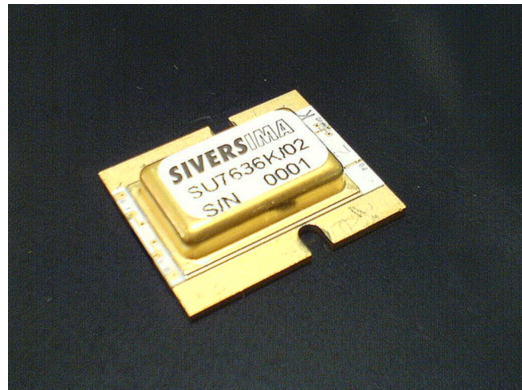


# FMCW Transceiver

# SU7636K/02

## Description:

SU7636K/02 is a high performance FMCW transceiver for operation on K-band, 24.0 GHz to 25.5 GHz. The transceiver consists of a highly linear VCO followed by a buffer amplifier, a frequency doubler and a reflectometer with a common RF-input/output terminal and a DC-coupled IF-output terminal. SU7636K/02 is based on well-proven thin film concepts thus offering hermeticity, excellent reliability and small size.



## Definitions and Conditions

Definitions:  $V_1$  is the tuning voltage that gives 24.0 GHz RF at 10.0 V bias and at 25 °C  
 $V_2$  is the tuning voltage that gives 25.5 GHz RF at 10.0 V bias and at 25 °C

Conditions:

Parameter	Min.	Max.	Unit
Tuning Voltage, $V_{\text{tune}}$ *	$V_1$	$V_2$	V
RF bandwidth @ 25 °C**		1500	MHz
Sweep time	1		$\mu$ s
IF -1 dB bandwidth (IF kept below)	40		MHz
IF external load		50	$\Omega$
Bias voltage (kept constant)*	9.8	10.2	V
Operational temperature	-40	+85	°C
Storage temperature	-50	+100	°C

**Notes:** \*In order to avoid degraded performance due to noise on supply lines sufficient decoupling should be provided.  
 \*\*Stated for clarity. (The definitions of  $V_1$  and  $V_2$  and the restriction of  $V_{\text{tune}}$  limits the RF bandwidth.)

## Specifications

The following specifications are valid under the conditions stated above.

Parameter	Min.	Typ.	Max.	Unit
RF bandwidth, $V_1$ to $V_2$ *	1470	1500	1530	MHz
Non-linearity, deviation from BFSL*		35	75	MHz
RF output power, over all*	0		5	dBm
RF output power variation over sweep*		1	2	dB
RF SSB phase noise @ 1 MHz from carrier*		-103	-95	dBc/Hz
RF to IF conversion loss*		16	17	dB
RF fractional harmonic power $N \times f_{\text{RF}}/2$ , $N=1, 3$ *		-25	-20	dBc
Output return loss	9	12		dB
Spurious			-60	dBc
Pushing			100	MHz/V
Tuning sensitivity*	150		500	MHz/V
Tuning voltage range, $V_1$ & $V_2$ *	0.5		10	V
Tuning current			1	mA
Bias current*		70	90	mA
Hermeticity (fine and gross leak tested)*		$< 0.5 \times 10^{-7}$	$3 \times 10^{-7}$	atm $\text{cm}^3/\text{s}$

**Note:** \*Tested and guaranteed values. Other data are indicative.

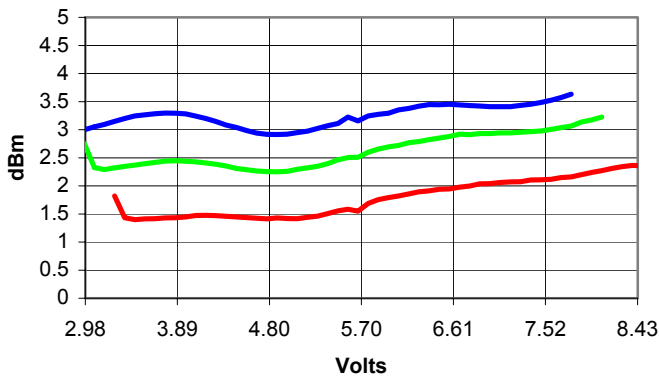
Data subject to change without notice.  
 Rev. B 2006-01-16

