

endrich news

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Our Product of the Month

SiT1532/ SiT1552/ SiT1630 – 32 kHz MEMS-Oscillators

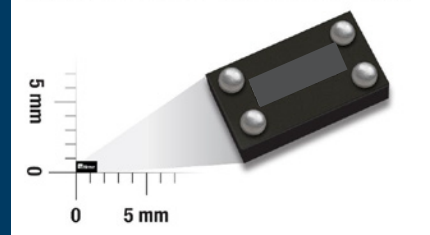
80% Smaller Size

Ultra low Power <1 μ A

Most Accurate ± 5 PPM

Drives Multiple Loads

Smallest 32 kHz in CSP

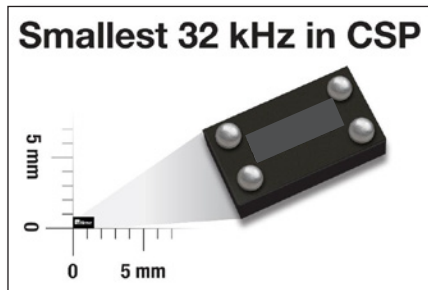


- World's smallest footprint: 1.5 mm \times 0.8 mm CSP
- Ultra low power consumption: < 1 μ A
- Best frequency stability
- NanoDrive™ output option
- Extend battery life, save board space, reduce BOM

SiTime™

MEMS Field Programmable Oscillators

32 KHZ MEMS OSCILLATORS – SIT1532, SIT1552, SIT1630



80% smaller size

Ultra-low Power <1 μ A

Most accurate ± 5 ppm

Drives multiple loads

SiTime's SiT15xx family is the first MEMS based kHz oscillators designed for mobile and wearable electronics such as handsets, tablets, activity trackers, smart watches, GPS modules and Internet of Things (IoT).

Compared to legacy quartz products, SiTime's SiT15xx family in the CSP is up to 80% smaller with a 1.2 mm² total footprint.

APPLICATIONS

- » Mobile Phones
- Tablets
- Fitness bands
- Health and medical monitoring
- Wearables
- Portable audio
- Sport video cams
- Active stylus
- IoT devices
- Environmental sensors

FEATURES

- » World's smallest footprint: 1.5 mm \times 0.8 mm CSP
 - no load caps
 - no Vdd Bypass caps
- » Ultra low power consumption: <1 μ A
- » Best frequency stability:
 - ± 5 ppm over temp (SiT1552 TXCO)
 - 75 to 100 ppm over temp (SiT1532/SiT1630)
 - 5 to 10 ppm initial tolerance (SiT1552/SiT1532)
- » NanoDrive™-output option:
 - Minimizes output power
 - Directly interfaces to XTAL OSC input
- » XTAL-replacement in 2,0 mm \times 1,2 mm SMD
- » Shock and drop resistance 10 kg

SPECIFICATIONS

DEVICE	FREQUENCY	TEMPERATURE RANGE [°C]	STABILITY [ppm]	DIMENSIONS [mm]	SUPPLY VOLTAGE [V]
32 kHz μPower Oscillators for Crystal Replacement					
SiT1532	32.768 kHz	-10 to 70 -40 to 85	10, 20 (room) 75, 100 (over temp)	1.5 x 0.8	1.2 to 3.63
SiT1552 TXCO	32.768 kHz	0 to 70 -40 to 85	$\pm 5, \pm 10, \pm 20$ (over temp)	1.5 x 0.8	1.5 to 3.63
32 kHz μPower Oscillators					
SiT1630	32.768 kHz	0 to 70 -40 to 85 or -40 to 105	20 (room) 100 (over temp)	2.1 x 1.2	1.5 to 3.63

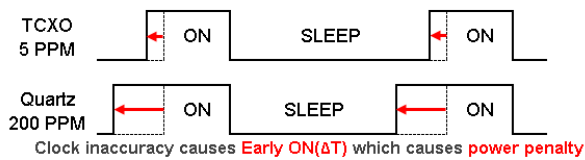
32 KHZ MEMS OSCILLATORS – SIT1532, SIT1552, SIT1630

