

# EMM5206LP

## K Band Oscillator MMIC

### FEATURES

- High Output Power : Pout=5dBm @Vdd=4V (typ.)
- Low Power Consumption : Idd=20mA @Vdd=4V (typ.)
- Low Phase Noise :  $\Phi_n = -100\text{dBc/Hz}$  @100KHz offset, fosc=24GHz
- Low Spurious Level : RJ2nd < -40dBc
- High Reliability, High Breakdown Voltage : Vgdo=20V, Igdo=160uA



### DESCRIPTION

The ES/EMM5206LP is a negative resistance MMIC designed for K-band doppler sensor application as an oscillator. This product is well suited for radiowave sensor and LMDS applications.

Eudyna's stringent Quality Assurance Program assures the highest reliability and consistent performance.

### ABSOLUTE MAXIMUM RATING

Item	Symbol	Rating	Unit
DC Drain Voltage	Vdd	6	V
Storage Temperature	Tstg	-55 to +125	°C
Operating Case Temperature	Tc	-40 to +85	°C

### RECOMMENDED OPERATING CONDITIONS

Item	Symbol	Condition	Unit
DC Drain Voltage	Vdd	4	V
DC Gate Voltage	Vgg	0	V

Recommended operating conditions provide typical electrical characteristics and high reliability.

### ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

Item	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Oscillation frequency	fosc	Vdd=+4.0V typ. Vgg=0V(GND) fosc=24.0GHz	15	-	24.5	GHz
Output Power	Pout		-	5	-	dBm
Phase Noise at 100KHz offset	$\Phi_n$		-	-100	-	dBc
Drain Current	Idd		-	20	-	mA
2nd Harmonic Rejection	RJ2nd		-	-40	-	dBc
Pushing	$\Delta f_v$		-	5.7	-	MHz/V
Temperature Sencitivity	$\Delta f_t$		-	0.2	-	MHz/°C

ESD	Class 1	200 ~ 499V
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Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5k $\Omega$ )

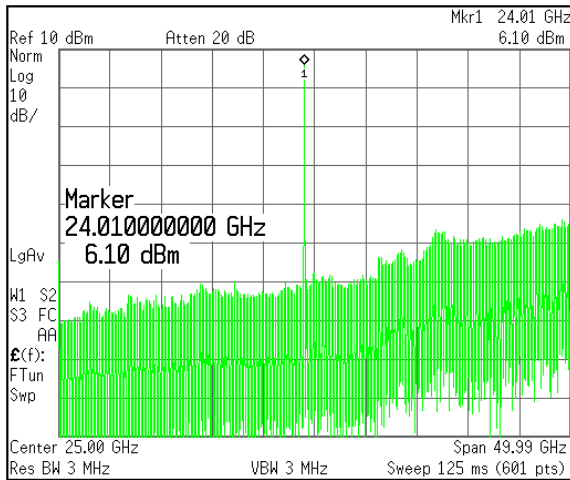
CASE STYLE	LP
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## K Band Oscillator MMIC

