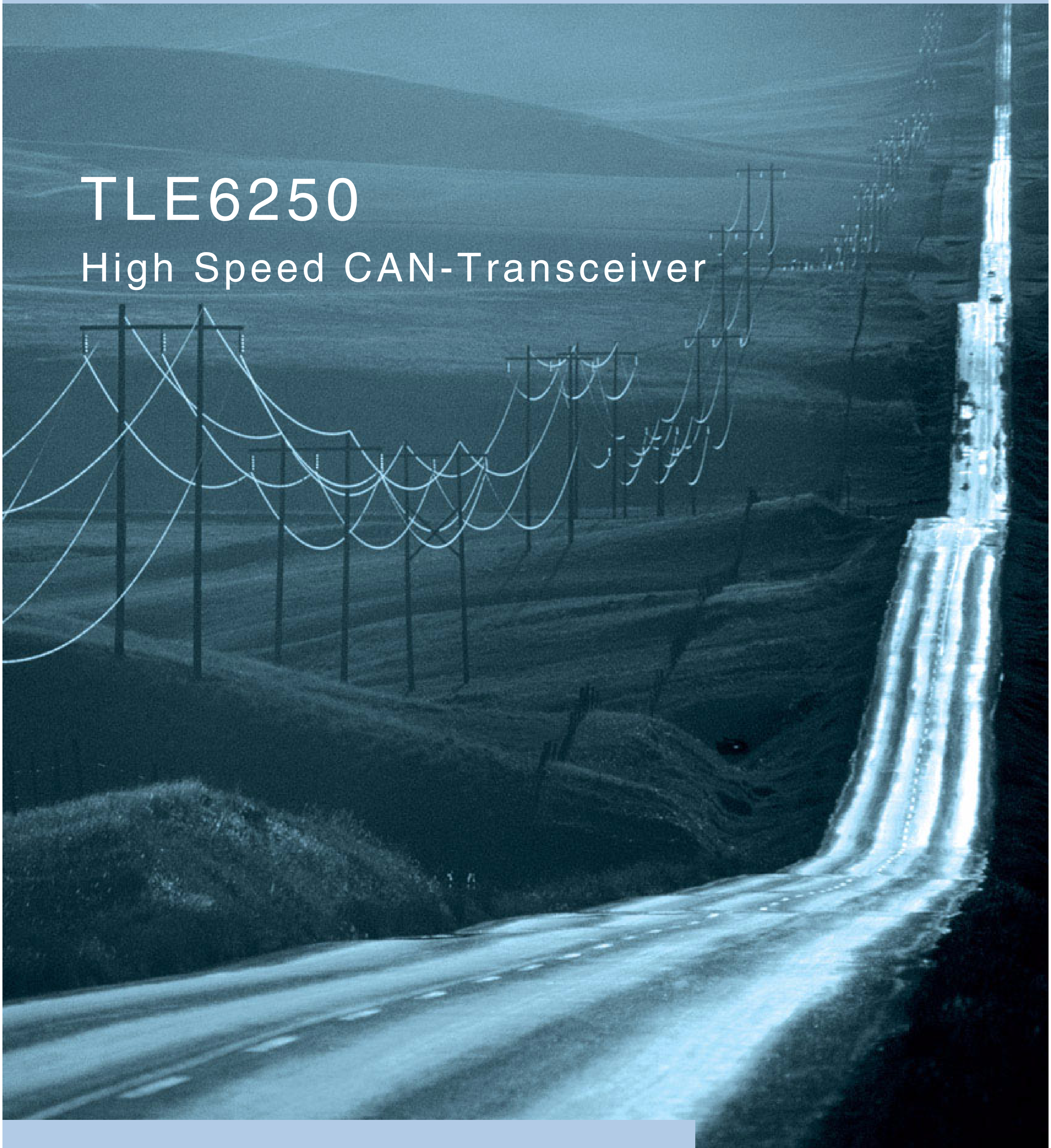
Data Sheet, Rev. 4.0, April 2008

TLE6250

High Speed CAN-Transceiver



Automotive Power

Never stop thinking

Edition 2008-04-28

Published by
Infineon Technologies AG
81726 Munich, Germany

Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (**www.infineon.com**).

Warnings

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.

Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

AEC Qualified RoHS

Features

- CAN data transmission rate up to 1 MBaud
- Receive-only Mode and Stand-by Mode
- Suitable for 12 V and 24 V applications
- Excellent EMC performance (very high immunity and very low emission)
- Version for 5 V and 3.3 V microcontrollers
- Bus pins are short circuit proof to ground and battery voltage
- Overtemperature protection
- Very wide temperature range (-40 °C up to 150 °C)
- Green Product (RoHS compliant)
- AEC Qualified

Description

The HS CAN-transceiver family TLE6250 (TLE6250G and TLE6250GV33) are monolithic integrated circuits that are available as bare die as well as in a PG-DSO-8 package. The ICs are optimized for high speed differential mode data transmission in automotive and industrial applications and they are compatible to ISO/DIS 11898. They work as an interface between the CAN protocol controller and the physical differential bus in both, 12 V and 24 V systems.

The ICs are based on the **S**mart **P**ower **T**echnology SPT® which allows bipolar and CMOS control circuitry in accordance with DMOS power devices existing on the same monolithic circuit. The TLE6250G is designed to withstand the severe conditions of automotive applications and provides excellent EMC performance.

Note: There are two versions available (refer to next page).

Type	Package
TLE6250G	PG-DSO-8
TLE6250C	(chip)
TLE6250GV33	PG-DSO-8
TLE6250CV33	(chip)

TLE6250G

5 V logic I/O version: RxD, TxD, INH, RM. Two Control pins (RM, INH) and 3 operation modes: Normal Mode, Stand-by Mode and Receive Only Mode.

TLE6250GV33

3.3 V logic I/O version (logic I/O voltage adaptive to V_{33} pin within the range 3.3 V to 5 V): RxD, TxD, INH. One control pin (INH) and two operation modes: Normal Mode and Standby Mode.

Pin Configuration

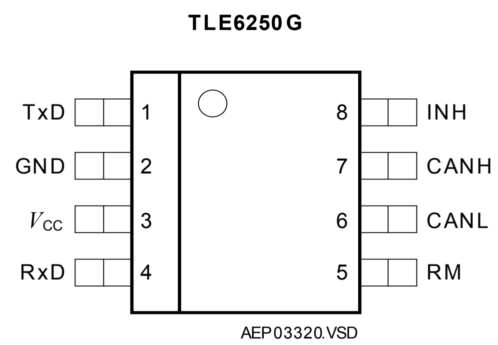


Figure 1 Pin Configuration TLE6250G (top view)

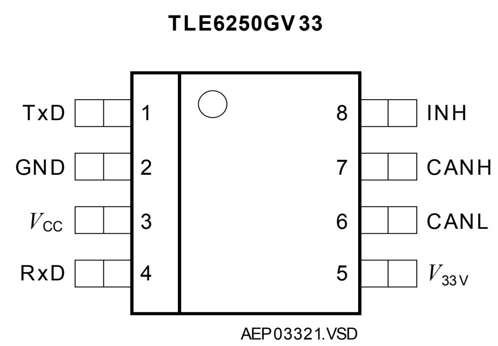


Figure 2 Pin Configuration TLE6250GV33 (top view)