BENEFITS

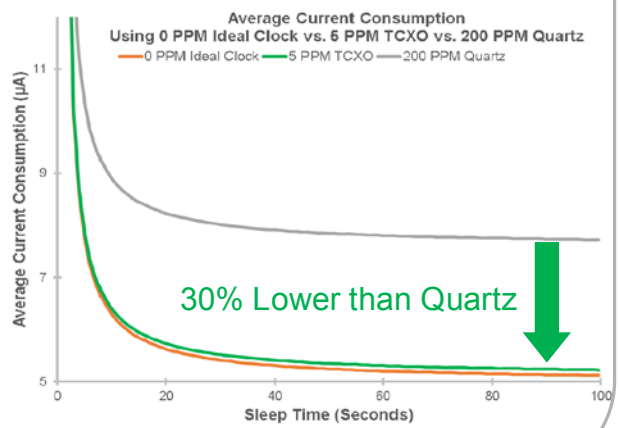
- » Extend battery life
- » Save board space
- » Reduce BOM

COMPARISON – 32 kHz MEMS OSCILLATORS TO QUARTZ-PRODUCTS

±5 PPM Accurate Clock Saves 30% BLE Power



32kHz Sleep Clock Accurate Over Temp	2 second Sleep Time	20 second Sleep Time	50 second Sleep Time
	ON-Time Error Budget (ΔT)		
SIT1552 TCXO 5 ppm	0.01 ms	0.1 ms	0.25 ms
32kHz XTAL 200 ppm	0.4 ms	4.0 ms	10.0 ms



80% Smaller Footprint

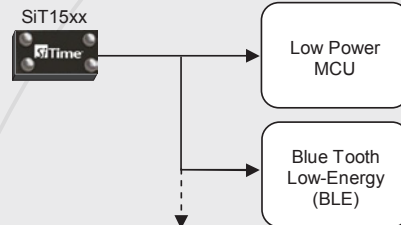
SIT1532 XO
SIT1552 TCXO

1.5 mm x 0.8 mm
1.2 mm² total footprint

32k Hz XTAL Resonator

2.0 x 1.2 mm + load caps
5.5 mm total footprint

Reduce BOM - Drives Multiple Loads



HYBRID CONDUCTIVE POLYMER CAPACITOR FOR 150°C HIGH TEMPERATURE



SUNCON expanded its hybrid capacitors portfolio to another series. The new HVJ series is characterized by the temperature tolerance up to 150 °C for 1000 hours. It also has all the outstanding features of the hybrid technology.

FEATURES

- » suitable for applications at high temperatures of 150 °C, 1000 hours
- » small ESR
- » high Ripple compatibility
- » No significant ESR changes over the entire temperature range
- » extreme reliability
- » RoHS compliant, AECQ200 compliant
- » meets TS 16949 standard

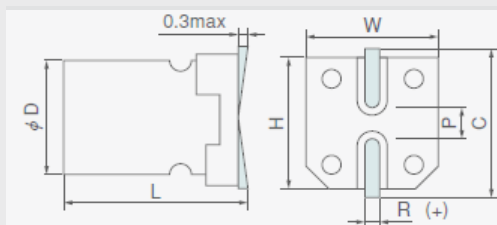
MODEL NUMBER

35	HV	J	100	M
				Capacitance tolerance
				Rated capacitance code
				Series code
				Type code
				Rated voltage

SPECIFICATIONS

Rated voltage (V)	—	25	35
Surge voltage (V)	Room temperature	32	44
Category temperature range (°C)	—	-40 to +150	
Capacitance tolerance (%)	120Hz/20°C	M: ±20	
Dissipation Factor (tanδ)	tanδ (max) 120Hz/20°C	0.16	0.16
Leakage current (LC)	μ A/after 2minutes (max)	The greater value of either 0.01CV or 3	
Endurance	150°C rated voltage applied (With the rated ripple current)	Test	1,000hrs.
		Δ C/C	Within ±30% of the initial value
		tanδ	≤ 2 times the initial specified value
		ESR	≤ 2 times the initial specified value
		LC	≤ The initial specified value