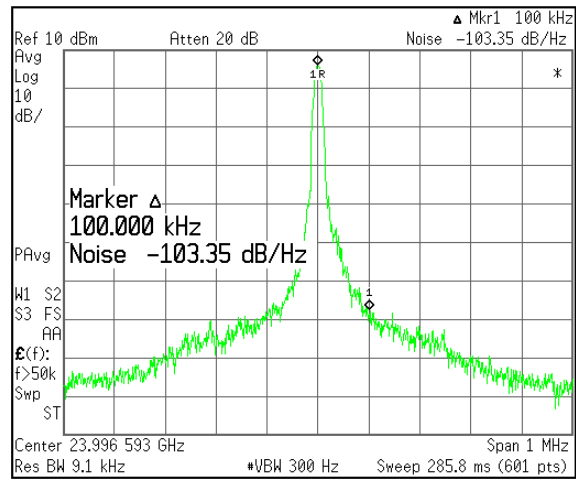
### Oscillation Spectrum

Vdd=4V, Vgg=0V, Idd=21mA



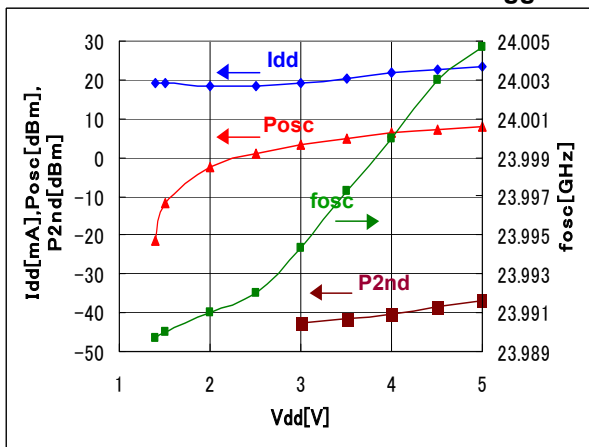
### Phase Noise

fosc=24GHz, offset=100KHz



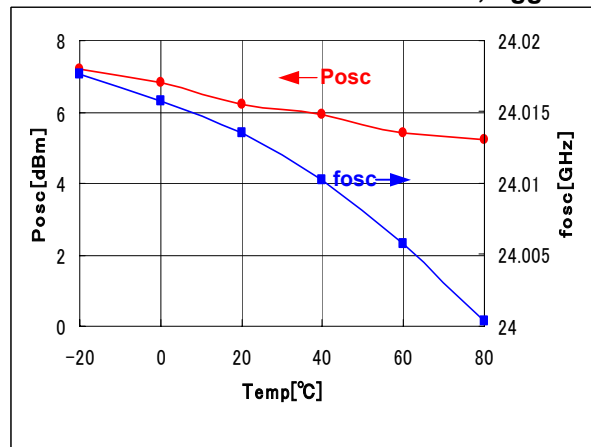
### Idd, Posc, P2nd, fosc vs. Vdd

Vgg=0V



### Posc, fosc vs. Temperature

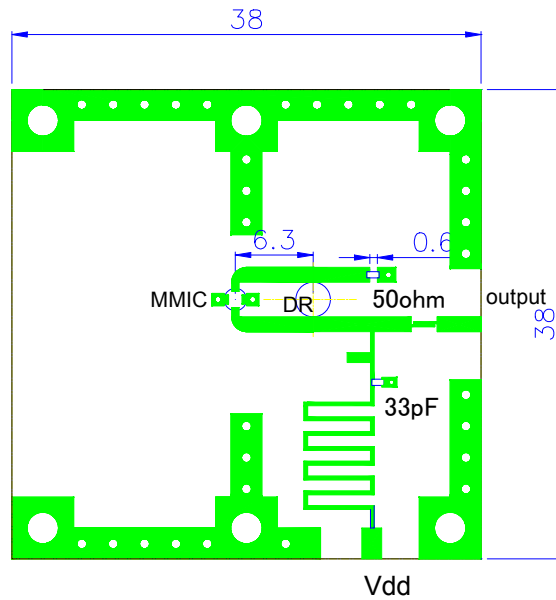
Vdd=4V, Vgg=0V



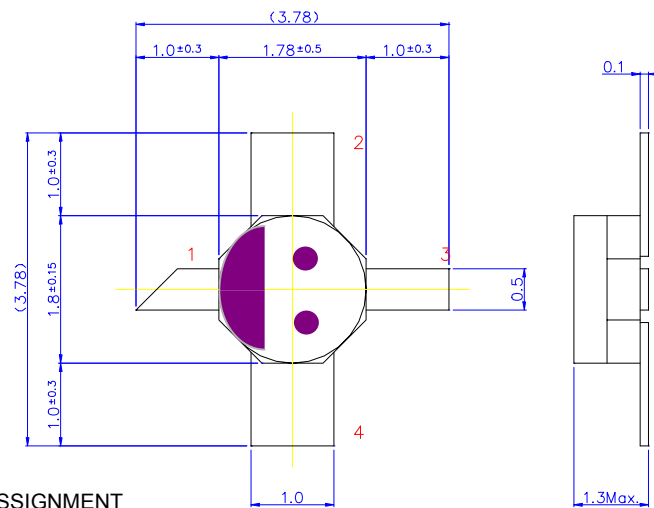
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■ Board Layout ( Substrate : RO4003C,  $\epsilon_r=3.38$ ,  $t=0.5\text{mm}$   
DR : DRD02600115R00Z00T )



## ■ Package Outline



### PIN ASSIGNMENT

- 1: VGG
- 2: GND
- 3: VDD
- 4: GND

Unit: mm

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## K Band Oscillator MMIC

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