Bus Transceiver Overview

Bus Transceivers for Vector CAN, CAN FD, LIN, FlexRay and J1708 Interfaces

CANcab/ CANpiggy	Transceiver	Baud rate (max.)	Connector occupation Sub-D	Preferred area of application	Design[1]	Special feature
251	PCA82C251	2 Mbit/s high-speed	2 = CAN_L 3 = GND 5 = Shield 7 = CAN_H	Automobile technology (powertrain bus), automation, air and space flight, nautical transportation	A, E	Very small propagation delay time: 24 ns Suitable for 2 Mbit/s CAN
251opto only CANcab design variant available	PCA82C251	1 Mbit/s high-speed	2 = CAN_L 3 = VB- 5 = Shield 7 = CAN_H	Automobile technology (powertrain bus), automation, air and space flight, nautical transportation	A	Galvanically isolated. Bus-side power supply is provided internally.
251mag only CANcab design variant available	PCA82C251	2 Mbit/s high-speed	2 = CAN_L 3 = VB- 5 = Shield 7 = CAN_H	Automobile technology (powertrain bus), automation, air and space flight, nautical transportation	A	Galvanically isolated. Bus-side power supply is provided internally. Very small propagation delay time (37 ns). Suitable for 2 Mbit/s CAN
251fibre	PCA82C251+ LWL-Koppler: HFBR1528 HFBR2528	500 kbit/s high-speed	2 = CAN_L 3 = VB- 5 = Shield 7 = CAN_H 9 = VB+	Expanded networks with high baud rates	C	Two device parts, connected by a two-wire fibre optic cable.
1040mag	TJA1040	1 Mbit/s high-speed	2 = CAN_L 3 = VB- 4 = Split 5 = Shield 7 = CAN_H 9 = VB+	Automobile technology (powertrain bus), automation, air and space flight, nautical transportation	A, E	Galvanically isolated. Useful for partially powered networks. Bus-side power supply is provided internally.[2]
1041Amag	TJA1041A	1 Mbit/s high-speed	2 = CAN_L 3 = VB- 4 = Split 5 = Shield 7 = CAN_H 9 = VB+	Automobile technology (powertrain bus), automation, air and space flight, nautical transportation	A, E	Galvanically isolated. Wakeup-capable, bus-side power supply optionally internal or external 12..18 V.[2]
1050mag	TJA1050	1 Mbit/s high-speed	2 = CAN_L 3 = VB- 5 = Shield 7 = CAN_H	Automobile technology (powertrain bus), automation, air and space flight, nautical transportation	A,E	Galvanically isolated. Bus-side power supply is provided internally. Low EME.[2]
1051cap only CANpiggy design variant available	TJA1051	2 Mbit/s high-speed 8 Mbit/s CAN FD	2 = CAN_L 3 = GND 5 = Shield 7 = CAN_H	Automobile technology (powertrain bus, CAN FD), automation, air and space flight, nautical transportation	E	Galvanically isolated. Bus-side power supply is provided internally. Suitable for 2 Mbit/s CAN.[2] Suitable for CAN FD up to 8Mbit/s
1055cap only CANpiggy design variant available"	TJA1055	125 kbit/s low-speed	2 = CAN_L 3 = VB- 5 = Shield 7 = CAN_H 9 = VB+	Automobile technology (body electronics bus)	E	Galvanically isolated. Bus-side power supply opt. int. or ext. 12..18 V. Fault-tolerant.[2]
1057Gcap only CANpiggy design variant available	TJA1057G	2 Mbit/s high-speed 8 Mbit/s CAN FD	2 = CAN_L 3 = GND 5 = Shield 7 = CAN_H	Automobile technology (powertrain bus, CAN FD), automation, air and space flight, nautical transportation	E	Galvanically isolated. Bus-side power supply is provided internally. Suitable for 2 Mbit/s CAN.[2] Suitable for CAN FD up to 8Mbit/s
5790opto c only CANcab design variant available	AU5790	100 kbit/s (HS mode) 40 kbit/s (LS mode)	3 = VB- 4 = 100 Ω (HS-Mode) 5 = Shield 7 = CAN_H 9 = VB+	Automobile technology: Single Wire CAN (SWC; body electronics bus)	A	100 Ω resistance can be activated automatically upon switching over to high-speed mode. Bus-side power supply opt. int. or ext. 12..18 V.

CANcab/ CANpiggy	Transceiver	Baud rate (max.)	Connector occupation Sub-D		Preferred area of application	Design[1]	Special feature
7356cap only CANpiggy design variant available	NCV7356	100 kbit/s (HS mode) 40 kbit/s (LS mode)	3 = VB- 4 = 100 Ω (HS-Mode) 5 = Shield 7 = CAN_H 9 = VB+		Automobile technology: Single Wire CAN (SWC; body electronics bus)	E	100 Ω resistance can be activated automatically upon switching over to high-speed mode. Galvanically isolated. Bus-side power supply opt. int. or ext. 12..18 V.[2]
10011opto	B10011S	250 kbit/s	2 = CAN_L 3 = VB- 5 = Shield 7 = CAN_H 9 = VB+		Commercial vehicle technology (truck&trailer) ISO WD11992-1	A, E	Recommended for CAN applications in the commercial vehicle area. External voltage supply 16..32 V required.
TWINcab 1041Amag (2-Channel cab)	2 x TJA1041A (Highspeed)	1 Mbit/s high-speed	2 = CAN_L 3 = VB- 4 = Split 5 = Schirm 7 = CAN_H 9 = VB+		Automobile technology (powertrain bus), automation, air and space flight, nautical transportation	B	Galvanically isolated. Wakeup-capable, bus-side power supply optionally internal or external 12..18 V.
TWINcab 1054Amag 1041Amag (2-Channel cab)	TJA1054A (Lowspeed) TJA1041A (Highspeed)	TJA1054A low-speed TJA1041A high-speed	1054Amag 2 = CAN_L 3 = VB- 4 = RT 5 = Shield 7 = CAN_H 9 = VB+	1041Amag 2 = CAN_L 3 = VB- 4 = Split 5 = Shield 7 = CAN_H 9 = VB+	Automobile technology: powertrain bus (high-speed) and body electronics bus (lowspeed), automation, air and space flight, nautical transportation	B	Galvanically isolated. Wakeup-capable, bus-side power supply optionally internal or external 12..18 V. Switchable terminating resistors (only 1054Amag). Fault-tolerant.