DIMENSIONS (mm)



A pressure relief vent is attached to products over $\phi D=8$

D +0.5MAX.	L ±0.3	W ±0.2	H ±0.2	C ±0.2	R	(P)
8	10.5	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.5	10.3	10.3	11.0	1.0 to 1.4	4.6
10	12.5	10.3	10.3	11.0	1.0 to 1.4	4.6

CASE SIZE, ESR, RIPPLE CURRENT

μF \ V	25	35
100		8 × 10.5 30 710
150	8 × 10.5 27 740	10 × 10.5 23 830
220	10 × 10.5 22 850	10 × 12.5 17 950
270	10 × 10.5 22 850	
330	10 × 12.5 16 970	

Bechgröße
ø × L [mm]

Ripple-Strom [mA]
(100kHz, 150°C)

ESR [mΩ]
max. @ 100kHz, 20°C



NEW LOW INPUT CURRENT PHOTOTRANSISTOR OPTOCOUPLER – CT816L



CT Micro's new low input current phototransistor optocoupler CT816L offers the best-in-class electro-optical features for improving system performance & reliability.

When we look around the gadgets that we are using on a daily basis, we can't ignore the fact that we are actually dwelling in a world that is hungry with growing needs for more power consumption. The key challenge for a designer now is to cope with this fact and try to fight it with newer innovative power efficient solution.

CT Micro is doing our part in conserving energy as well as to ease some of the pressure from a designer by introducing a new family of low input driving current phototransistor optocouplers of 1mA and below. These new CT816L series comprise of 4 tightly binned current-transfer-ratio (CTR) devices which guarantee its performance over low input driving current of 1mA and 0.5mA. As a comparison, most similar class optocouplers offer input driving current of 5mA or above. Nowadays, this 5mA test specification definitely cannot fit well in most of the newer design seen in the field. With this obsolete specification, a designer will now face challenge, by having to ensure that they design will work around this shortfall.

Here are some of the important advantages of CT816L device to be considered:

- » A guaranteed multiple CTR bin selections at test conditions of $I_F=1\text{mA}/V_{CE}=0.5\text{V}$ & $I_F=0.5\text{mA}/V_{CE}=1.5\text{V}$, for increased design flexibility & overall system performance as well as efficiency
- » Patented Double-Molded Coplanar(DMC) design which offers top-of-the-class high isolation voltage performance and overall package robustness
- » Higher operating temperature (110°C vs. 100°C) to improve overall high temperature reliability
- » 100% Pb-free & RoHS compliant with optional on Halogen Free selection to meet all green environmental initiative

FEATURES

- » High CTR flexibility at low input current
- » High isolation $5000 V_{RMS}$
- » DC-input with transistor output
- » External creepage: $\geq 7.5\text{mm}$ (S/SL Type)
- » External creepage: $\geq 8.0\text{mm}$ (SLM Type)
- » Operating temperature: $-55^\circ\text{C} \dots +110^\circ\text{C}$
- » Regulatory approvals: UL - UL1577 (E364000), VDE – EN60747-5-5 (VDE0884-5), CQC – GB4943.1, GB8898, IEC60065, IEC60950

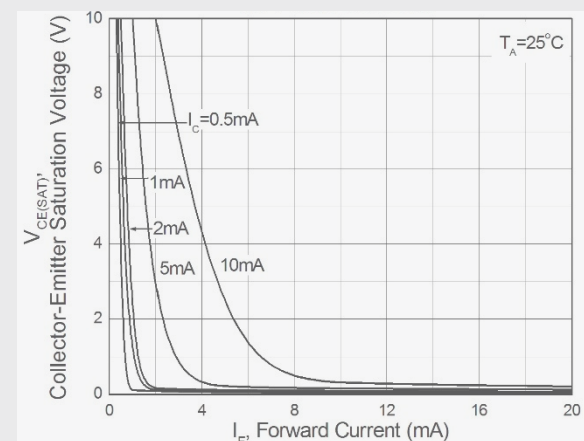
APPLICATIONS

- » Switch mode power supplies
- » Computer peripheral interface
- » Microprocessor system interface