Table 1 Pin Definitions and Functions TLE6250G

Pin No.	Symbol	Function
1	TxD	**CAN transmit data input;** 20 kΩ pull-up, LOW in dominant state
2	GND	**Ground**
3	V_{CC}	**5 V Supply input**
4	RxD	**CAN receive data output;** LOW in dominant state, integrated pull-up
5	RM	**Receive-only input;** control input, 20 kΩ pull-up, set low to activate RxD-only mode
6	CANL	**Low line I/O;** LOW in dominant state
7	CANH	**High line I/O;** HIGH in dominant state
8	INH	**Inhibit Input;** control input, 20 kΩ pull, set LOW for normal mode

Table 2 Pin Definitions and Functions TLE6250GV33

Pin No.	Symbol	Function
1	TxD	**CAN transmit data input;** 20 kΩ pull-up, LOW in dominant state
2	GND	**Ground**
3	V_{CC}	**5 V Supply input**
4	RxD	**CAN receive data output;** LOW in dominant state, integrated pull-up
5	V_{33V}	**Logic supply input; 3.3 V OR 5 V** microcontroller logic supply can be connected here! The digital I/Os of the TLE6250GV33 adopt to the connected microcontroller logic supply at V_{33V}
6	CANL	**Low line I/O;** LOW in dominant state
7	CANH	**High line I/O;** HIGH in dominant state
8	INH	**Inhibit Input;** control input, 20 kΩ pull, set LOW for normal mode

