

UJA116xA for
CAN FD active
communication
up to 5 Mbit/s

UJA116xA Mini HS-CAN System Basis Chip Family

Housed in small, leadless HVSON14 packages, UJA116xA SBC product family devices offer a highly integrated solution with an HS-CAN interface. Variants within the family provide additional functions, including a watchdog, an optional external 5 V sensor supply, partial networking support and more.

KEY FEATURES AND CUSTOMER BENEFITS

- ▶ ISO 11898-2:2016 and SAE J2284-1 to SAE J2284-5 compliant HS-CAN including CAN FD active communication up to 5 Mbit/s
- ▶ Optional partial networking and CAN FD passive support
- ▶ Autonomous bus biasing according to ISO 11898-6
- ▶ Fully integrated 5 V low-dropout regulator with 100 mA output current capability
- ▶ Optional protected 5 V sensor supply variant for off-board usage
- ▶ Standby and sleep mode with very low supply current
- ▶ Remote and local wake-up capability
- ▶ Mode control via the serial peripheral interface (SPI bus)
- ▶ Watchdog with window, timeout and autonomous modes and microcontroller-independent clock source
- ▶ Easy and secure customer programmable configuration of selected functions via non-volatile memory
- ▶ Support for microcontroller RAM retention down to a battery voltage of 2 V
- ▶ Leadless HVSON14 package (3 mm x 4.5 mm) with improved automated optical inspection (AOI) capability and low thermal resistance
- ▶ Hardware and software compatible with UJA116x product family
- ▶ Qualified in accordance with the AEC-Q100 Rev-G standard

DESIGNED FOR AUTOMOTIVE APPLICATIONS

- ▶ Sun roof control modules
- ▶ Seat pretensioners
- ▶ Gear shift control
- ▶ Tire pressure monitoring
- ▶ Window and door control
- ▶ Steering control modules
- ▶ HVAC climate control

UJA116xA FUNCTIONAL DESCRIPTION

Products in the UJA116xA mini high-speed CAN system basis chip family contain an ISO11898-2:2016 and SAE J2284-1 to J2284-5 compliant HS-CAN transceiver. They also include CAN FD active communication up to 5 Mbit/s together with an integrated 5 V low-dropout regulator supply (V1) for a microcontroller and/or other loads up to 100 mA. Selected products in the SBC family feature a watchdog and a serial peripheral interface (SPI). The UJA116xA SBC can be operated in very low-current standby and sleep modes with bus and local wake-up capabilities.



UJA116xA VARIANT TABLE

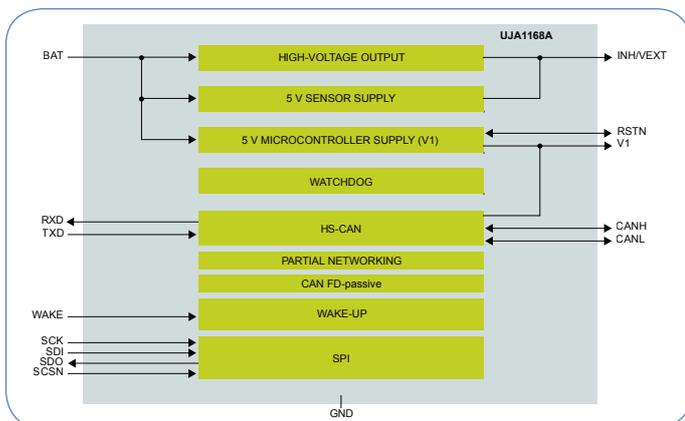
Orderable Part	UJA116xA										
	Standby Mode	Sleep Mode	VIO	V1 (5 V)	SPI	Watchdog	INH	External 5 V Supply	Partial Networking	CAN FD Active	CAN FD Passive
UJA1161ATK/OZ	X		X	self-supplied CAN						5 Mbit/s	
UJA1162ATK/OZ	X	X	X	self-supplied CAN			INH			5 Mbit/s	
UJA1163ATK/OZ	X			100 mA						5 Mbit/s	
UJA1164ATK/OZ	X			100 mA	X	X				5 Mbit/s	
UJA1166ATK/OZ	X	X	X	100 mA			INH			5 Mbit/s	
UJA1167ATK/OZ	X	X		100 mA	X	X	INH			5 Mbit/s	
UJA1167ATK/X/OZ	X	X		70 mA	X	X		5 V/30 mA		5 Mbit/s	
UJA1168ATK/OZ	X	X		100 mA	X	X	INH		X	5 Mbit/s	
UJA1168ATK/X/OZ	X	X		70 mA	X	X		5 V/30 mA	X	5 Mbit/s	
UJA1168ATK/F/OZ	X	X		100 mA	X	X	INH		X	5 Mbit/s	X
UJA1168ATK/XF/OZ	X	X		70 mA	X	X		5 V/30 mA	X	5 Mbit/s	X

The UJA116xA family comes in eleven different variants as depicted in the variant table above. The UJA1161ATK and UJA1162ATK are self-supplied CAN transceivers with resp. standby and sleep mode. The UJA1166ATK is also a self-supplied CAN transceiver with sleep mode and offers a 5 V/100 mA supply for any external on-board load, such as an additional stand-alone CAN transceiver.

The UJA1163ATK, UJA1164ATK, UJA1167ATK and UJA1168ATK variants feature a 5 V/100 mA supply for a microcontroller. On top of this, additional features (e.g., SPI interface and integrated watchdog) are included in some of the versions, as shown in the UJA116xA variant table.

The UJA1167ATK/X, UJA1168ATK/X and UJA1168ATK/XF are equipped with a 5 V supply (V_{EXT}) for off-board components such as an external sensor supply. V_{EXT} is short-circuit proof to the battery, ground and negative voltages. The integrated CAN transceiver is supplied internally via V1, in parallel with the microcontroller.

UJA1168A BLOCK DIAGRAM



PARTIAL NETWORKING AND CAN FD-PASSIVE

The UJA1168ATK variants support ISO 11898-2:2016 compliant CAN partial networking with a selective wake-up function. A dedicated implementation of the partial networking protocol has been embedded into the UJA1168ATK/F and UJA1168ATK/XF.

This function is called “CAN FD-passive” and is the ability to ignore CAN FD frames while waiting for a valid wake-up frame in sleep and standby mode. This additional feature of CAN FD-passive partial networking is a great fit for networks that support both CAN FD and CAN 2.0 communications. It allows normal CAN controllers that do not need to communicate CAN FD messages to remain in partial networking sleep/standby mode during CAN FD communication without generating bus errors.

UJA1168A APPLICATION DIAGRAM