ELECTRO-OPTICAL CHARACTERISTICS

- » **Collector-Emitter Breakdown Voltage:** min. 80V
- » **Current Transfer Ratio (CTR),**
Test conditions: $I_F=1\text{mA}$, $V_{CE}=0.5\text{V}$
 - CT816L2: min. 63 % / max. 125 %
 - CT816L3: min. 100 % / max. 200 %
 - CT816L4: min. 160 % / max. 320 %
 - CT816L5: min. 250 % / max. 500 %
- » **Collector-Emitter Saturation Voltage ($V_{CE(SAT)}$)**
 - CT816L2: typ. 0.2V / max. 0.4V (@ $I_F=1\text{mA}$, $I_C=0.32\text{mA}$)
 - CT816L3: typ. 0.2V / max. 0.4V (@ $I_F=1\text{mA}$, $I_C=0.50\text{mA}$)
 - CT816L4: typ. 0.2V / max. 0.4V (@ $I_F=1\text{mA}$, $I_C=0.80\text{mA}$)
 - CT816L5: typ. 0.2V / max. 0.4V (@ $I_F=1\text{mA}$, $I_C=1.25\text{mA}$)

CHARACTERISTICS – $V_{CE(SAT)}$ vs. I_F



LOUDSPEAKERS WITH IP67-RATING (WATERPROOF)



Increased number of inquiries for so-called 'waterproof loudspeakers' has led to the development of new types. The point was to realize robust, weatherproof communication units, for example doorphones and videophones, also for mobile devices usable in outdoor environment. That's why we introduce to our program two IP67-classified speaker models made by manufacturer Vansonic (VECO).

FEATURES

- » totally protected against water, dust and against the effects of immersion acc. to IP rating standard IP67
- » offered with a nominal impedance of 8 Ω standardwise
- » other impedance values can be realized upon request
- » electrical power rating is nominal 1 W (35KT08) respectively 1.2 W (20CRF08)

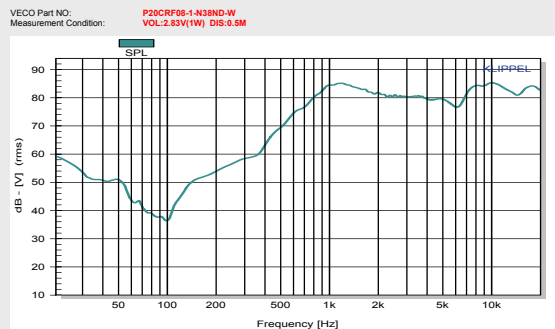
Available models:

20CRF08-1-N38ND-W (round, outer diameter 20mm, height 3.9mm)

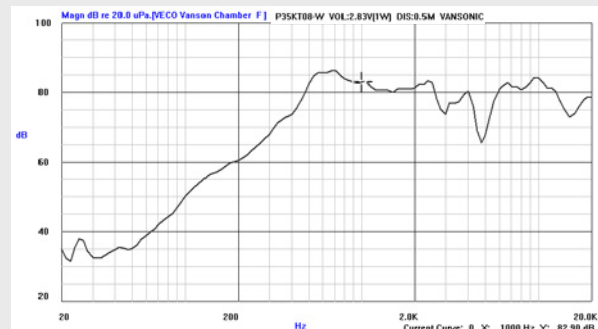
35KT08-W (square, 35 mm × 20 mm, height 5.5mm)

They are suitable for reproduction of human speech and melody signals, as they are typical and common in those communication applications.