Functional Block Diagram

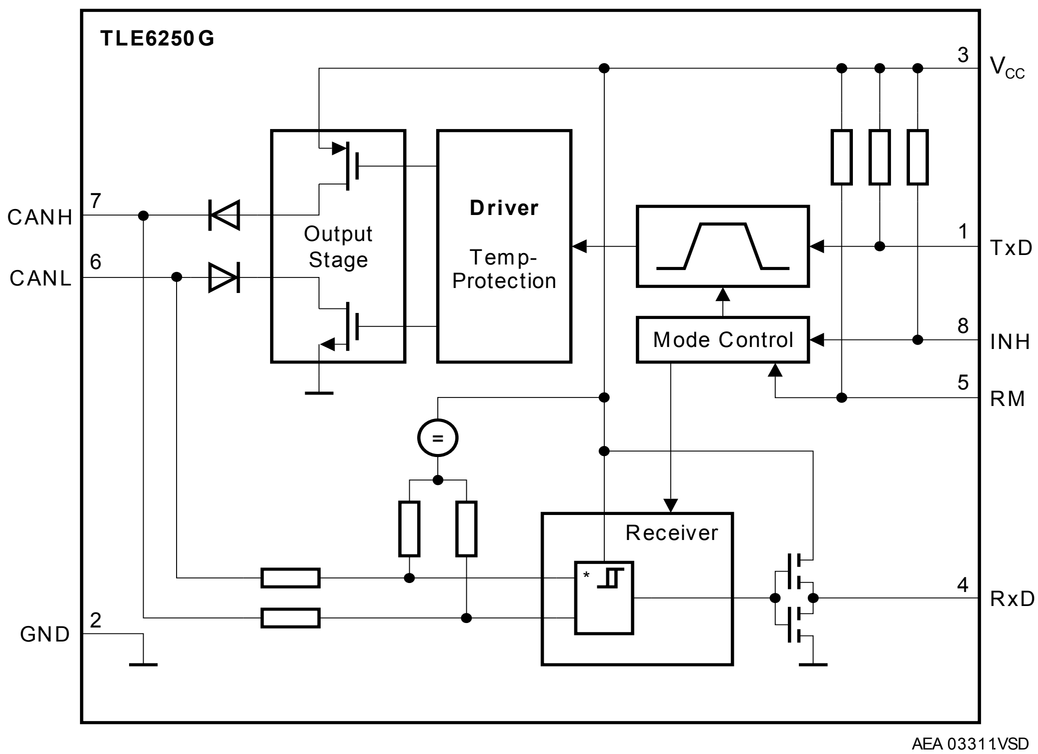


Figure 3 Block Diagram TLE6250G

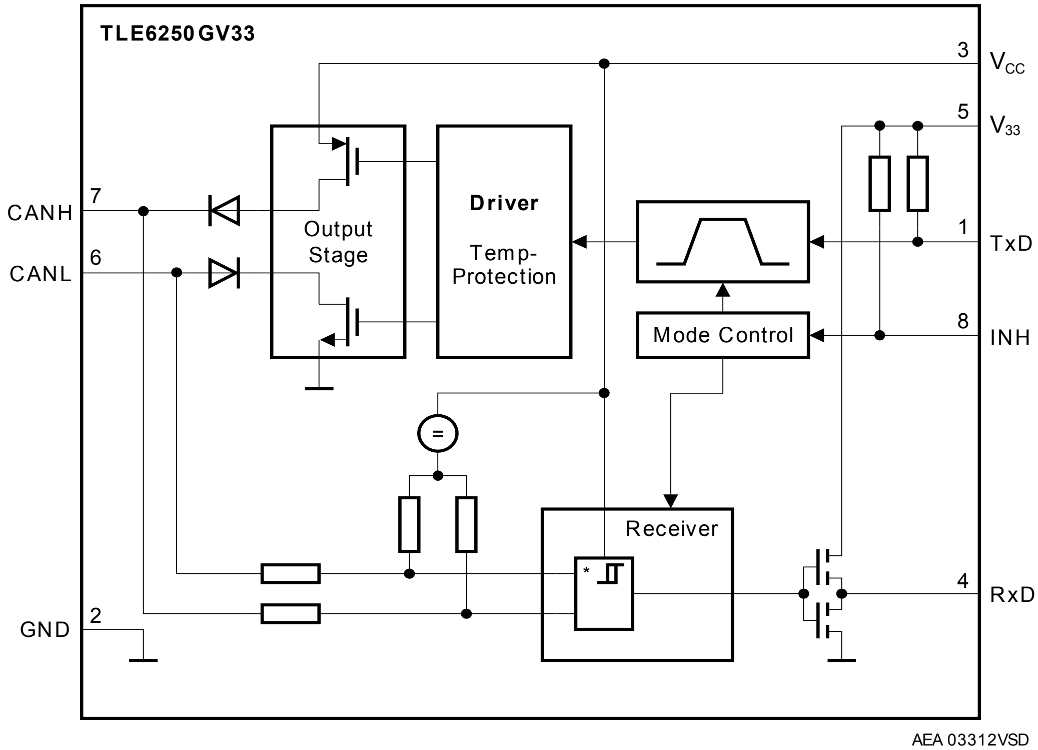


Figure 4 Block Diagram TLE6250GV33

Application Information

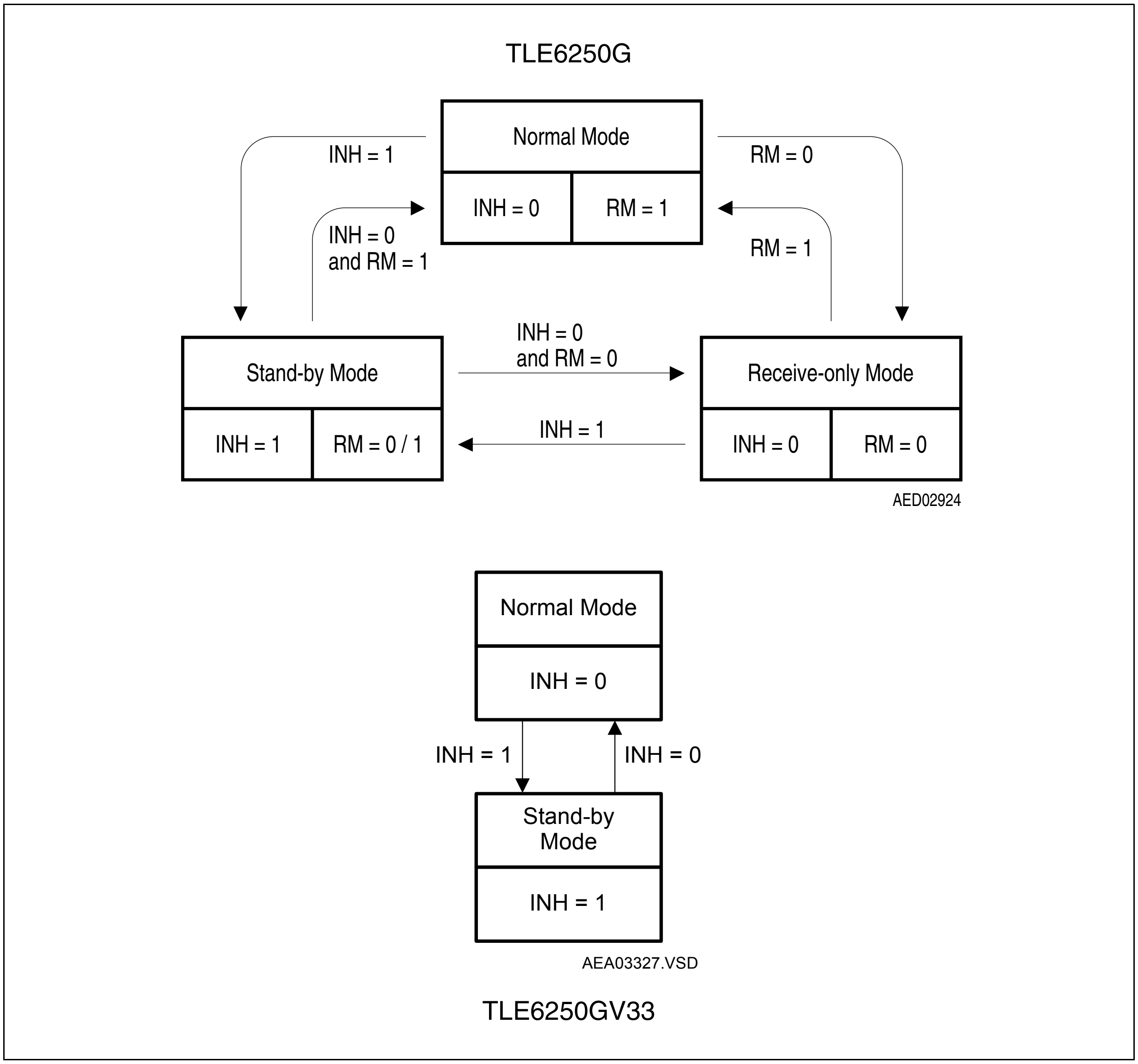


Figure 5 Mode State Diagram

Both, the TLE6250G as well as the TLE6250C offer three different operation modes (see **Figure 5**), controlled by the INH and RM pin. The TLE6250GV33 offers only two modes, controlled by the INH (GV33) pin respectively.

In the normal mode the device is able to receive and to transmit messages whereas in the receive-only mode signals at the TxD input are not transmitted to the CAN bus. The receive-only mode can be used for diagnostic purposes (to check the bus connections between the nodes) as well as to prevent the bus being blocked by a faulty permanent dominant TxD input signal. The stand-by mode is a low power mode that disables both, the receiver as well as the transmitter.

In case the receive-only feature is not used the RM pin has to be left open. When the stand-by mode is not used the INH pin has to be connected to ground level in order to switch the TLE6250G in normal mode.

Application Information for the 3.3 V Versions

The TLE6250GV33 can be used for both; 3.3 V and 5 V microcontroller logic supply, as shown in **Figure 6**. Don't apply external resistors between the power supply and this pin. This may cause a voltage drop and so reduce the available voltage at this pin.

