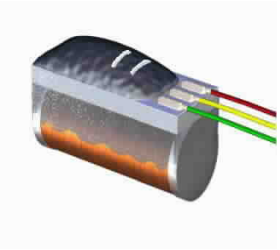
Amplif. telecoil TA 20 AD 03

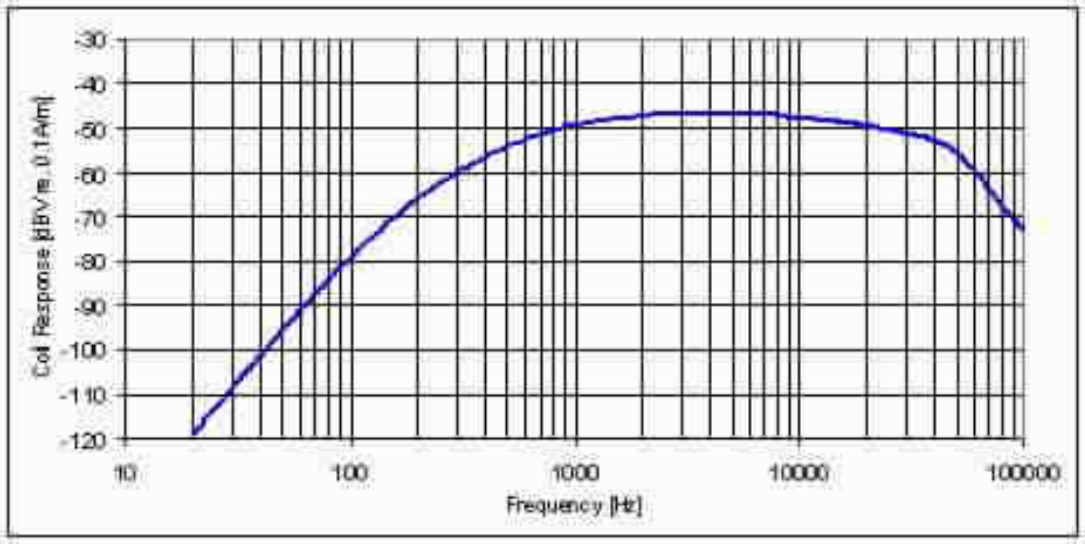
9010 - 2003066
Version:3 05-FEB-2007

Description

Amplified inductive pick-up coil for use in hearing instruments.
The coil has an integrated pre-amplifier with high EMI suppression for improved compatibility with digital cellular phones. Furthermore, it features a higher-order low frequency roll off for LF noise (50/60 Hz) attenuation.
The output stage is equivalent to the one found in our microphones with CMOS ICs (e.g. 6000, 96/9700 and 1M000 series), and allows direct switching between microphone and coil. The response curve is flat which ensures good matching of the telecoil and microphone response.

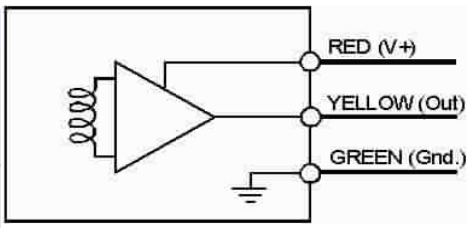


Typical response curve



Absolute maximum ratings

Parameter	Symbol	Min	Max	Unit
Supply voltage	Vdd	0.9	3.6	VDC
Operating temperature	Tw	-10	50	°C
Storage temperature	Ts	-40	80	°C
ESD protection level	Vesd	3		kV
ESD protection level: Class 2 according to MIL-STD-750D, test method 1020,2. Apply protection in accordance with IEC 61340-5-1 and 61340-5-2.				



Electrical characteristics

Measuring conditions (unless stated otherwise): supply voltage = 1 VDC, frequency = 1 kHz, temperature = 23°C (73.4F), H = 0.1 A/m and load = 10 pF/200 kOhm. All parameters were measured according their specific MQP.

