

NXP Automotive networking solutions

		FlexRay			High Speed CAN								Fault Tolerant CAN		LIN	
		TJA1080A	TJA1081	TJA1082	PCA82C250 (PCA82C251)	TJA1050	TJA1051	TJA1040	TJA1042	TJA1049	TJA1041(A)	TJA1043	TJA1054 (TJA1054A)	TJA1055	TJA1020	TJA1021
Status		production	production	production	production	production	production	production	production	production	production	production	production	production	production	production
Physical layer compliance		FlexRay V2.1 Rev. A	FlexRay V2.1 Rev. A	FlexRay V2.1 Rev. B	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-3	ISO 11898-3	LIN1.3	LIN2.1/J2602
Bitrate	kbaud	10000	10000	10000	1000	1000	1000	1000	1000	1000	1000	1000	125	125	10/20	10/20
Modes of operation		Normal, Standby, Receive only, Sleep	Normal, Standby, Receive only, Sleep	Normal, Standby	Normal, Standby	Normal, Listen only	Normal, Listen only, Off	Normal, Standby	Normal, Listen only, Standby	Normal, Listen only, Standby	Normal, Listen only, Standby, Sleep	Normal, Listen only, Standby, Sleep	Normal, Standby, Sleep	Normal, Standby, Sleep	Normal Slope, Low Slope, Standby, Sleep	Normal, Standby, Sleep
Package (Leadfree)		SSOP20	SSOP16	TSSOP14	SO8	SO8	SO8, HVSON8 planned Q4 2010	SO8	SO8, HVSON8 planned Q4 2010	SO8	SO14	SO14, HVSON14* *considered	SO14	SO14	SO8	SO8, HVSON8
Supply																
V _{BAT}	V	6.5 ... +60	6.5 ... +60								5.0...27	5.0...40	5.0...27	5.0...40	5 ...27	5.5 ...27
V _{CC}	V	4.75...5.25	4.75...5.25	4.75...5.25	4.5...5.5	4.5...5.5	4.5...5.5	4.75...5.25	4.5...5.5	4.75...5.25	4.75...5.25	4.5...5.5	4.75...5.25	4.75...5.25		
Standby/Sleep current	µA	/43 (in star mode)	/36	23/-	100/-	-/-	-/-	10/-	10/-	10/-	/20	/20	30	25	3	7
Bus input range	V	-60 ... +60	-60 ... +60	-60 ... +60	-8...+18 (-36...+36)	-27...+40	-58...+58	-27...+40	-58...+58	-58...+58	-27...+40	-58...+58	-10...+27	-58...+58	-27 ... +40	-40 ... +40
ESD																
HBM	kV	± 8	± 8	± 8	± 2	± 4	± 8	± 6	± 8	± 8	± 6	± 8	± 2 (± 4)	± 8	± 4	± 8
IEC61000-4-2	kV			± 8			± 8		± 8	± 8	± 8			± 6		± 6
MCU interface level	V	2.2...5.25	2.2...5.25	2.6...5.25	5	3.3...5V (Rx/D: 5V)	3...5V	3.3...5V (Rx/D: 5V)	3...5V	5V	2.8...5.25	3...5V	5	5V and 3...3.3V	3.3...5V	3.3...5V
Temperature range	Degr. C	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..150 (Tvj)	-40..125 (Tamb)	-40..125 (Tamb)	-40..150 (Tvj)	-40..150 (Tvj)
Additional functionality																
		Configurable as bus driver device or as an active star	Dedicated bus driver device	Dedicated bus driver device	slope control	TxD dominant time out monitor	Backwards compatible to TJA1050	TxD dominant time out monitor	Backwards compatible to TJA1040	Fully Velio certified	TxD dominant time out monitor	Backwards compatible to TJA1041(A)	TxD dominant time out monitor	TxD dominant time out monitor	Supports K-line like functions	Supports K-line like functions
		Support of 60 ns minimum bit time	Support of 60 ns minimum bit time	Support of 60 ns minimum bit time	PCA82C251 for truck applications		Different versions to offer increased functionality	Split pin	Different versions to offer increased functionality		Split pin	Different versions to offer increased functionality	System fault diagnosis	System fault diagnosis	Wake-up source recognition	Wake-up source recognition
		Busguardian interface included	Busguardian interface included	Busguardian interface included			Improved behaviour in networks with long stubs		Improved behaviour in networks with long stubs	Improved behaviour in networks with long stubs	System fault diagnosis	Improved behaviour in networks with long stubs	TJA1054A is the ESD improved version of the TJA1054		Integrated termination resistor for LIN slave applications	Integrated termination resistor for LIN slave applications
		Remote wake-up via wake-up symbol or dedicated FlexRay data frames	Remote wake-up via wake-up symbol or dedicated FlexRay data frames	Remote wake-up via wake-up symbol or dedicated FlexRay data frames			Suitable for 24V applications		Suitable for 24V applications	Suitable for 24V applications	Wake-up robustness (TJA1041A)	Suitable for 24V applications			Low slope mode	Low Slope in separate product
		Local wake-up	Local wake-up													
		ERRN pin	ERRN pin	ERRN pin and SPI												
Certificates																
Conformance		FlexRay V2.1 Rev. A	FlexRay V2.1 Rev. A	FlexRay V2.1 Rev. B		ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-2	ISO 11898-3	LIN1.3	LIN2.1/J2602
Material																
Datasheet		19-Feb-09	4-Sep-09	10-Aug-09	13-Jan-00	22-Okt-03	23-Jan-09	14-Okt-03	23-Jan-09	31-May 10	20-Feb-04	30-Mar-10	01-July-10	17-Feb-09	13-Jan-04	19-Jan-09
Application Note		On request	On request	On request	AN96116	AN00020	AH1014	AN10211	AH1014	AH1021	AN00094	AH1014	AH_FT CAN3	On request	AN00093	On request
ESD/EMC report		On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	on request	On request