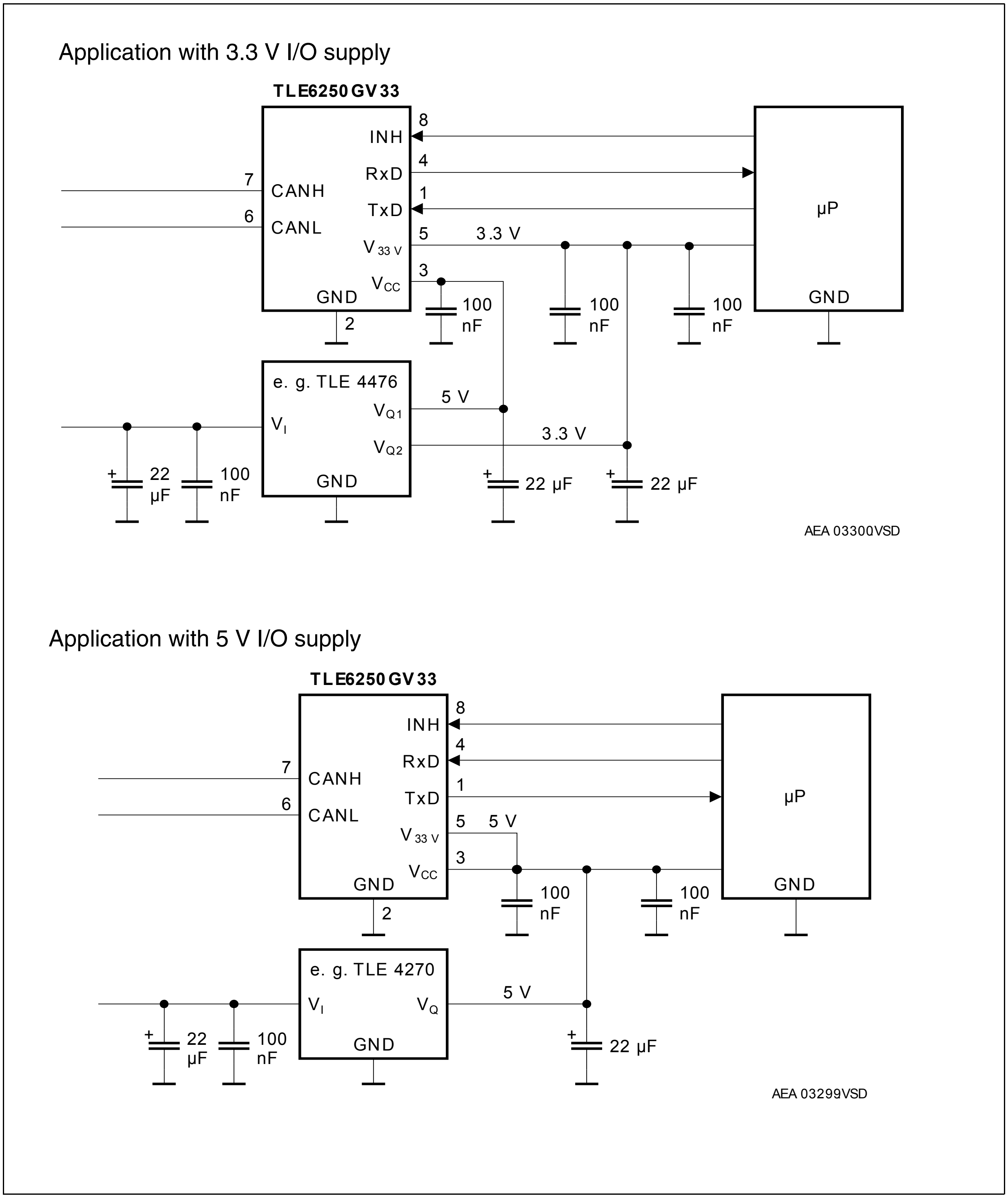


Figure 6 Application Circuits TLE6250GV33 Used for 3.3 V and 5 V Logic

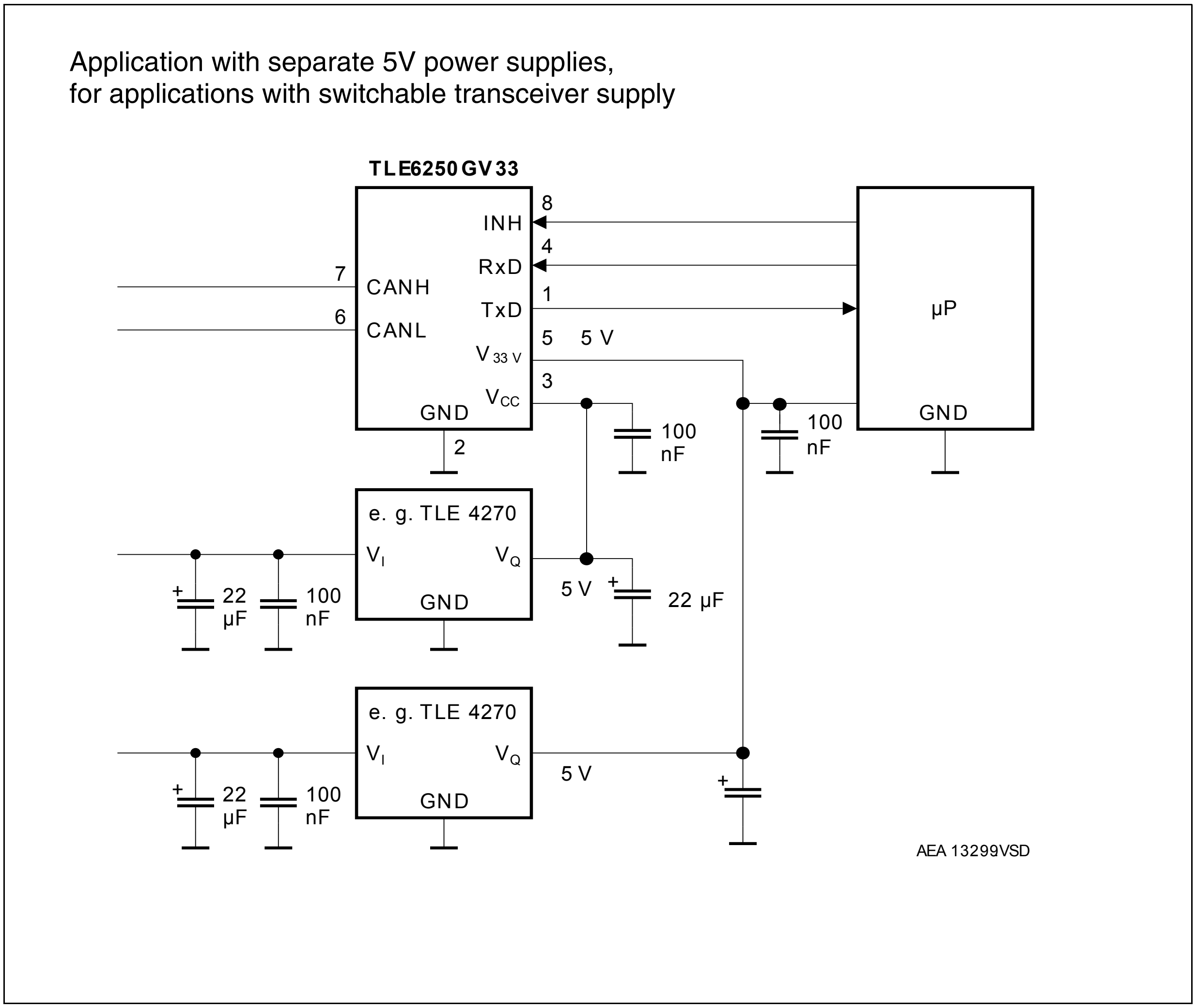


Figure 6 (cont.) Application Circuits TLE6250GV33 Used for 3.3 V and 5 V Logic

Electrical Characteristics TLE6250G (5 V version)

Table 3 Absolute Maximum Ratings

Parameter	Symbol	Limit Values		Unit	Remarks
		Min.	Max.		
Voltages					
Supply voltage	V_{CC}	-0.3	6.5	V	–
CAN input voltage (CANH, CANL)	$V_{CANH/L}$	-40	40	V	–
Logic voltages at INH, RM, TxD, RxD	V_I	-0.3	V_{CC}	V	0 V < V_{CC} < 5.5 V
Electrostatic discharge voltage at CANH, CANL	V_{ESD}	-6	6	kV	human body model (100 pF via 1.5 kΩ)
Electrostatic discharge voltage	V_{ESD}	-2	2	kV	human body model (100 pF via 1.5 kΩ)
Temperatures					
Junction temperature	T_j	-40	160	°C	–

Note: Maximum ratings are absolute ratings; exceeding any one of these values may cause irreversible damage to the integrated circuit.

Table 4 Operating Range

Parameter	Symbol	Limit Values		Unit	Remarks
		Min.	Max.		
Supply voltage	V_{CC}	4.5	5.5	V	–
Junction temperature	T_j	-40	150	°C	–
Thermal Resistances					
Junction ambient	R_{thj-a}	–	185	K/W	–
Thermal Shutdown (junction temperature)					
Thermal shutdown temperature	T_{jsD}	160	200	°C	10 °C hysteresis

