钍地半导体
Tudi Semiconductor

Product Specification

TUDI-MAX3441E/3442E/3443E/3444E

±15kV ESD-Protected, ±60V Fault-Protected,
10Mbps, Fail-Safe RS-485/J1708 Transceivers

网址 www.sztdbdt.com

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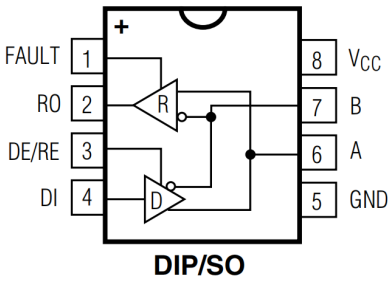
semiconductor device manufacturer

- Design
- research and development
- production
- and sales

Features

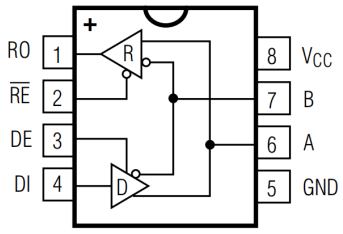
- ±15kV ESD Protection
- ±60V Fault Protection
- Guaranteed 10Mbps Data Rate (MAX3441E/MAX3443E)
- Hot Swappable for Telecom Applications
- True Fail-Safe Receiver Inputs
- Enhanced Slew-Rate-Limiting Facilitates Error-Free Data Transmission (MAX3440E/MAX3442E/MAX3444E)
- Allow Up to 128 Transceivers on the Bus
- -7V to +12V Common-Mode Input Range
- Automotive Temperature Range (-40 ° C to +125 ° C)
- Industry-Standard Pinout

