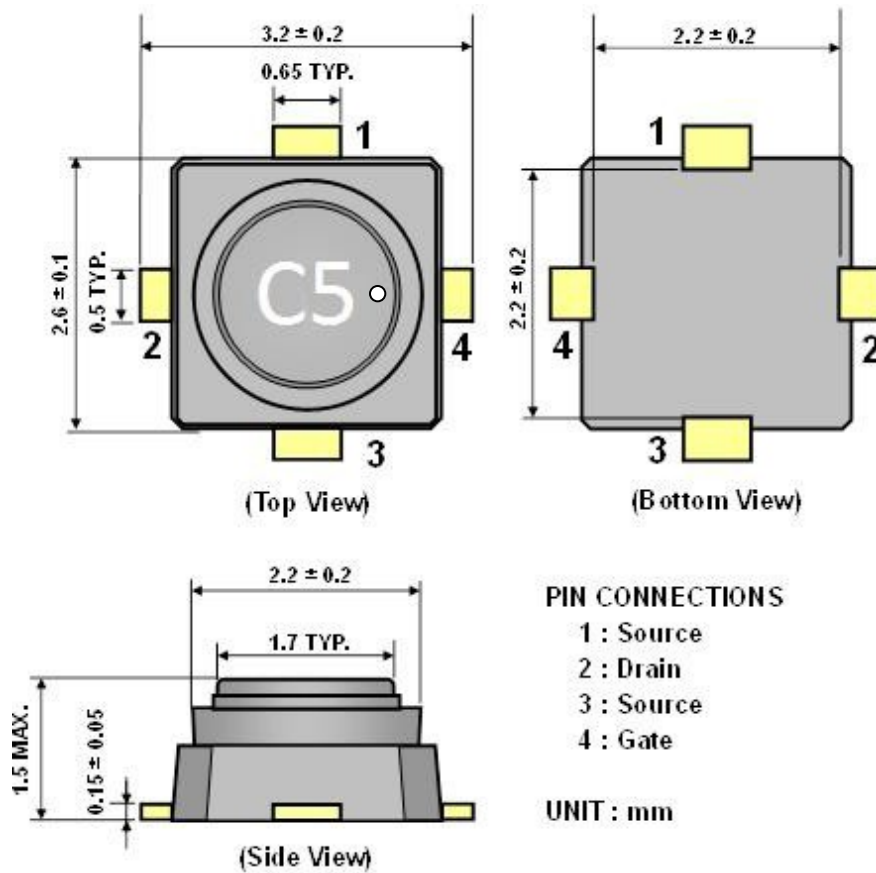
S-Parameters are available on CEL's [Part Summary page](#) under S-parameters

RECOMMENDED SOLDERING CONDITIONS

Recommended Soldering Conditions are available on CEL's [Part Summary page](#) under Associated Documents

PACKAGE DIMENSIONS

Micro-X plastic package



REVISION HISTORY

| Version | Change to current version | Page(s) |
|--|---|---------|
| CDS-0018-04 (Issue A) February 12, 2016 | Initial datasheet | N/A |
| CDS-0018-04 (Issue B) April 27, 2016 | Updated Marking Information | 1, 2, 3 |
| CDS-0018-05 (Issue A) July 29, 2016 | Updated Specs in "Absolute Maximum Ratings" Table Added "Typical Characteristics" section (graphs) Added "S-Parameters" and "Recommended Soldering Conditions" sections | 2, 4, 5 |
| CDS-0018-05 (Issue B) Nov 29, 2018 | Updated Applications Updated marking by adding a dot to the package Gate | 1, 2, 5 |

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