CEL

RF Low Noise FET

CE3512K2

12 GHz Super Low Noise FET in Hollow Plastic PKG

DESCRIPTION

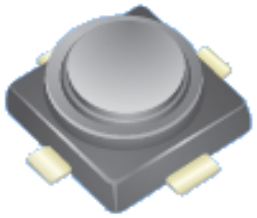
- Super Low Noise and High Gain
- Hollow (Air Cavity) Plastic package

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



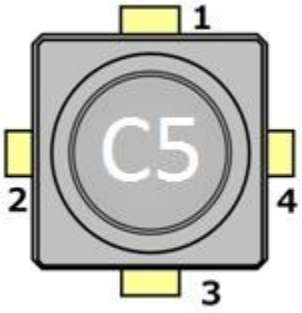
APPLICATIONS

- DBS LNB gain-stage, Mix-stage
- Low noise amplifier for microwave communication systems

ORDERING INFORMATION

Part Number	Order Number	Package	Marking	Description
CE3512K2	CE3512K2-C1	Micro-X plastic package	C5	• 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

(T_A = +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	µA
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

(T_A = +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

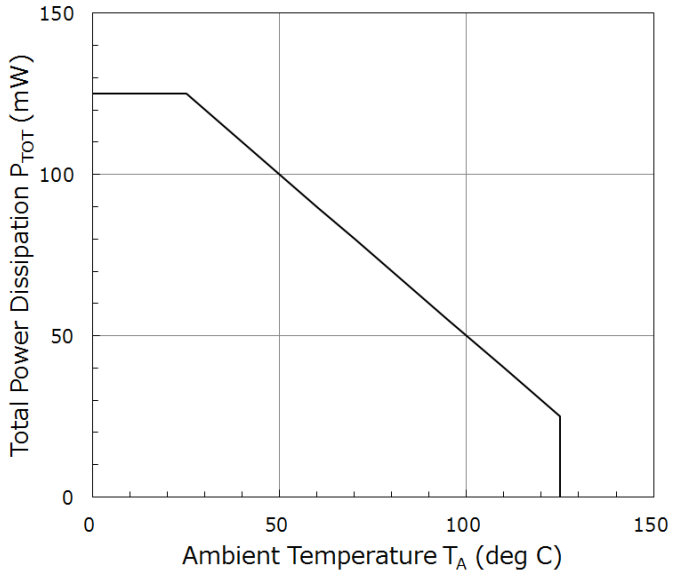
(T_A = +25˚C, unless otherwise specified)

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 = 120µA	-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

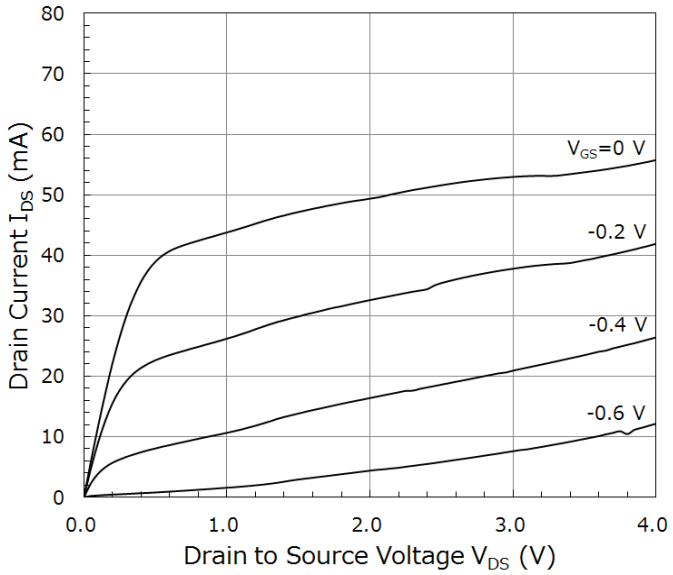
TYPICAL CHARACTERISTICS :

(TA=+25℃, unless otherwise specified)

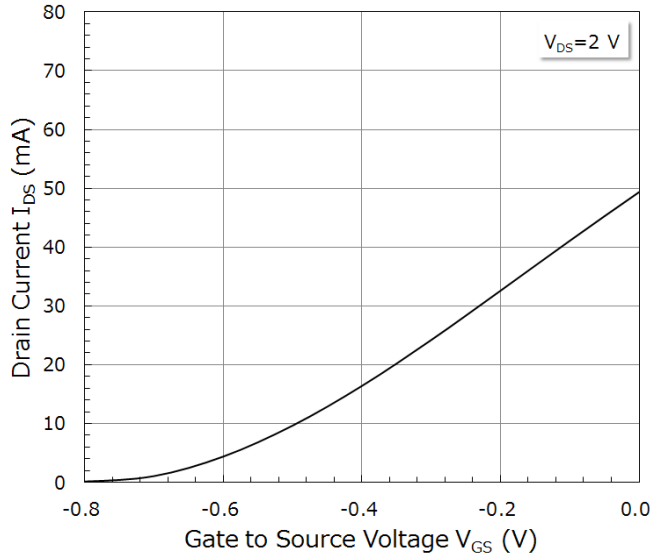
TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE



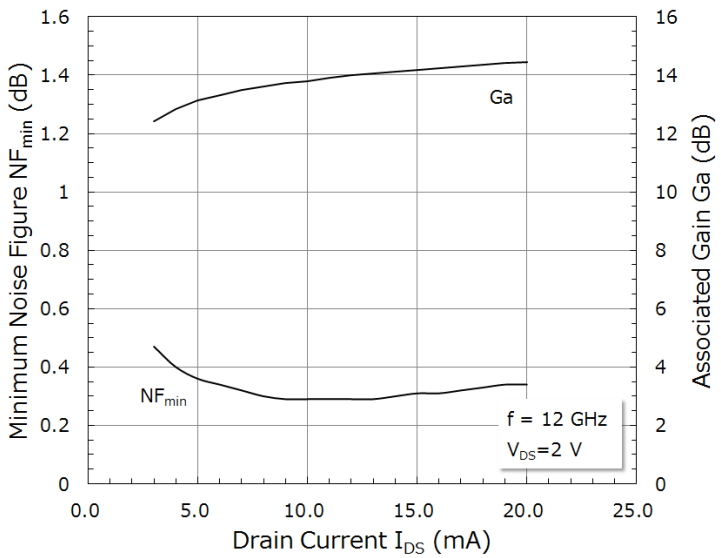
DRAIN CURRENT VS. DRAIN TO SOURCE VOLTAGE



DRAIN CURRENT VS. GATE TO SOURCE VOLTAGE



MINIMUM NOISE FIGURE & ASSOCIATED GAIN VS. DRAIN CURRENT



S-PARAMETERS

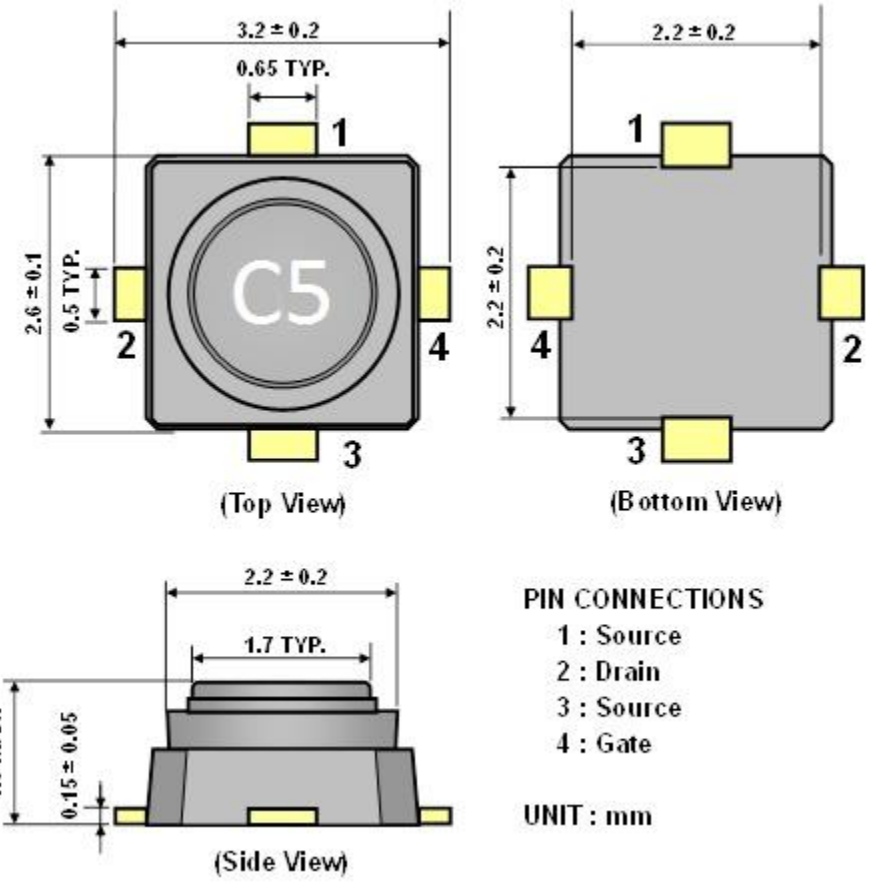
S-Parameters are available on the CEL web site.

RECOMMENDED SOLDERING CONDITIONS

Recommended Soldering Conditions are provided on th CEL web site

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

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