TOP VIEW



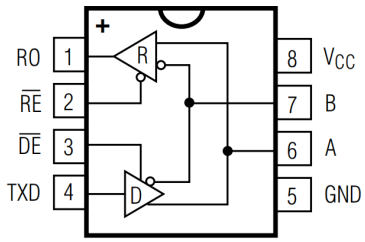
DIP/SO

MAX3440E
MAX3441E



DIP/SO

MAX3442E
MAX3443E



DIP/SO

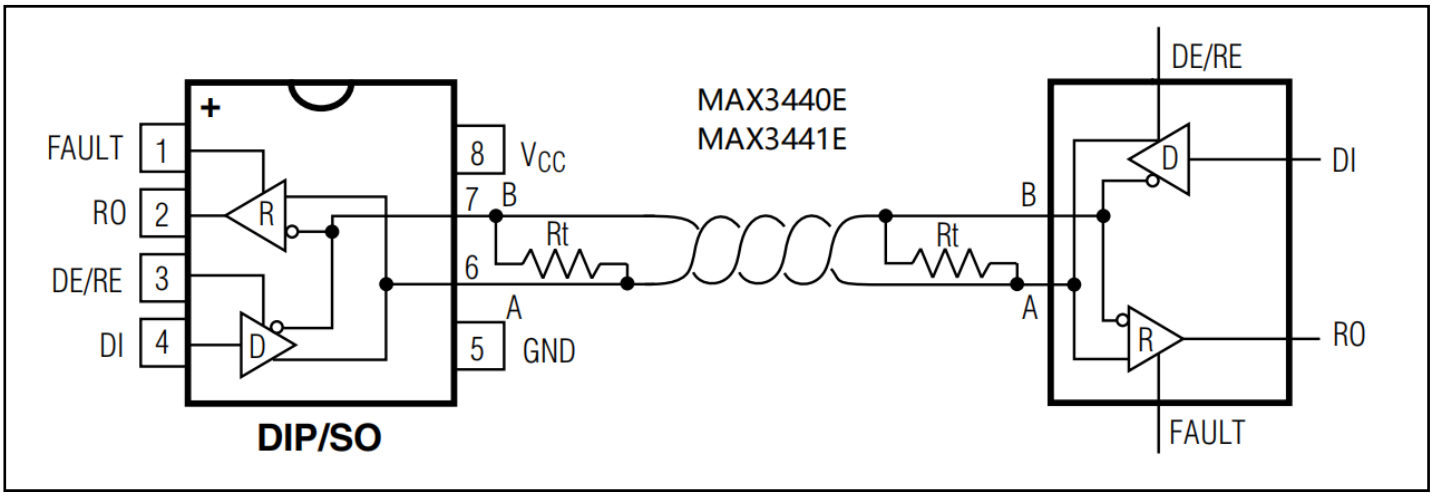
MAX3444E

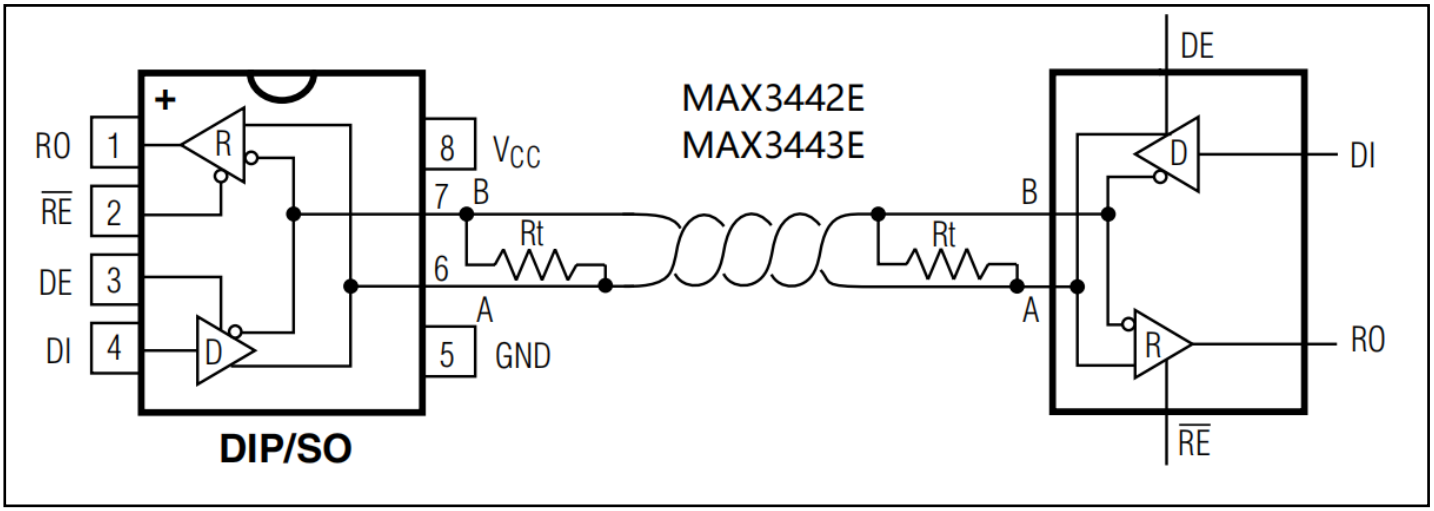
Applications

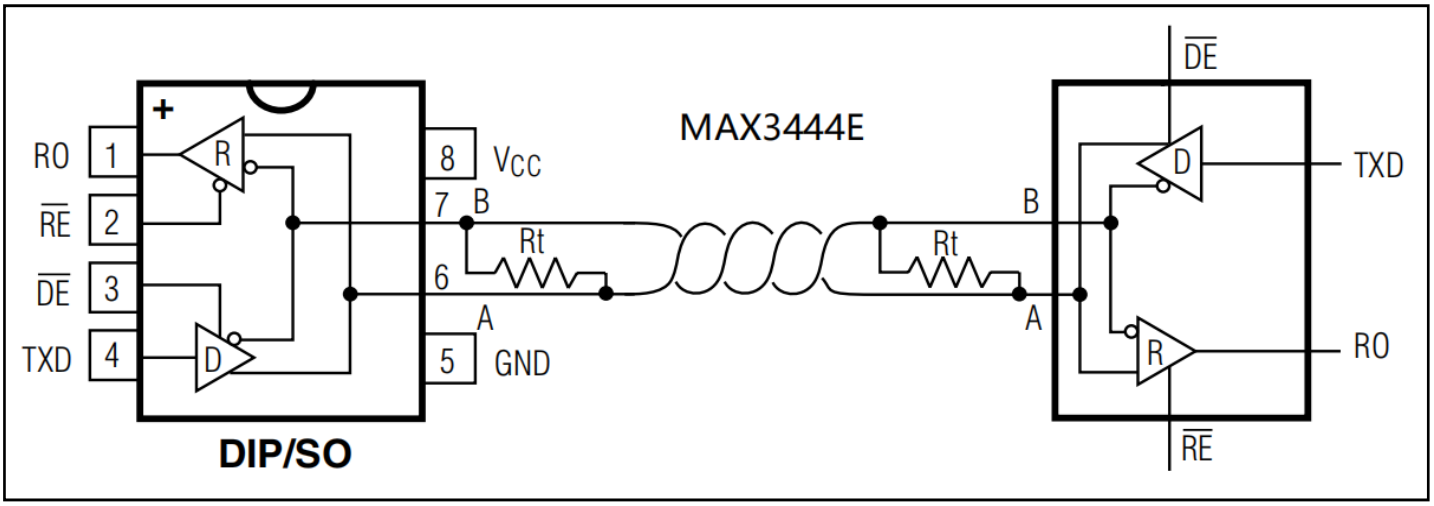
RS-422/RS-485 Communications
Truck and Trailer Applications
Industrial Networks
Telecommunications Systems
Automotive Applications
HVAC Controls