Table 5 Electrical Characteristics

4.5 V < V_{CC} < 5.5 V; R_L = 60 Ω; V_{INH} < $V_{INH,ON}$; -40 °C < T_j < 150 °C; all voltages with respect to ground; positive current flowing into pin; unless otherwise specified.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Current Consumption						
Current consumption	I_{CC}	–	6	10	mA	recessive state; $V_{TxD} = V_{CC}$
Current consumption	I_{CC}	–	45	70	mA	dominant state; V_{TxD} = 0 V
Current consumption	I_{CC}	–	6	10	mA	receive-only mode; RM = low
Current consumption	$I_{CC,stb}$	–	1	10	µA	stand-by mode; TxD = RM = high
Receiver Output RxD						
HIGH level output current	$I_{RD,H}$	–	-4	-2	mA	$V_{RD} = 0.8 \times V_{CC}$, V_{diff} < 0.4 V[1)]
LOW level output current	$I_{RD,L}$	2	4	–	mA	$V_{RD} = 0.2 \times V_{CC}$, V_{diff} > 1 V[1)]
Transmission Input TxD						
HIGH level input voltage threshold	$V_{TD,H}$	–	$0.5 \times V_{CC}$	$0.7 \times V_{CC}$	V	recessive state
LOW level input voltage threshold	$V_{TD,L}$	$0.3 \times V_{CC}$	$0.4 \times V_{CC}$	–	V	dominant state
TxD pull-up resistance	R_{TD}	10	25	50	kΩ	–
Inhibit Input (pin INH)						
HIGH level input voltage threshold	$V_{INH,H}$	–	$0.5 \times V_{CC}$	$0.7 \times V_{CC}$	V	stand-by mode;
LOW level input voltage threshold	$V_{INH,L}$	$0.3 \times V_{CC}$	$0.4 \times V_{CC}$	–	V	normal mode
INH pull-up resistance	R_{INH}	10	25	50	kΩ	–

Table 5 Electrical Characteristics (cont'd)

4.5 V < V_{CC} < 5.5 V; R_L = 60 Ω; V_{INH} < $V_{INH,ON}$; -40 °C < T_j < 150 °C; all voltages with respect to ground; positive current flowing into pin; unless otherwise specified.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Receive only Input (pin RM) (5 V version only)						
HIGH level input voltage threshold	$V_{RM,H}$	–	0.5 × V_{CC}	0.7 × V_{CC}	V	normal mode;
LOW level input voltage threshold	$V_{RM,L}$	0.3 × V_{CC}	0.4 × V_{CC}	–	V	receive-only mode
RM pull-up resistance	R_{RM}	10	25	50	kΩ	–
Bus Receiver						
Differential receiver threshold voltage, recessive to dominant edge	$V_{diff,d}$	–	0.75	0.90	V	-20 V < (V_{CANH}, V_{CANL}) < 25 V V_{diff} = V_{CANH} - V_{CANL}
Differential receiver threshold voltage dominant to recessive edge	$V_{diff,r}$	0.50	0.60	–	V	-20 V < (V_{CANH}, V_{CANL}) < 25 V V_{diff} = V_{CANH} - V_{CANL}
Common Mode Range	CMR	-20	–	25	V	V_{CC} = 5 V
Differential receiver hysteresis	$V_{diff,hys}$	–	150	–	mV	–
CANH, CANL input resistance	R_i	10	20	30	kΩ	recessive state
Differential input resistance	R_{diff}	20	40	60	kΩ	recessive state

Table 5 Electrical Characteristics (cont'd)

4.5 V < V_{CC} < 5.5 V; R_L = 60 Ω; V_{INH} < $V_{INH,ON}$; -40 °C < T_j < 150 °C; all voltages with respect to ground; positive current flowing into pin; unless otherwise specified.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Bus Transmitter						
CANL/CANH recessive output voltage	$V_{CANL/H}$	0.4 × V_{CC}	–	0.6 × V_{CC}	V	V_{TxD} = V_{CC}
CCANH, CANL recessive output voltage difference V_{diff} = V_{CANH} - V_{CANL}, no load[2)]	V_{diff}	-1	–	0.05	V	V_{TxD} = V_{CC}
CANL dominant output voltage	V_{CANL}	–	–	2.0	V	V_{TxD} = 0 V; V_{CC} = 5 V
CANH dominant output voltage	V_{CANH}	2.8	–	–	V	V_{TxD} = 0 V; V_{CC} = 5 V
CANH, CANL dominant output voltage difference V_{diff} = V_{CANH} - V_{CANL}	V_{diff}	1.5	–	3.0	V	V_{TxD} = 0 V; V_{CC} = 5 V
CANL short circuit current	I_{CANLsc}	50	120	200	mA	$V_{CANLshort}$ = 18 V
		–	150	–	mA	$V_{CANLshort}$ = 36 V
CANH short circuit current	I_{CANHsc}	-200	-120	-50	mA	$V_{CANHshort}$ = 0 V
CANH short circuit current	I_{CANHsc}	–	-120	–	mA	$V_{CANHshort}$ = -5 V
Output current	$I_{CANH,lk}$	-50	-300	-400	µA	V_{CC} = 0 V, V_{CANH} = V_{CANL} = -7 V
		-50	-100	-150	µA	V_{CC} = 0 V, V_{CANH} = V_{CANL} = -2 V
Output current	$I_{CANH,lk}$	50	280	400	µA	V_{CC} = 0 V, V_{CANH} = V_{CANL} = 7 V
		50	100	150	µA	V_{CC} = 0 V, V_{CANH} = V_{CANL} = 2 V

Table 5 Electrical Characteristics (cont'd)

4.5 V < V_{CC} < 5.5 V; R_L = 60 Ω; V_{INH} < $V_{INH,ON}$; -40 °C < T_j < 150 °C; all voltages with respect to ground; positive current flowing into pin; unless otherwise specified.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Dynamic CAN-Transceiver Characteristics						
Propagation delay TxD-to-RxD LOW (recessive to dominant)	$t_{d(L),TR}$	–	150	280	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V; C_{RxD} = 20 pF
Propagation delay TxD-to-RxD HIGH (dominant to recessive)	$t_{d(H),TR}$	–	150	280	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V; C_{RxD} = 20 pF
Propagation delay TxD LOW to bus dominant	$t_{d(L),T}$	–	100	140	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V
Propagation delay TxD HIGH to bus recessive	$t_{d(H),T}$	–	100	140	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V
Propagation delay bus dominant to RxD LOW	$t_{d(L),R}$	–	50	140	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V; C_{RxD} = 20 pF
Propagation delay bus recessive to RxD HIGH	$t_{d(H),R}$	–	50	140	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V; C_{RxD} = 20 pF

1) $V_{diff} = V_{CANH} - V_{CANL}$

2) Deviation from ISO/DIS 11898

Electrical Characteristics TLE6250GV33 (3.3 V version)

Table 6 Absolute Maximum Ratings

Parameter	Symbol	Limit Values		Unit	Remarks
		Min.	Max.		
Voltages					
Supply voltage	V_{CC}	-0.3	6.5	V	–
3.3 V supply	V_{33V}	-0.3	6.5	V	–
CAN input voltage (CANH, CANL)	$V_{CANH/L}$	-40	40	V	–
Logic voltages at INH, RM, TxD, RxD	V_I	-0.3	V_{CC}	V	0 V < V_{CC} < 5.5 V
Electrostatic discharge voltage at CANH, CANL	V_{ESD}	-6	6	kV	human body model (100 pF via 1.5 kΩ)
Electrostatic discharge voltage	V_{ESD}	-2	2	kV	human body model (100 pF via 1.5 kΩ)
Temperatures					
Junction temperature	T_j	-40	160	°C	–

Note: Maximum ratings are absolute ratings; exceeding any one of these values may cause irreversible damage to the integrated circuit.

