

CK20

20 GHz Clock Phase Shifter

PRELIMINARY
Product Information

MICRAM
MICROELECTRONIC

The CK20 is a two channel, high precision electronically adjustable Phase Shifter for clock signals up to 26 GHz. Key features are:

- two selectable differential inputs,
- two separate phase shift channels,
- octave-band operating range 12...26 GHz,
- continuous phase shifting (∞ times 360°),
- optional low frequency extension,
- adjustable output swing,
- phase detector output,
- single supply voltage.

The CK20 exhibits two independent electronically selectable 12...26 GHz clock inputs. Symmetrical input buffers allow for single ended as well as differential drive and provide a high input sensitivity of 50 mV_{pp} (single ended).

Internally, the selected clock signal is fed into two independent identical phase shifters, each capable of continuously shifting the phase by ∞ times 360° . For phase adjustment the CK20 allows for multiple configurations. For continuous forward/backward shift the CK20 offers an event triggered input (optional with RS232 interface) with 8 bit resolution each 360° . For high speed phase modulation up to 640 MHz, two analog phase adjustment signals can be applied, each shifting the output clock phase by 180° .

At the output, there are two $50\ \Omega$ CML buffers, each providing an adjustable differential output voltage swing between 400 and 800 mV_{pp} .

The CK20 provides a phase detector output showing the phase difference between both clock outputs. This provides instant access to the actual phase setting, which can e.g. be used to realize phase control functionality.

For low frequency applications, the CK20 can be combined with a multistage frequency divider. E.g. by using the MICRAM FD 20 the whole frequency range from 375 MHz to 26 GHz can be covered.

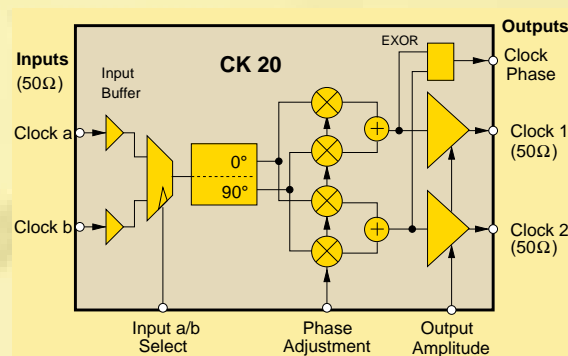
Main fields of application are:

- general clock shifting and splitting,
- high precision clock timing,
- high precision sampling,
- clock phase modulation
- jitter measurements (tolerance, transfer).

Package:

The CK20 will be available as ruggedized module with K connectors.

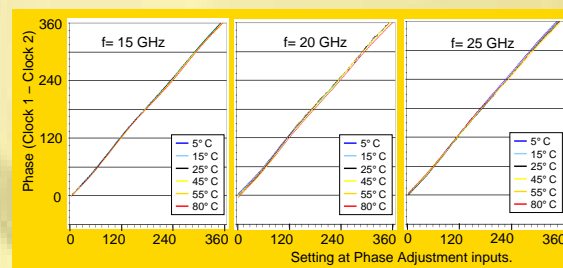
Block diagram of the CK20 :



CK20 data:

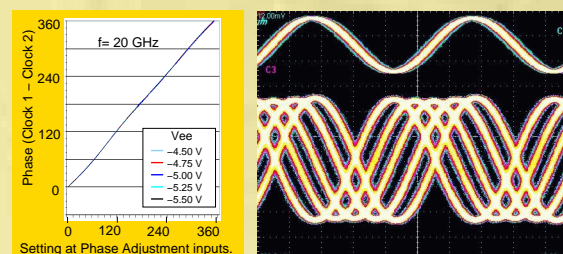
Power Supply	-4.5...-5.5 V
Current Consumption	440 mA
Frequency Range	12...26 GHz
Min. Input Amplitude	50 mV_{pp}
Max. Output amplitude	800 mV_{pp}

High phase stability of the CK20 shown by the measured phase between Clock 1 and 2 over a temperature range of 5...80°C at different frequencies.



Left: Output clock phase stability despite supply voltage variations from -4.5...-5.5V.

Right: Clock 2 phase shift of 180° in 45° steps at 20 GHz (bottom). Clock 1 is reference (top).



For further information on the CK20 please contact your MICRAM sales representative.