General Description

The MAX3440E – MAX3444E fault-protected RS-485 and J1708 transceivers feature ±60V protection from signal faults on communication bus lines. Each device contains one differential line driver with three-state output and one differential line receiver with three-state input. The 1/4-unit-load receiver input impedance allows up to 128 trans-ceivers on a single bus. The devices operate from a 5V supply at data rates of up to 10Mbps. True fail-safe inputs guarantee a logic-high receiver output when the receiver inputs are open, shorted, or connected to an idle data line. Hot-swap circuitry eliminates false transitions on the data bus during circuit initialization or connection to a live backplane. Short-circuit current-limiting and ther-mal shutdown circuitry protect the driver against exces-sive power dissipation, and on-chip ±15kV ESD protection eliminates costly external protection devices.
The MAX3440E – MAX3444E are available in 8-pin SO and PDIP packages and are specified over industrial and automotive temperature ranges.


MAX3440E
MAX3441E
FAULT
RO
DE/RE
DI
VCC
GND
Rt
DE/RE
DI
RO
FAULT
DIP/SO


MAX3442E
MAX3443E
RO
RE
DE
DI
VCC
GND
Rt
DE
DI
RO
RE
DIP/SO


MAX3444E
RO
RE
DE
TXD
VCC
GND
Rt
DE
TXD
RO
RE
DIP/SO

ABSOLUTE MAXIMUM RATINGS

Voltages Referenced to GND
V_{CC} .....+7V
FAULT, DE/RE, $\overline{RE}$, DE, $\overline{DE}$, DI, TXD.....-0.3V to (V_{CC} + 0.3V)
A, B (Note 1) .....±60V
RO .....-0.3V to (V_{CC} + 0.3V)
Short-Circuit Duration (RO, A, B) .....Continuous
Continuous Power Dissipation (T_A = +70°C)
SO (derate 5.9mW/°C above +70°C).....471mW
PDIP (derate 9.09mW/°C above +70°C).....727mW

Operating Temperature Ranges
MAX344_EE_ _ .....-40°C to +85°C
MAX344_EA_ _ .....-40°C to +125°C
Storage Temperature Range .....-65°C to +150°C
Junction Temperature .....+150°C
Lead Temperature (soldering, 10s) .....+300°C
Soldering Temperature (reflow) .....+260°C

Note 1: A, B must be terminated with 54Ω or 100Ω to guarantee ±60V fault protection.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

DC ELECTRICAL CHARACTERISTICS

(V_{CC} = +4.75V to +5.25V, T_A = T_{MIN} to T_{MAX}, unless otherwise noted. Typical values are at V_{CC} = +5V and T_A = +25°C.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
DRIVER						
Differential Driver Output	V_{OD}	Figure 1, R_L = 100Ω	2		V_{CC}	V
		Figure 1, R_L = 54Ω	1.5		V_{CC}	
Change in Magnitude of Differential Output Voltage	ΔV_{OD}	Figure 1, R_L = 100Ω or 54Ω (Note 2)			0.2	V
Driver Common-Mode Output Voltage	V_{OC}	Figure 1, R_L = 100Ω or 54Ω		V_{CC} / 2	3	V
Change in Magnitude of Common-Mode Voltage	ΔV_{OC}	Figure 1, R_L = 100Ω or 54Ω (Note 2)			0.2	V
DRIVER LOGIC						
Driver Input High Voltage	V_{DIH}		2			V
Driver Input Low Voltage	V_{DIL}				0.8	V
Driver Input Current	I_{DIN}				±2	µA
Driver Short-Circuit Output Current (Note 3)	I_{OSD}	0V ≤ V_{OUT} ≤ +12V			+350	mA
		-7V ≤ V_{OUT} ≤ V_{CC}	-350			
Driver Short-Circuit Foldback Output Current	I_{OSDF}	(V_{CC} - 1V) ≤ V_{OUT} ≤ +12V (Note 3)	+25			mA
		-7V ≤ V_{OUT} ≤ +1V (Note 3)			-25	
RECEIVER						
Input Current	$I_{A,B}$	A, B: V_{CC} = GND, $V_{A, B}$ = 12V			250	µA
		A, B: $V_{A, B}$ = -7V			-150	
		A, B: $V_{A, B}$ = ±60V			±6	mA
Receiver Differential Threshold Voltage	V_{TH}	-7V ≤ V_{CM} ≤ +12V	-200		-50	mV
Receiver Input Hysteresis	ΔV_{TH}			25		mV

DC ELECTRICAL CHARACTERISTICS (continued)