# FMCW Transceiver

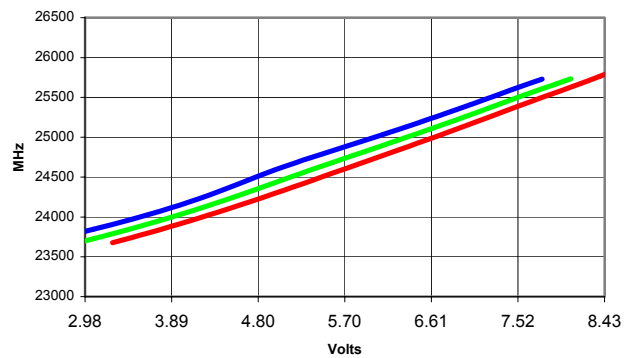
# SU7636K/02

## Typical Performances

**RF output power vs.  $V_{tune}$**

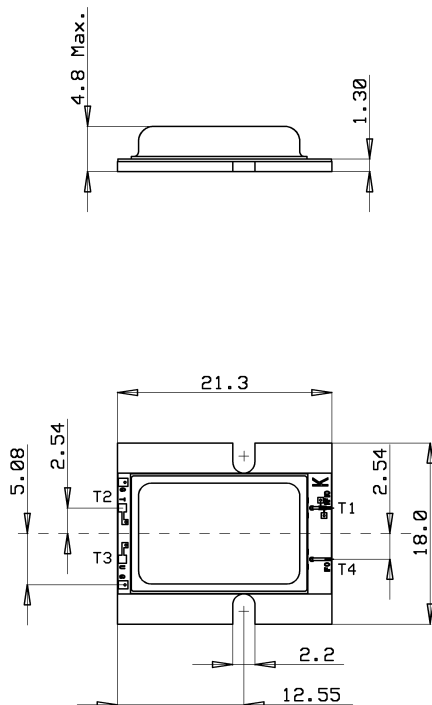


**RF frequency vs.  $V_{tune}$**

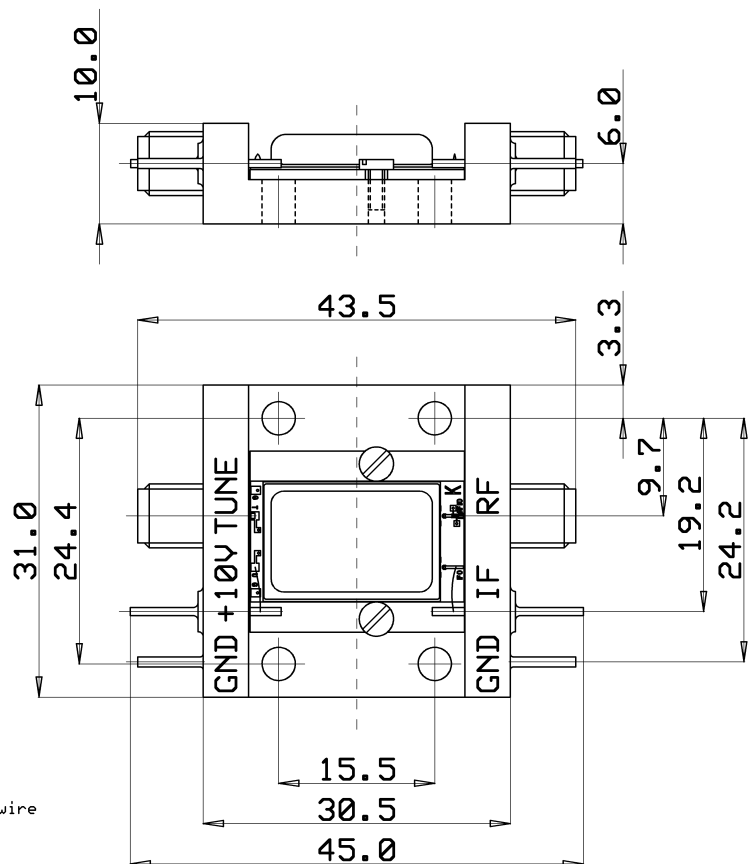


## Drawings (dimensions in mm)

**Drop in (connected by wire bonding)**



**Optional SMA-adapter**



**Recommended Mounting:**  
 Screw Holes: 2 x M1.6, 15.4 mm separation  
 Bonding: All terminals incl. GND, 25 um Au-wire  
 T1: 2 Au-wires, kept short

Data subject to change without notice.  
 Rev. B 2006-01-16