Table 7 Operating Range

Parameter	Symbol	Limit Values		Unit	Remarks
		Min.	Max.		
Supply voltage	V_{CC}	4.5	5.5	V	–
3.3 V supply voltage	V_{33V}	3.0	5.5	V	–
Junction temperature	T_j	-40	150	°C	–
Thermal Resistances					
Junction ambient	R_{thj-a}	–	185	K/W	–
Thermal Shutdown (junction temperature)					
Thermal shutdown temperature	T_{jsD}	160	200	°C	10 °C hysteresis

Table 8 Electrical Characteristics

4.5 V < V_{CC} < 5.5 V; (3.0 V < V_{33V} < 5.5V for 3.3 V version); R_L = 60 Ω; V_{INH} < $V_{INH,ON}$; -40 °C < T_j < 150 °C; all voltages with respect to ground; positive current flowing into pin; unless otherwise specified.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Current Consumption (3.3 V version)						
Current consumption	I_{CC+33V}	–	6	10	mA	recessive state; V_{TxD} = V_{33V}
Current consumption	I_{CC+33V}	–	45	70	mA	dominant state; V_{TxD} = 0 V
Current consumption	I_{33V}	–	–	2	mA	–
Current consumption	$I_{CC+33V,stb}$	–	1	10	µA	stand-by mode, TxD = high
Receiver Output RxD						
HIGH level output current	$I_{RD,H}$	–	-2	-1	mA	V_{RD} = 0.8 × V_{33V}, V_{diff} < 0.4 V[1)]
LOW level output current	$I_{RD,L}$	1	2	–	mA	V_{RD} = 0.2 × V_{33V}, V_{diff} > 1 V[1)]
Transmission Input TxD						
HIGH level input voltage threshold	$V_{TD,H}$	–	0.55× V_{33V}	0.7 × V_{33V}	V	recessive state
LOW level input voltage threshold	$V_{TD,L}$	0.3 × V_{33V}	0.45× V_{33V}	–	V	dominant state
TxD pull-up resistance	R_{TD}	10	25	50	kΩ	–
Inhibit Input (pin INH)						
HIGH level input voltage threshold	$V_{INH,H}$	–	0.55× V_{33V}	0.7 × V_{33V}	V	stand-by mode;
LOW level input voltage threshold	$V_{INH,L}$	0.3 × V_{33V}	0.45× V_{33V}	–	V	normal mode;
INH pull-up resistance	R_{INH}	10	25	50	kΩ	–

Table 8 Electrical Characteristics (cont'd)

4.5 V < V_{CC} < 5.5 V; (3.0 V < V_{33V} < 5.5V for 3.3 V version); R_L = 60 Ω; V_{INH} < $V_{INH,ON}$; -40 °C < T_j < 150 °C; all voltages with respect to ground; positive current flowing into pin; unless otherwise specified.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Bus Receiver						
Differential receiver threshold voltage, recessive to dominant edge	$V_{diff,d}$	–	0.75	0.90	V	-20 V < (V_{CANH}, V_{CANL}) < 25 V V_{diff} = V_{CANH} - V_{CANL}
Differential receiver threshold voltage, dominant to recessive edge	$V_{diff,r}$	0.50	0.60	–	V	-20 V < (V_{CANH}, V_{CANL}) < 25 V V_{diff} = V_{CANH} - V_{CANL}
Common Mode Range	CMR	-20	–	25	V	V_{CC} = 5 V
Differential receiver hysteresis	$V_{diff,hys}$	–	150	–	mV	–
CANH, CANL input resistance	R_i	10	20	30	kΩ	recessive state
Differential input resistance	R_{diff}	20	40	60	kΩ	recessive state

Table 8 **Electrical Characteristics** (cont'd)

4.5 V < V_{CC} < 5.5 V; (3.0 V < V_{33V} < 5.5V for 3.3 V version); R_L = 60 Ω; V_{INH} < $V_{INH,ON}$; -40 °C < T_j < 150 °C; all voltages with respect to ground; positive current flowing into pin; unless otherwise specified.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Bus Transmitter						
CANL/CANH recessive output voltage	$V_{CANL/H}$	0.4 × V_{CC}	–	0.6 × V_{CC}	V	V_{TxD} = V_{33V}
CANH, CANL recessive output voltage difference V_{diff} = V_{CANH} - V_{CANL}, no load[2)]	V_{diff}	-1	–	0.05	V	V_{TxD} = V_{33V}
CANL dominant output voltage	V_{CANL}	–	–	2.0	V	V_{TxD} = 0 V; V_{CC} = 5 V
CANH dominant output voltage	V_{CANH}	2.8	–	–	V	V_{TxD} = 0 V; V_{CC} = 5 V
CANH, CANL dominant output voltage difference V_{diff} = V_{CANH} - V_{CANL}	V_{diff}	1.5	–	3.0	V	V_{TxD} = 0 V; V_{CC} = 5 V
CANL short circuit current	I_{CANLsc}	50	120	200	mA	$V_{CANLshort}$ = 18 V
		–	150	–	mA	$V_{CANLshort}$ = 36 V
CANH short circuit current	I_{CANHsc}	-200	-120	-50	mA	$V_{CANHshort}$ = 0 V
CANH short circuit current	I_{CANHsc}	–	-120	–	mA	$V_{CANHshort}$ = -5 V
Output current	$I_{CANH/L,lk}$	-50	-300	-400	µA	V_{CC} = 0 V, V_{CANH} = V_{CANL} = -7 V
		-50	-100	-150	µA	V_{CC} = 0 V, V_{CANH} =V_{CANL} = -2 V
Output current	$I_{CANH/L,lk}$	50	280	400	µA	V_{CC} = 0 V, V_{CANH} = V_{CANL} = 7 V
		50	100	150	µA	V_{CC} = 0 V, V_{CANH} = V_{CANL} = 2 V

Table 8 Electrical Characteristics (cont'd)

4.5 V < V_{CC} < 5.5 V; (3.0 V < V_{33V} < 5.5V for 3.3 V version); R_L = 60 Ω; V_{INH} < $V_{INH,ON}$; -40 °C < T_j < 150 °C; all voltages with respect to ground; positive current flowing into pin; unless otherwise specified.

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Dynamic CAN-Transceiver Characteristics						
Propagation delay TxD-to-RxD LOW (recessive to dominant)	$t_{d(L),TR}$	–	150	280	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V; C_{RxD} = 20 pF
Propagation delay TxD-to-RxD HIGH (dominant to recessive)	$t_{d(H),TR}$	–	150	280	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V; C_{RxD} = 20 pF
Propagation delay TxD LOW to bus dominant	$t_{d(L),T}$	–	100	140	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V
Propagation delay TxD HIGH to bus recessive	$t_{d(H),T}$	–	100	140	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V
Propagation delay bus dominant to RxD LOW	$t_{d(L),R}$	–	50	140	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V; C_{RxD} = 20 pF
Propagation delay bus recessive to RxD HIGH	$t_{d(H),R}$	–	50	140	ns	C_L = 47 pF; R_L = 60 Ω; V_{CC} = 5 V; C_{RxD} = 20 pF

