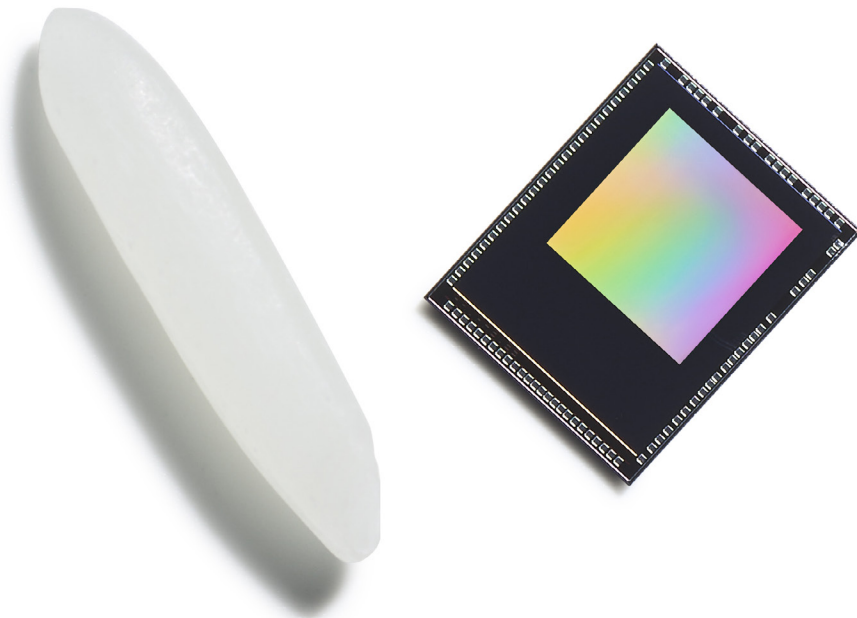**1/5" FORMAT 320 X 320-PIXEL EVENT-BASED METAVISION® SENSOR WITH EMBEDDED FEATURES**

GENX320 DICE

FEATURES

- 320x320 array of 6.3µm contrast detection pixels
- High-speed event data output (equivalent to >10kfps time resolution) with row-level 1µs-precision time stamping
- 0.05 lux Low light cutoff
- High dynamic range >140dB
- Ultra-low power mode 36µW
- Very low operating power 3mW
- Embedded features: Anti-Flicker Filtering (AFK) + Event-Rate Controller (ERC) + Spatio-Temporal Contrast Filter (STC)
- Ambient Light Measurement
- ML-friendly compressed and uncompressed event data streams
- 1-lane MIPI D-Phy output interface
- Configurable 8-bit parallel output interface
- I²C and Four-wire serial peripheral interface

APPLICATIONS

- AR/VR/XR
- Eye tracking
- Gesture recognition
- IoT
- AI on the Edge and Machine Learning
- Always on cameras
- Healthcare (privacy) cameras
- Wearables
- Smart Home

DESCRIPTION

The GenX320 is a 320x320 6.3µm pixel BSI stacked event-based Metavision® sensor, designed for embedded vision and many power-sensitive applications. The GenX320 was designed with the explicit goal to improve integrability and usability in at-the-edge vision systems. This includes event data pre-processing and formatting, data interface compatibility and low-latency connectivity to different processing platforms including latest low-power, neuromorphic processors. The sensor has been optimized for very low power operation, featuring a hierarchy of application-specific power modes. The GenX320 contains an integrated Event Signal Processing (ESP) pipeline which includes timestamping, filtering, throughput regulation and data formatting functions. An Event Rate Controller (ERC) allows to cap the output event rate to a programmable limit. A Spatio-Temporal Contrast filter (STC) detects and removes redundant bursts and trails of events triggered by high contrast features in the scene. An Anti-Flicker (AFK) filter detects and filters events generated by flickering lights. The stop-band frequency can be set in the range of 50-500 Hz with arbitrary spans.

SENSOR LOW POWER MODES

MODE	ULTRA LOW POWER	LOW POWER STANDBY	LOW POWER MONITOR	CPI STREAMING	CPI STREAMING	MIPI STREAMING
Sub-system				100kEPS CPI @10MHz	1MEPS CPI @10MHz	10MEPS MIPI @800MHz
Pixel array	3x3 GCD		320x320 pixels	320x320 pixels	320x320 pixels	320x320 pixels
Digital ICN + CPU	Powered down	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked
Digital readout	Powered down	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked
Digital ESP + Output I/F	Powered down	Powered, Gated	Powered, Gated	Powered, Clocked	Powered, Clocked	Powered, Clocked
	Total: 36µW	Total: 1.8mW	Total: 2.9mW	Total: 3mW	Total: 4.8mW	Total: 22.8mW

AUTONOMOUS FAST WAKEUP <1ms

WAKEUP >100ms UNDER HOST CONTROL

ORDERING CODES AND BRIEF DESCRIPTION

PBDX320MPGP5: GENX320MP IN A GEL-PACK BOX OF 5 BARE DICE
PBDX320MPWF500: GENX320MP RECONSTRUCTED WAFER OF 500 BARE DICE