(V_{CC} = +4.75V to +5.25V, T_A = T_{MIN} to T_{MAX}, unless otherwise noted. Typical values are at V_{CC} = +5V and T_A = +25°C.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
RECEIVER LOGIC						
Output High Voltage	V_{OH}	Figure 2, I_{OH} = -1.6mA	V_{CC} - 0.6			V
Output Low Voltage	V_{OL}	Figure 2, I_{OL} = 1mA			0.4	V
Three-State Output Current at Receiver	I_{OZR}	0V ≤ $V_{A, B}$ ≤ V_{CC}			±1	µA
Receiver Input Resistance	R_{IN}	-7V ≤ V_{CM} ≤ +12V	48			kΩ
Receiver Output Short-Circuit Current	I_{OSR}	0V ≤ V_{RO} ≤ V_{CC}			±95	mA
CONTROL						
Control Input High Voltage	V_{CIH}	DE, $\overline{DE}$, $\overline{RE}$, DE/RE	2			V
Input Current Latch During First Rising Edge	I_{IN}	DE, DE/RE, $\overline{RE}$		90		µA
SUPPLY CURRENT						
Normal Operation	I_Q	No load, DI = V_{CC} or GND; MAX3440E (DE/RE = V_{CC}), MAX3442E (DE = V_{CC}, $\overline{RE}$ = GND), MAX3444E ($\overline{DE}$ = $\overline{RE}$ = GND)			30	mA
		No load, DI = V_{CC} or GND; MAX3441E (DE/RE = V_{CC}), MAX3443E (DE = V_{CC}, $\overline{RE}$ = GND)			10	
Supply Current in Shutdown Mode	I_{SHDN}	DE = GND, $\overline{RE}$ = V_{CC} (MAX3442E/MAX3443E)			20	µA
		DE = GND, $\overline{RE}$ = V_{CC}, T_A = +25°C (MAX3442E/MAX3443E)			10	
		$\overline{DE}$ = $\overline{RE}$ = V_{CC} (MAX3444E)			100	
		$\overline{DE}$ = $\overline{RE}$ = V_{CC}, T_A = +25°C (MAX3444E)			10	
Supply Current with Output Shorted to ±60V	I_{SHRT}	DE = GND, $\overline{RE}$ = GND, no load output in three-state (MAX3443E)			±15	mA

PROTECTION SPECIFICATIONS

(V_{CC} = +4.75V to +5.25V, T_A = T_{MIN} to T_{MAX}, unless otherwise noted. Typical values are at V_{CC} = +5V and T_A = +25°C.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Overvoltage Protection		A, B; R_{SOURCE} = 0, R_L = 54Ω	±60			V
ESD Protection		A, B; Human Body Model		±15		kV
FAULT DETECTION						
Receiver Differential Threshold	F_{DIPH}	V_{CM} = 0V, high limit	270		450	mV
Receiver Differential Threshold	F_{DIPL}	V_{CM} = 0V, low limit	-450		-270	mV
Fault-Detection Common-Mode Input Voltage Positive			12			V
Fault-Detection Common-Mode Input Voltage Negative					-7	V

SWITCHING CHARACTERISTICS (MAX3440E/MAX3442E/MAX3444E)

(V_{CC} = +4.75V to +5.25V, T_A = T_{MIN} to T_{MAX}, unless otherwise noted. Typical values are at V_{CC} = +5V and T_A = +25°C.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Driver Propagation Delay	t_{PLHA}, t_{PLHB}	MAX3440E/MAX3442E, Figure 3, R_L = 54Ω, C_L = 50pF			2000	ns
		MAX3444E, R_{DIFF} = 60Ω, C_{DIFF} = 100pF				
Driver Differential Propagation Delay	t_{DPLH}, t_{DPHL}	Figure 4, R_L = 54Ω, C_L = 50pF			2000	ns
Driver Differential Output Transition Time	t_{LH},t_{HL}	Figure 4, R_L = 54Ω, C_L = 50pF	200		2000	ns
Driver Output Skew	t_{SKEWAB}, t_{SKEWBA}	R_L = 54Ω, C_L = 50pF, t_{SKEWAB} = $\lvert t_{PLHA} - t_{PHLB} \rvert$, t_{SKEWBA} = $\lvert t_{PLHB} - t_{PHLA} \rvert$			350	ns
Differential Driver Output Skew	t_{DSKEW}	R_L = 54Ω, C_L = 50pF, t_{DSKEW} = $\lvert t_{DPLH} - t_{DPHL} \rvert$			200	ns
Maximum Data Rate	f_{MAX}		250			kbps
Driver Enable Time to Output High	t_{PDZH}	Figure 5, R_L = 500Ω, C_L = 50pF			2000	ns
Driver Disable Time from Output High	t_{PDHZ}	Figure 5, R_L = 500Ω, C_L = 50pF			2000	ns
Driver Enable Time from Shutdown to Output High	t_{PDHS}	Figure 5, R_L = 500Ω, C_L = 50pF (MAX3442E/MAX3444E)			4.2	µs
Driver Enable Time to Output Low	t_{PDZL}	Figure 6, R_L = 500Ω, C_L = 50pF			2000	ns
Driver Disable Time from Output Low	t_{PDLZ}	Figure 6, R_L = 500Ω, C_L = 50pF			2000	ns
Driver Enable Time from Shutdown to Output Low	t_{PDLS}	Figure 6, R_L = 500Ω, C_L = 50pF (MAX3442E/MAX3444E)			4.2	µs
Driver Time to Shutdown	t_{SHDN}	R_L = 500Ω, C_L = 50pF (MAX3442E/MAX3444E)			800	ns
Receiver Propagation Delay	t_{RPLH}, t_{RPHL}	Figure 7, C_L = 20pF, V_{ID} = 2V, V_{CM} = 0V			2000	ns
Receiver Output Skew	t_{RSKEW}	C_L = 20pF, t_{RSKEW} = $\lvert t_{RPLH} - t_{RPHL} \rvert$			200	ns
Receiver Enable Time to Output High	t_{RPZH}	Figure 8, R_L = 1kΩ, C_L = 20pF			2000	ns
Receiver Disable Time from Output High	t_{RPHZ}	Figure 8, R_L = 1kΩ, C_L = 20pF			2000	ns
Receiver Wake Time from Shutdown	t_{RPWAKE}	Figure 8, R_L = 1kΩ, C_L = 20pF (MAX3442E/MAX3444E)			4.2	µs
Receiver Enable Time to Output Low	t_{RPZL}	Figure 8, R_L = 1kΩ, C_L = 20pF			2000	ns
Receiver Disable Time from Output Low	t_{RPLZ}	Figure 8, R_L = 1kΩ, C_L = 20pF			2000	ns
Receiver Time to Shutdown	t_{SHDN}	R_L = 500Ω, C_L= 50pF (MAX3442E/MAX3444E)			800	ns