LINcab/ LINpiggy	Transceiver	Baud rate (max.)	Connector occupation Sub-D	Preferred area of application	Design[1]	Special feature
7269mag	TLE7269	20 kbit/s (normal) 115 kbit/s (flash)	3 = VB- 4 = Pdis 5 = Shield 7 = LIN 9 = VB+	Automobile technology , LIN1.x, LIN2.x and SAE-J2602 applications K-Line applications (only LINpiggy)	A, E	Galvanically isolated. Compliant to LIN specifications 1.3, 2.0, 2.1 and SAE-J2602. For 12V and 24V LIN applications. Dominant / recessive stress functionality. Normal mode: 20 kbit/s Flash mode: 115 kBit/s*.
TWINcab 7269mag (2-Channel cab)	2 x TLE7269	20 kbit/s (normal) 115 kbit/s (flash)	3 = VB- 4 = Pdis 5 = Shield 7 = LIN 9 = VB+	Automobile technology , LIN1.x, LIN2.x and SAE-J2602 applications	B	* depending on the bus physic the maximum data rate can be up to 330 kbit/s

FRpiggy	Transceiver	Baud rate (max.)	Connector occupation Sub-D	Preferred area of application	Design[1]	Special feature
FRpiggy 1082cap	2x TJA1082 (Channel A & B)	10 Mbit/s	1 = Trigger out 2 = Ch. A BM 3 = GND 4 = Ch. B BM 5 = Shield 7 = Ch. A BP 8 = Ch. B BP	Automobile technology, safety-relevant applications (x-by-wire)	F	Galvanically isolated. 2 transceivers for parallel operation of 2 FlexRay channels
FRpiggyC 1082cap	2x TJA1082 (Channel A & B)	10 Mbit/s	1 = Trigger out 2 = Ch. A BM 3 = GND 4 = Ch. B BM 5 = Shield 7 = Ch. A BP 8 = Ch. B BP	Automobile technology, safety-relevant applications (x-by-wire)	E	Galvanically isolated. 2 transceivers for parallel operation of 2 FlexRay channels

Miscellea–neous Cabs/Piggies	Transceiver	Baud rate (max.)	Connector occupation Sub-D	Preferred area of application	Design[1]	Special feature
EVA	User-specific	User-specific	User-specific	User-specific application	D	<u>Evaluation kit:</u> Mounting of the CANcab user-specifically with bus transceivers using pre-assembled breadboards.
IOcab 8444opto	–	–	1-4 = Digital IO 5 = PWM/Capture 6 = GND 7-8 = Analog IO 9-12 = Digital IO 13 = GND 14-15 = Analog IO	Automobile and commercial vehicle technology, automation technology, air and space flight technology, marine technology	A	Galvanically isolated. Used for generation and measurement of analog and digital signals.
IOpiggy 8642	–	–	1 = I/O, PWM 2,9,10 = I/O 13 = DGND 5/11 = I, PhotoMOS 4/12 = I, PhotoMOS 7,14 = Analog I/O 8,15 = Analog In 6 = AGND	Automobile and commercial vehicle technology, automation technology, air and space flight technology, marine technology	G	Galvanically isolated. Used for generation and measurement of analog and digital signals.
J1708 65176opto	SN65176B	9.6 kbit/s	2 = A 3 = GND 5 = Shield 7 = B	Commercial vehicle technology (powerbus, body electronics bus)	A, E	Optically decoupled. Bus-side power supply is provided internally.

VB+, VB- = supply voltage at galvanically isolation.
V_Batt = ±12 V related to GND.
[1] = For design type description see table "Designs and Connectors".
[2] = No unwanted error frames are generated (e.g. during shutdown).
*cap and *mag are the recommended transceiver and the successor of the *opto. The propagation delay time and the power consumption is with
*cap option about 12–17 % less, with *mag option about 10–15 % less than with the *opto option.

Designs and Connectors

Design name	Usable for [3]	Connection to hardware	Design		Connection to CAN or LIN bus
A CAN/LIN/J1708cab	CANcardXL CANcardXLe				
B TWINcab	CANcardXLe				
C CANcab (fibre optic cable)	CANcardXL CANcardXLe				
D CANcab (cable and housing)	CANcardXL CANcardXLe				
E CAN/LIN/J1708piggy (plug-in board "Piggyback")	VN1600, VN8900, VN7500, VN7600, VT6x04, CANcaseXL log, CANboardXL, CANister		Dimensions 45 x 25 x 13 mm		
FRpiggyC	VN7500, VN8972, VX1131				
F FRpiggy (plug-in board "Piggyback")	VN3300 VN3600 VN7600 VN8970 VT6204		Dimensions 71 x 38 x 13 mm		
G IOpiggy (plug-in board "Piggyback")	VN7500 VN8950 VN8970 VN8972		Dimensions 56 x 30 x 13 mm		

[3] see http://www.vector.com/kb for a complete listing of compatibility for CABs/Piggies.

www.vector.com/contact