1) $V_{diff} = V_{CANH} - V_{CANL}$

2) Deviation from ISO/DIS 11898

Diagrams

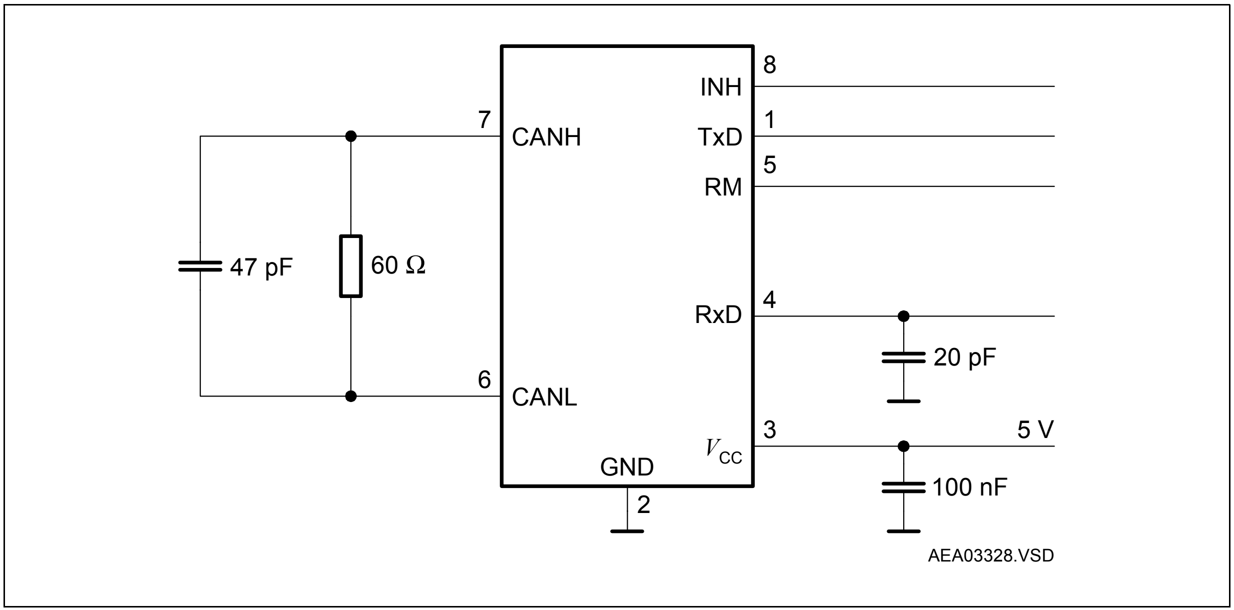


Figure 7 Test Circuit for Dynamic Characteristics (5 V Version)

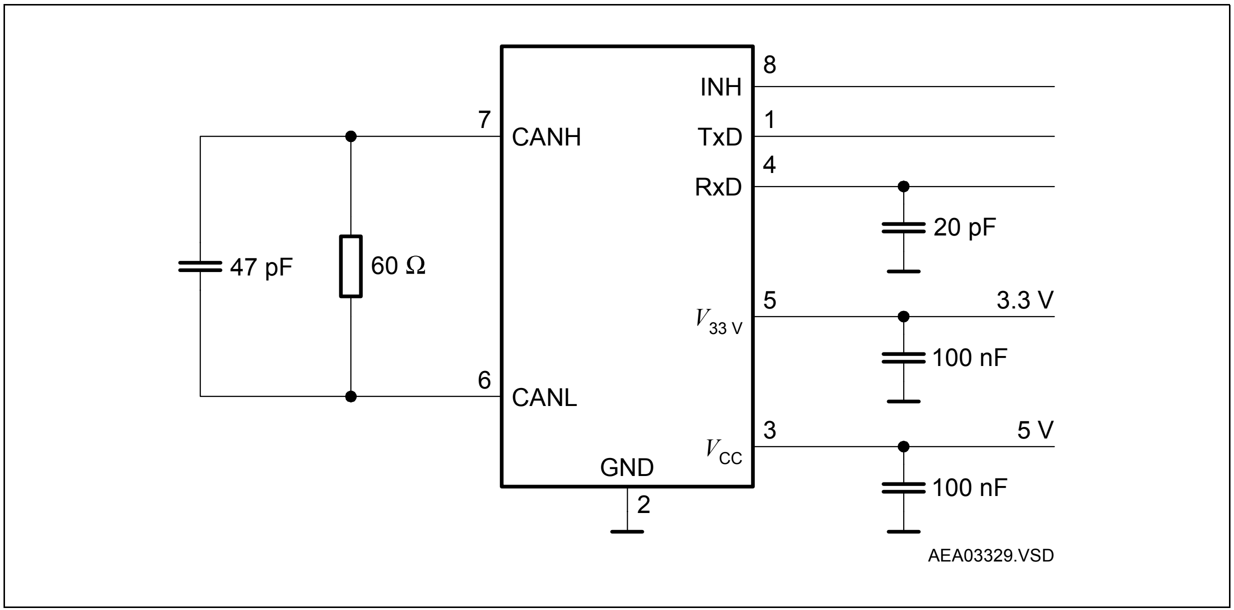


Figure 8 Test Circuit for Dynamic Characteristics (GV33 Version)