SWITCHING CHARACTERISTICS (MAX3441E/MAX3443E)

(V_{CC} = +4.75V to +5.25V, T_A = T_{MIN} to T_{MAX}, unless otherwise noted. Typical values are at V_{CC} = +5V and T_A = +25°C.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Driver Propagation Delay	t_{PLHA}, t_{PLHB}	Figure 3, R_L = 27Ω, C_L = 50pF			60	ns
Driver Differential Propagation Delay	t_{DPLH}, t_{DPHL}	Figure 4, R_L = 54Ω, C_L = 50pF			60	ns
Driver Differential Output Transition Time	t_{LH},t_{HL}	Figure 4, R_L = 54Ω, C_L = 50pF			25	ns
Driver Output Skew	t_{SKEWAB}, t_{SKEWBA}	R_L = 54Ω, C_L = 50pF, t_{SKEWAB} = $\lvert t_{PLHA} - t_{PHLB} \rvert$, t_{SKEWBA} = $\lvert t_{PLHB} - t_{PHLA} \rvert$			10	ns
Differential Driver Output Skew	t_{DSKEW}	R_L = 54Ω, C_L = 50pF, t_{DSKEW} = $\lvert t_{DPLH} - t_{DPHL} \rvert$			10	ns
Maximum Data Rate	f_{MAX}		10			Mbps
Driver Enable Time to Output High	t_{PDZH}	Figure 5, R_L = 500Ω, C_L = 50pF			1200	ns
Driver Disable Time from Output High	t_{PDHZ}	Figure 5, R_L = 500Ω, C_L = 50pF			1200	ns
Driver Enable Time from Shutdown to Output High	t_{PDHS}	Figure 5, R_L = 500Ω, C_L = 50pF (MAX3443E)			4.2	µs
Driver Enable Time to Output Low	t_{PDZL}	Figure 6, R_L = 500Ω, C_L = 50pF			1200	ns
Driver Disable Time from Output Low	t_{PDLZ}	Figure 6, R_L = 500Ω, C_L = 50pF			1200	ns
Driver Enable Time from Shutdown to Output Low	t_{PDLS}	Figure 6, R_L = 500Ω, C_L = 50pF (MAX3443E)			4.2	µs
Driver Time to Shutdown	t_{SHDN}	Figure 6, R_L = 500Ω, C_L = 50pF (MAX3443E)			800	ns
Receiver Propagation Delay	t_{RPLH}, t_{RPHL}	Figure 7, C_L = 20pF, V_{ID} = 2V, V_{CM} = 0V			85	ns
Receiver Output Skew	t_{RSKEW}	C_L = 20pF, t_{RSKEW} = $\lvert t_{RPLH} - t_{RPHL} \rvert$			15	ns
Receiver Enable Time to Output High	t_{RPZH}	Figure 8, R_L = 1kΩ, C_L = 20pF			400	ns
Receiver Disable Time from Output High	t_{RPHZ}	Figure 8, R_L = 1kΩ, C_L = 20pF			400	ns
Receiver Wake Time from Shutdown	t_{RPWAKE}	Figure 8, R_L = 1kΩ, C_L= 20pF (MAX3443E)			4.2	µs
Receiver Enable Wake Time from Shutdown	t_{RPSH}	Figure 8, R_L = 1kΩ, C_L = 20pF			400	ns
Receiver Disable Time from Output Low	t_{RPLZ}	Figure 8, R_L = 1kΩ, C_L= 20pF			400	ns
Receiver Time to Shutdown	t_{SHDN}	R_L = 500Ω, C_L= 50pF (MAX3443E)			800	ns