FREQUENCY RESPONSE



20CRF08-1-N38ND-W

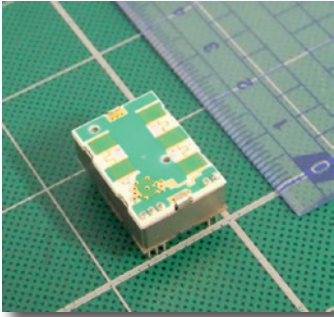


35KT08-W

SPECIFICATIONS

PARAMETER	20CRF08-1-N38ND-W	35KT08-W
Power rating (W)	1.2 / max. 1.5	1.0 W / max. 2.0 W
Frequency range (Hz)	500 ... 20000	350 Hz ... 4000 Hz
Resonant frequency (Hz)	1000 ± 20%	560 Hz ± 20%
DC resistance (Ω)	8 Ω ± 15%	8 Ω ± 15%
Sound pressure level (dB), av. at 800, 1000, 1200, 1500 Hz	83±3 dB min. at 1.2 W / 0.5 m	82±3 dB min. at 1.0 W / 0.5 m
Operating temperature (°C)	-40°C ... +85°C	-20°C ... +60°C
Waterproof level	IP67	IP67
Dimensions (mm)	∅ 20×3,9 mm	35 mm × 20 mm × 5,5 mm

MOTION SENSOR NJR4265/ K-BAND INTELLIGENT DOPPLER MODULE



NJR4265 J1 is intelligent motion sensor that is designed for the sensing of short distance low speed movement object of pedestrian etc. The steady sensing of moving object is realized by embedded software. It is suitable for the built-in use of the sensing function to various equipments as all functions are integrated in a small package and it can easily control from PC/MCU by UART interface. Further stand alone operation is also possible.

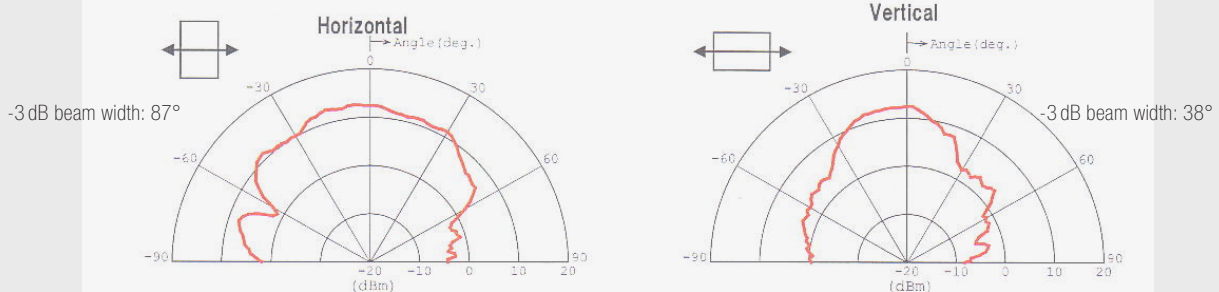
FEATURES

- » Motion Sensor based on 24 GHz Microwave Doppler Effect Technologies
- » Antenna, RF circuit, IF amp, MCU and voltage regulator are integrated in a small package (14 × 20.4 × 8.8 mm)
- » Signal processing software for the steady sensing
- » Enhancing signal from movement object and decreasing random noises
- » Decreasing mutual interference between sensors
- » Identification of movement direction (approaching and leaving)
- » Low voltage operation and low power consumption
- » Communication with PC/MCU is available by UART interface and stand alone operation is also possible