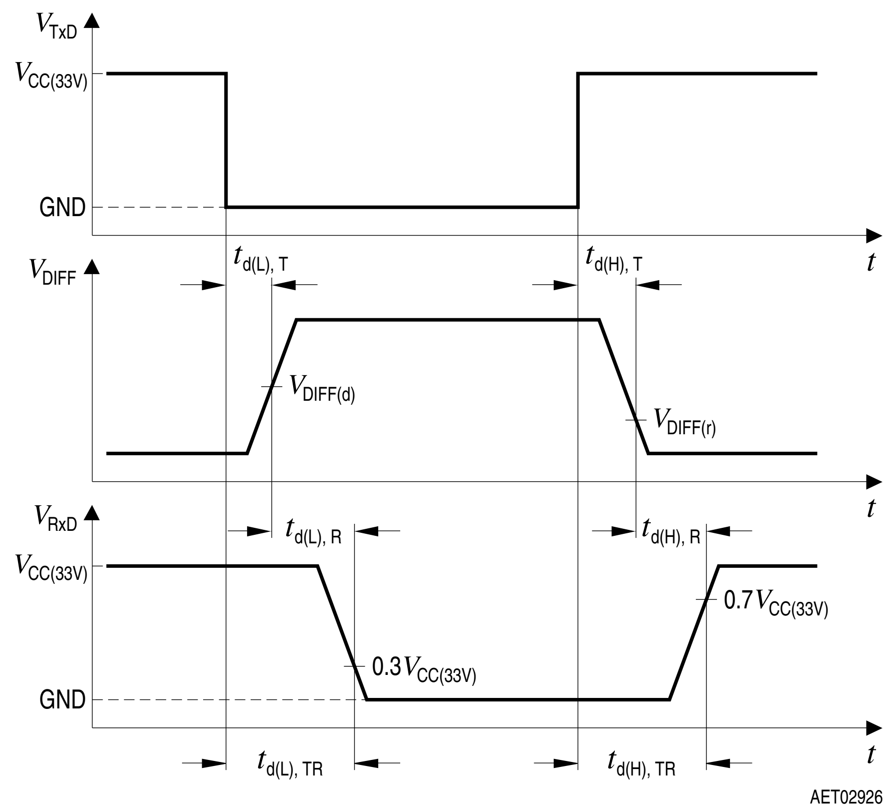


Figure 9 Timing Diagrams for Dynamic Characteristics

Application

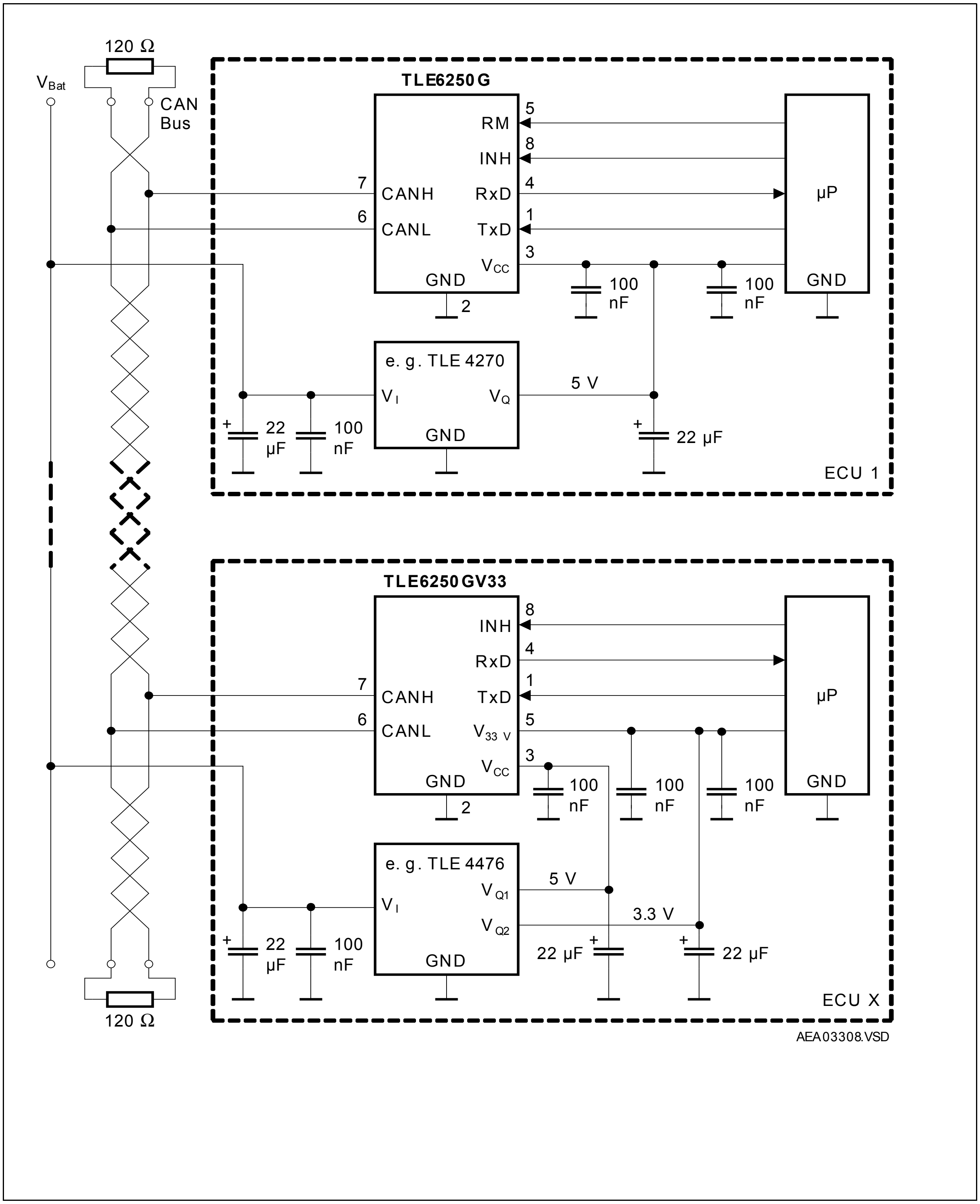
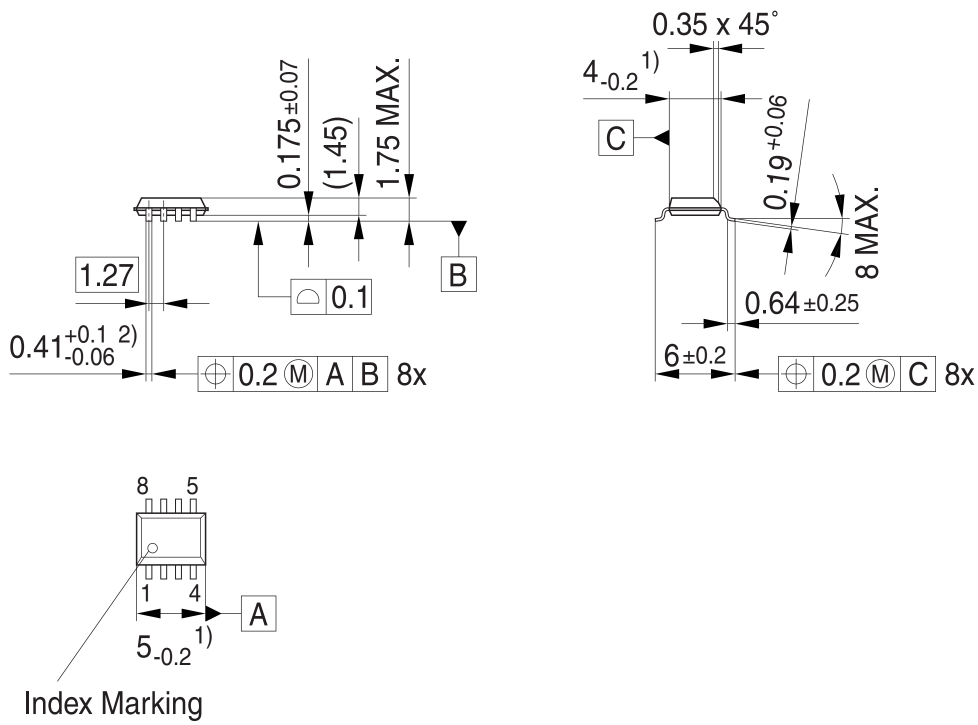


Figure 10 Application Circuit TLE6250G with TLE6250GV33

Package Outlines



1) Does not include plastic or metal protrusion of 0.15 max. per side
2) Lead width can be 0.61 max. in dambar area

GPS01181

Figure 11 **PG-DSO-8** (PG-DSO-8-16 Plastic Dual Small Outline)

Green Product (RoHS compliant)

To meet the world-wide customer requirements for environmentally friendly products and to be compliant with government regulations the device is available as a green product. Green products are RoHS-Compliant (i.e Pb-free finish on leads and suitable for Pb-free soldering according to IPC/JEDEC J-STD-020).

You can find all of our packages, sorts of packing and others in our Infineon Internet Page “Products”: **http://www.infineon.com/products**.

SMD = Surface Mounted Device

Dimensions in mm

Revision History:	**2008-04-28**	Rev. 4.0
Previous Version:Rev. 3.9 (Data Sheet)		

Page	Correction inside the TLE6250GV33 characteristics
Page 20	Changed symbol for the leakage current CANH/L: From $I_{\text{CANH,lk}}$ to $I_{\text{CANH/L,lk}}$ Changed maximum limit for the parameter: Output current, $I_{\text{CANH/L,lk}}$, V_{CC} = 0 V,V_{CANH} = V_{CANL} = 7 V: From 300 µA to 400 µA
Page 26	updated Revision History