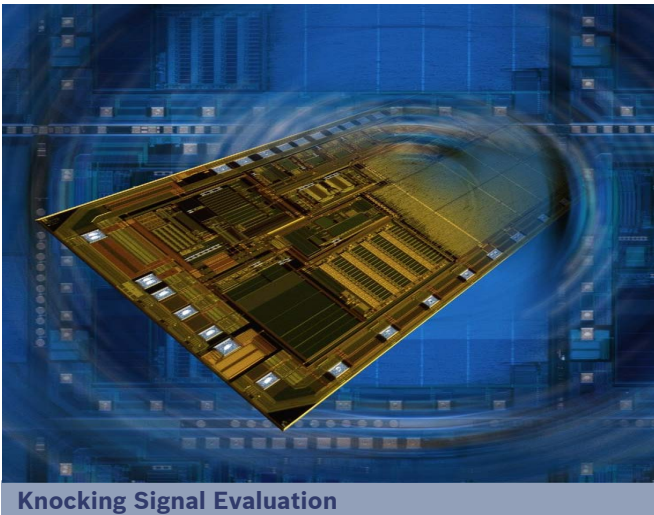


Product Information Knocking Signal Evaluation – CC195

**BOSCH**

Invented for life



Knocking Signal Evaluation

Features

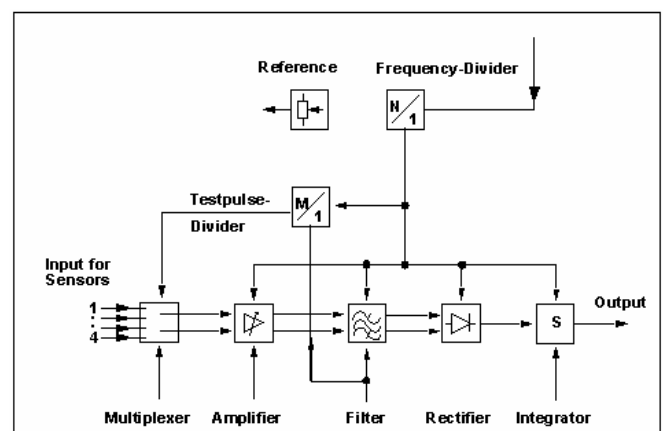
- ▶ 4 selectable asymmetrical inputs or 2 selectable fully differential inputs for knock sensors
- ▶ Programmable gain (7 factors from 2 to 128)
- ▶ Programmable band pass filter (9 center frequencies from 5 to 16 kHz)
- ▶ No external trimming required
- ▶ Programmable input clock frequency (8 steps from 1 to 18 MHz)
- ▶ Built-in facility for diagnostics
- ▶ Adaptable for many different microcontroller types
- ▶ PLCC 28 package

The CC195 is an integrated evaluation circuit for analog signals of piezoelectric sound detectors (knock sensors). It consists of a programmable amplifier, band pass filter, rectifier, integrator, and control logic. The CC195 was designed as a robust and trim less filter in switch-capacitor technology. The circuit is fully programmable and can easily be adapted to a broad range of motor management systems and automotive engines.

Customer benefits:

- ▶ Excellent system know-how
- ▶ Smart concepts for system safety
- ▶ Secured supply
- ▶ Long- term availability of manufacturing processes and products
- ▶ QS9000 and ISO/TS16949 certified

Block diagram



Electrical characteristics

Parameter	Test Conditions	Symbol	Min.	Max.	Unit
Supply voltage	-	VDD	4.75	5.25	V
Supply current	VDDmax	IDD	8	30	mA
Operating temperature	-	Tamb	-40	+125	Deg C
Clock frequency	-	FX	1	27	MHz
Analog input voltage	-	ΔV_{KE}	0	2	V
Analog input current	VKE= 2 V	IKE		10	μA
Input signal frequency	-	FKE		30	KHz
Input signal gain		V	2	128	
Gain factor tolerance	-	dV	-3	+3	%
Filter center frequencies	-	FM	5	16	KHz
Filter performance		Q	3		
Filter performance tolerance		dQ	-0.5	+0.3	
Usable integrator shift	-	dVKU	3.8	4.5	V
Integrator offset	MF= 1... 10 ms	VKI	-30	+30	mV/ ms
Integration time	-	TI	148	152	μs
Integrator output impedance	-	ZKI	300	2000	Ω

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