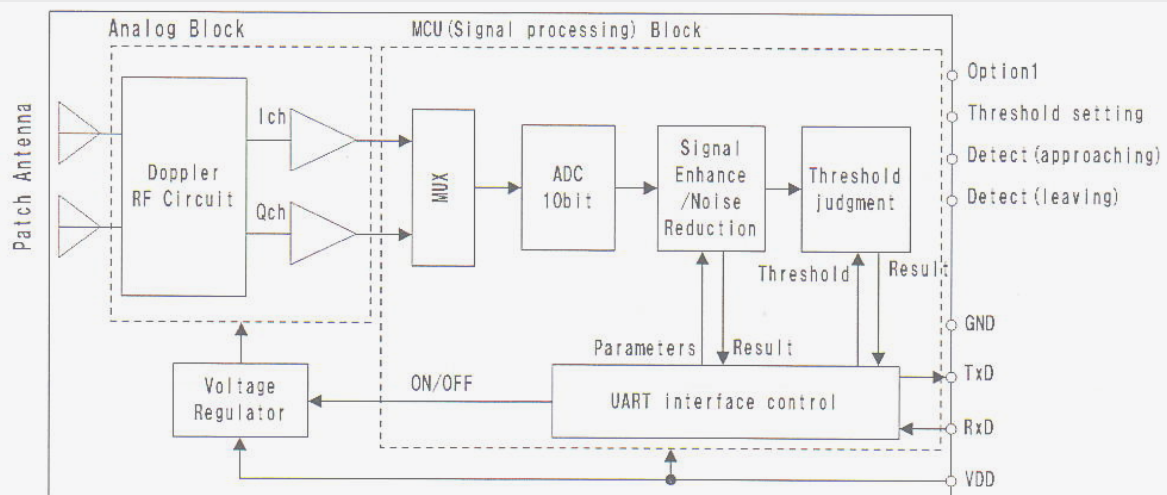
APPLICATIONS

- » Energy saving equipment (lighting equipment, air conditioner and etc.)
- » Room access control system equipment
- » Human detection sensor for various instruments

TYPICAL RADIATION PATTERN



FUNCTIONAL BLOCK DIAGRAM



MOTION SENSOR NJR4265/ K-BAND INTELLIGENT DOPPLER MODULE

- Continued from page 7 -

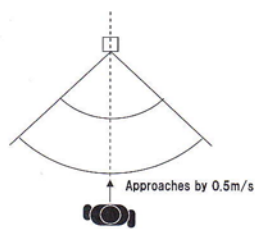
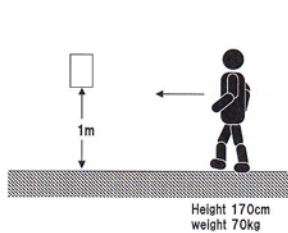
ELECTRICAL CHARACTERISTICS

PARAMETER				
	MIN.	TYP.	MAX.	
Power supply	Operating voltage [V]	3.0	3.3/5.0	5.25
	Current consumption/sensing mode [mA]	-	60	-
	Current consumption/Sleep Mode [mA]	-	4	-
Sensor RF	Conformity standard	ARIB STD-T73		
	Operating frequency [GHz]	24.05	-	24.25
	Frequency stability (-20°C ... +60°C) [MHz/°C]	-1	-0.7	0
	Output power (E.I.R.P.) [dBm]	9	-	14
	2nd Harmonics [dBm]	-	-	-30
Antenna	-3dB beam width (horizontal) [°]	-	87	-
	-3dB beam width (vertical) [°]	-	38	-
	Side lobe suppression (horizontal/vertical) [dB] *	-	-	-

* no side lobes

MESUREMENT COND. OF DETECTING PERFORMANCE

- » Temperature: $T_a=25^\circ\text{C}$
- » Target of measurement: 1 adult 1.70 m, 70 kg approaching at the rate of 0.5m/s from the front of sensor
- » Installation: Sensor is installed as the antennas horizontally in a height of 1m from the ground.



SENSING PERFORMANCE

- » Speed range of target: 0.25 ... 1 m/s
- » Max. distance in the front: 10 m
- » Detectable angle: $\pm 35^\circ$

ENVIRONMENTAL CHARACTERISTICS

- » Operating temp. range: $-20^\circ\text{C} \dots +60^\circ\text{C}$
- » Storage temp. range: $-40^\circ\text{C} \dots +80^\circ\text{C}$
- » Humidity: 0-95% @+30°C
- » Vibration: 49.03 m/s² (5 G) 30~50 Hz, 10 Min., XYZ direction
- » Shock: 196.13 m/s² (20 G) half sine, 11 ms, XYZ direction, 3x

new

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