Parameters		Symbol	Min	Typ	Max	Unit	Comments
Supply voltage		Vdd	0.9	1	1.5	VDC	
Supply current		Idd	40	55	90	µA	Vdd: 0.9-1.5 V
DC output voltage		Vo	450	580	800	mV	Vdd: 0.9-1.5 V
Output impedance		Zout	1700	3000	4500	Ohm	Vdd: 0.9-1.5 V
Sensitivity	@ 200 Hz	S200	-69.5	-67	-64.5	dB re 1V/0.1Am-¹	
	@ 1 kHz	S1k	-51.5	-49.5	-47.5		
	@ 5 kHz	S5k	-49	-46.5	-44		
Sensitivity	@ 200 Hz	S200	-72	-69.5	-67	dB re 1V/0.1Am-¹	10 kOhm load
	@ 1 kHz	S1k	-54	-52	-50		
	@ 5 kHz	S5k	-51.5	-49	-46.5		
1st High pass cutoff frequency		F1	175	217	270	Hz	
2nd High pass cutoff frequency		F2	0.85	1.05	1.3	kHz	S@5kHz-3dB
1st Low pass cutoff frequency		F3	15.8	19.8	24	kHz	S@5kHz-3dB
Equivalent input noise [1]		Ni		30	32.5	dB MFL*	0.1-10kHz (Awgt)
Maximum output voltage swing		Vout		27		pk-to-pk mV	THD < 1%
Maximum input signal [2]		Mi		87.5		dB MFL*	THD < 1%
Dynamic range		DR		-57.5		dB	
Total harmonic distortion (1kHz)		THD		0.3	1	%	Vo = 10mVrms
Power supply rejection [3]		PSR	16	20		dB	0.1-10kHz
Eq. EMI noise [1]	0.9 GHz	Nemi0.9		37		dB MFL*	Near-field measurement
	1.9 GHz	Nemi1.9		34		dB MFL*	
50 Hz suppression re 2 kHz level		dB		50		dB	

Notes:

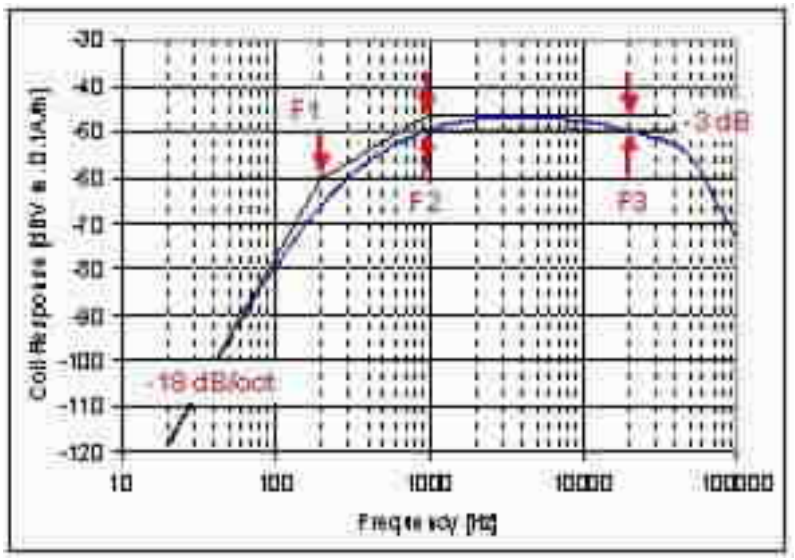
[1] A-weighted input refered noise voltage

[2] With maximum THD of 1%

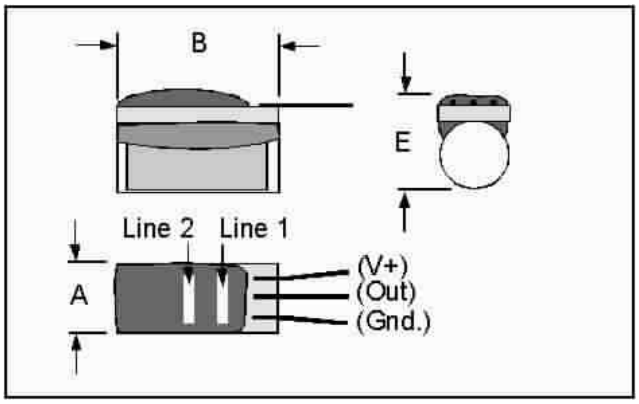
[3] Power supply rejection (PSR) is expressed as the maximum of inverse function of the small-signal voltage gain from the positive power supply line to the output of the amplifier in the frequency range 0.1-10kHz.

* 0 dB MFL (Magnetic Field Level) - 0 dB SPL (70 dB SPL- 100 mA/m is the typical conversation level)
0 dB MFL - 31.6 µA/m = Hr
Hi [MFL] = Vo [dB re 1V] - S [dB re 1V/Am-¹] - Hr [dB re 1Am-¹] = Vo [dB re 1V] - S [dB re 1V/0.1Am-¹] + 70

Cutoff frequency



Dimensions



Mechanical data

Dimensions	in mm	in inch
Dimension A max.	2.34	0.092
Dimension B max.	4.8	0.189
Dimension E max.	2.89	0.114

Color code	
Line 1	White
Line 2	Blue

Lead wires

Parameters	Supply lead (V+)	Signal lead (Out)	Ground lead (Gnd)
Diameter in mm	0.125	0.125	0.125
Plating	None	None	None
Color	Red	Yellow	Green
Length in mm*	30 ± 2	30 ± 2	30 ± 2
Strip/tin free end	None	None	None
* Length measured from flange.			

Assembly notes

No black epoxy on lead wire connections.