Note 2: ΔV_{OD} and ΔV_{OC} are the changes in V_{OD} and V_{OC}, respectively, when the DI input changes state.

Note 3: The short-circuit output current applies to peak current just before foldback current limiting; the short-circuit foldback output current applies during current limiting to allow a recovery from bus contention.

Test Circuits and Waveforms

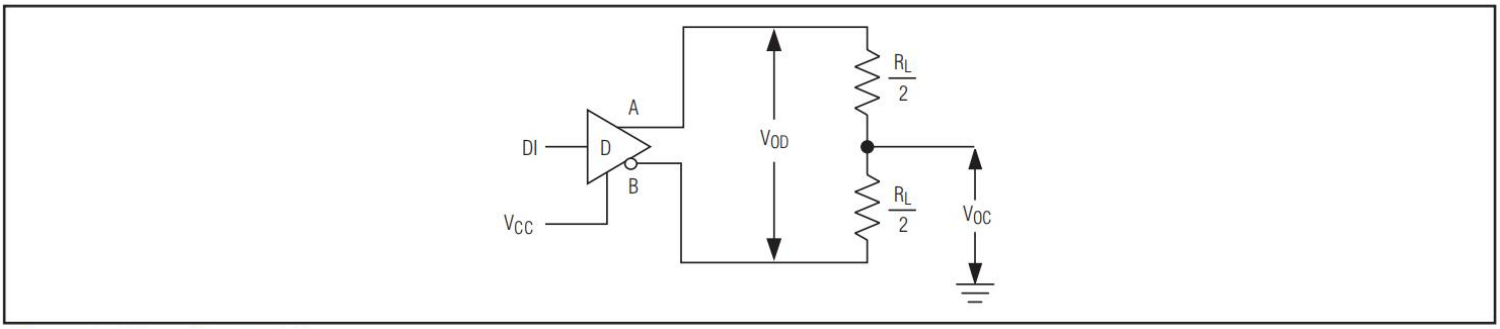


Figure 1. Driver V_{OD} and V_{OC}

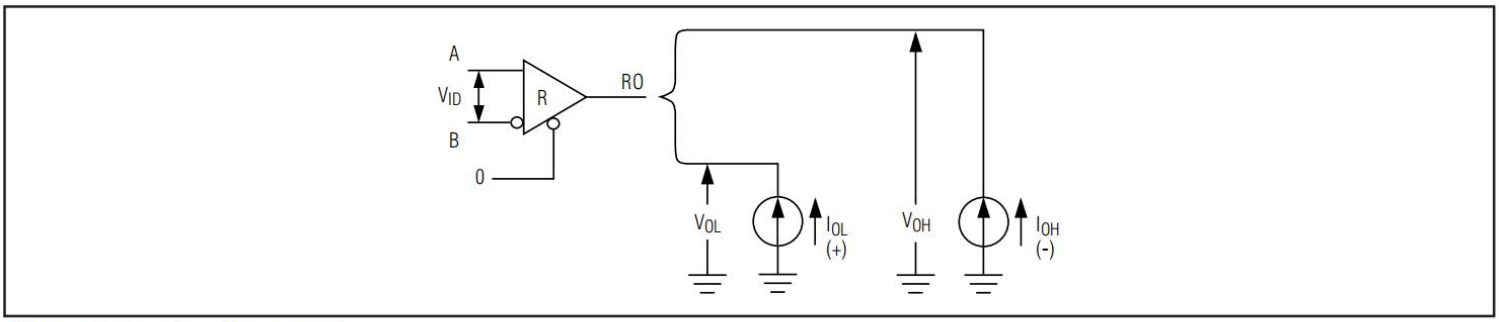


Figure 2. Receiver V_{OH} and V_{OL}

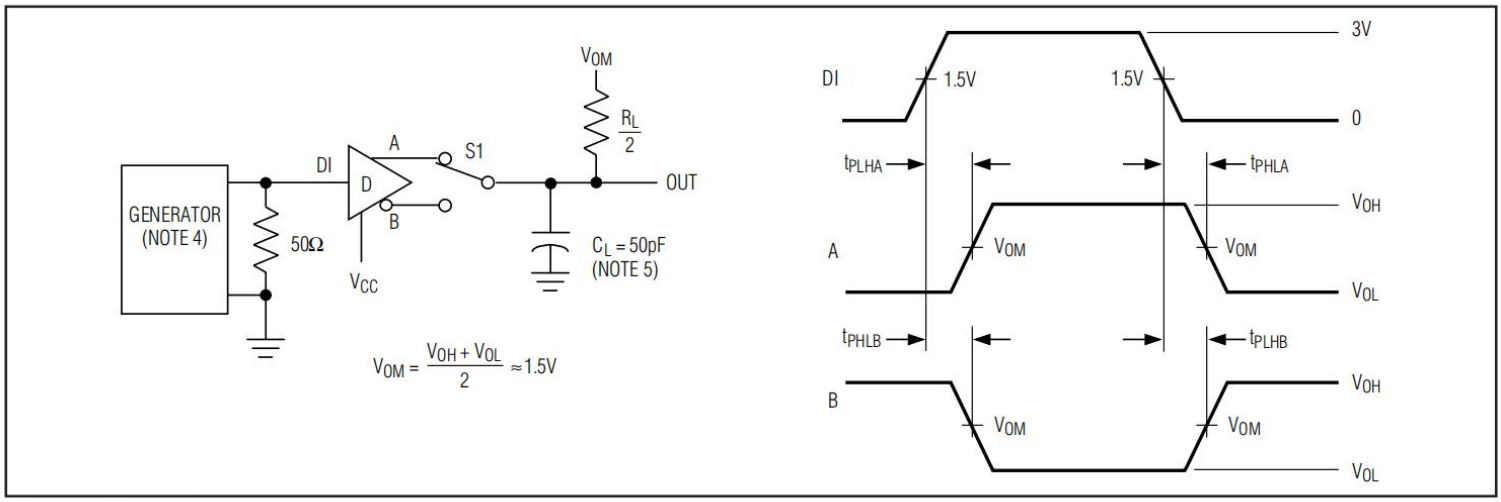


Figure 3. Driver Propagation Times

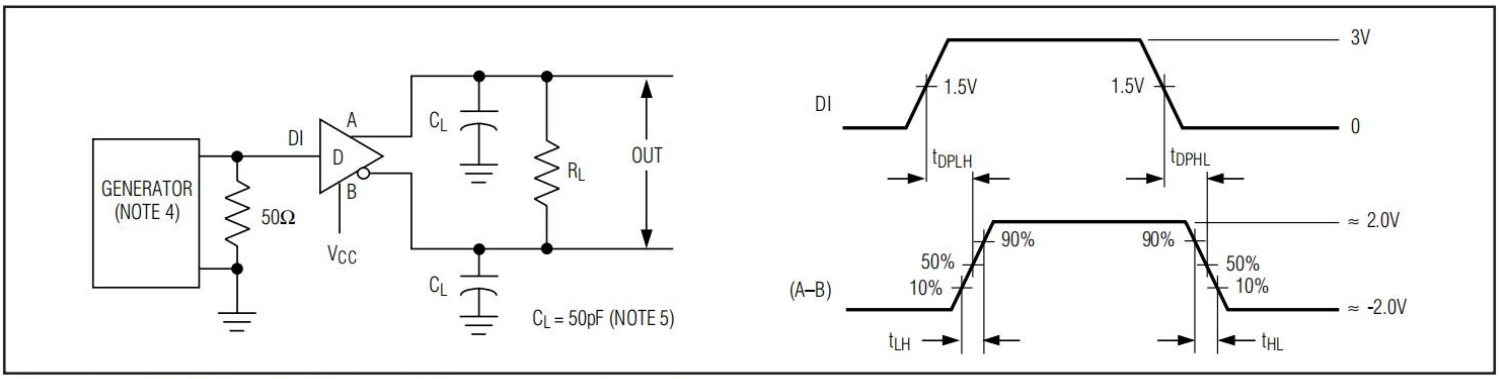


Figure 4. Driver Differential Output Delay and Transition Times

Test Circuits and Waveforms (continued)