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		System Basis Chips			
		UJA106x family	UJA1075A	UJA1076A	UJA1078A
Description		Fail-safe SBC family including CAN & LIN transceivers, Voltage regulators for microcontroller & CAN, Watchdog and extensive diagnostics	System on chip including HS-CAN & LIN transceivers, Voltage regulators for microcontroller & CAN, Watchdog	System on chip including HS-CAN transceiver, Voltage regulators for microcontroller & CAN, Watchdog	System on chip including HS-CAN & 2 LIN transceivers, Voltage regulators for microcontroller & CAN, Watchdog
Status		production	production	production	production
Physical layer compliance		ISO 11898-2 / ISO 11898-3 / LIN2.x/SAE J2602	ISO 11898-2 /LIN2.x/SAE J2602	ISO 11898-2	ISO 11898-2 /LIN2.x/SAE J2602
Bitrate	kbaud	1000 & 20/10	1000 & 20/10	1000	1000 & 20/10
Modes		Normal, Standby, Sleep, Fail-safe, Flash, SW Development	Normal, Standby, Sleep		
Package		HTSSOP32	HTSSOP32	HTSSOP32	HTSSOP32
Supply					
	V _{BAT}	V	5.5...27V		
	V _{CC}	V	not required		
ESD (bus pins)					
	HBM	kV	± 8	± 8	± 8
	IEC61000-4-2	kV	± 4	± 6	± 6
MCU supply & interface level	V	5, or 3.3			
System features		Autonomous Fail-safe system to improve communication reliability & to prevent drained battery in case of ECU malfunction	Scalable voltage supply (up to 250 mA) to power microcontroller and peripheral hardware such as additional transceivers		
		Extensive diagnostics to provide smart information to microcontroller	Extremely low stand-by and sleep current		
		Device identification via SPI to match hardware & software	Window and timeout watchdog, LIMP HOME functionality, overtemperature shutdown, programmable undervoltage reset		
			Global Enable signal to enable safety critical hardware		
			Integrated autonomous 5V supply for the CAN bus		
		1 Wake Input	2 Wake Inputs		
		External voltage regulator control (INH pin)			
		Create Partial Networks to reduce power consumption. Can be implemented in existing CAN networks			
Certificates					
Conformance		FT-CAN: ISO11898-3 HS-CAN: ISO11898-2 LIN2.x/J2602	HS-CAN: ISO11898-2 LIN2.x/J2602		
Material					
	Datasheet	22-Nov-07	On request		
	Application Note		On request		
	ESD/EMC report		On request		

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		LIN Slave Solutions		
		UJA1023	TJA1028	UJA1079A
Description		System on chip including complete LIN I/O Slave with 8 configurable ports. Configuration can be done via the LIN bus. Bitrate is automatically adapted. 8-bit ADC and PWM integrated.	LIN Slave System Basis Chip including LIN transceiver and voltage regulator	System on chip including LIN transceiver, Voltage regulator for microcontroller, Watchdog
Status		production	in development	production
Physical layer compliance		LIN2.0/J2602	LIN2.x/J2602	LIN2.x/SAE J2602
Bitrate	kbaud	1..20	20/10	20/10
Modes		Normal, Standby, Sleep and Limp Home	Normal, Standby, Sleep	Normal, Standby, Sleep
Package		SO16	SO8, HVSON8	HTSSOP32
Supply				
	V _{bat}	V	5.5-27	4.5-28
	V _{cc}	V	not required	
ESD (bus pins)				
	HBM	kV	± 8	± 8
	IEC61000-4-2	kV	± 8	± 6
System features		Automatic Bitrate detection	5V and 3.3V microcontroller supply option	5V and 3.3V microcontroller supply option
		Limp Home	Voltage supply up to 70 mA	Scalable voltage supply (up to 250 mA) to power microcontroller and peripheral hardware such as additional transceivers
		Configurable Sleep Mode	Low Slope version for 10kbaud LIN systems	Extremely low stand-by and sleep current
		Outputs to drive LEDs & PowerFETs	Small HVSON8 package option	Window and timeout watchdog, LIMP HOME functionality, overtemperature shutdown, programmable undervoltage reset
		1 Wake Input		2 Wake Inputs
		8 bit AD converter to read		Global Enable signal to enable safety critical hardware
		Inputs to read upto 16 switches		
Certificates				
Conformance		LIN2.0/J2602	LIN2.x/J2602	LIN2.x/J2602
Material				
	Datasheet	05. Jul 06	On request	On request
	Application Note	On request	On request	On request
	ESD/EMC	On request	On request	On request