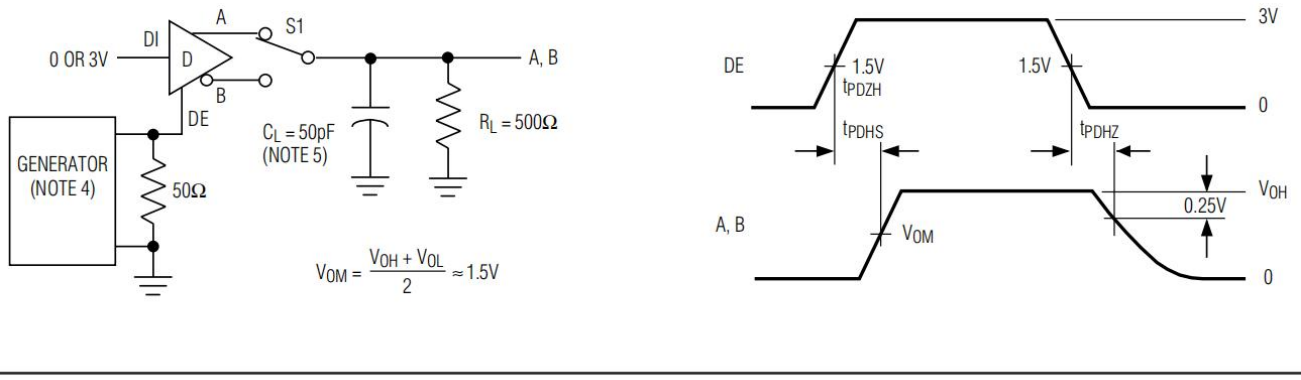


Figure 5. Driver Enable and Disable Times

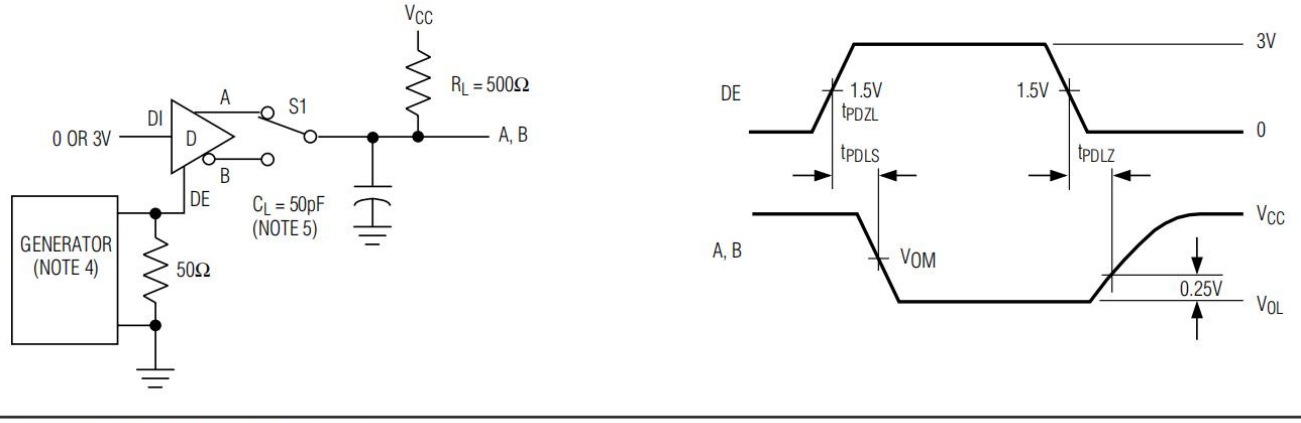


Figure 6. Driver Enable and Disable Times

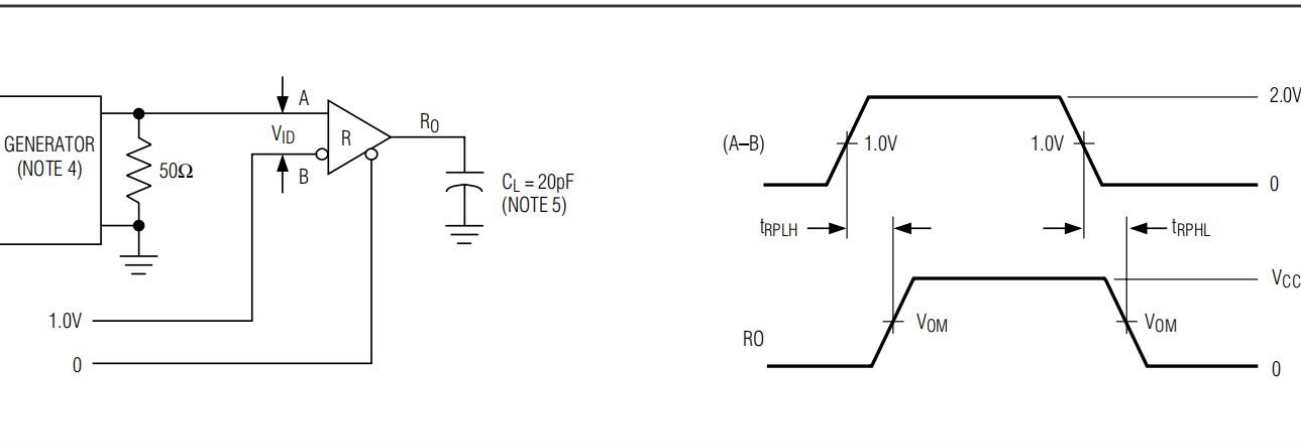


Figure 7. Receiver Propagation Delay

Test Circuits and Waveforms (continued)

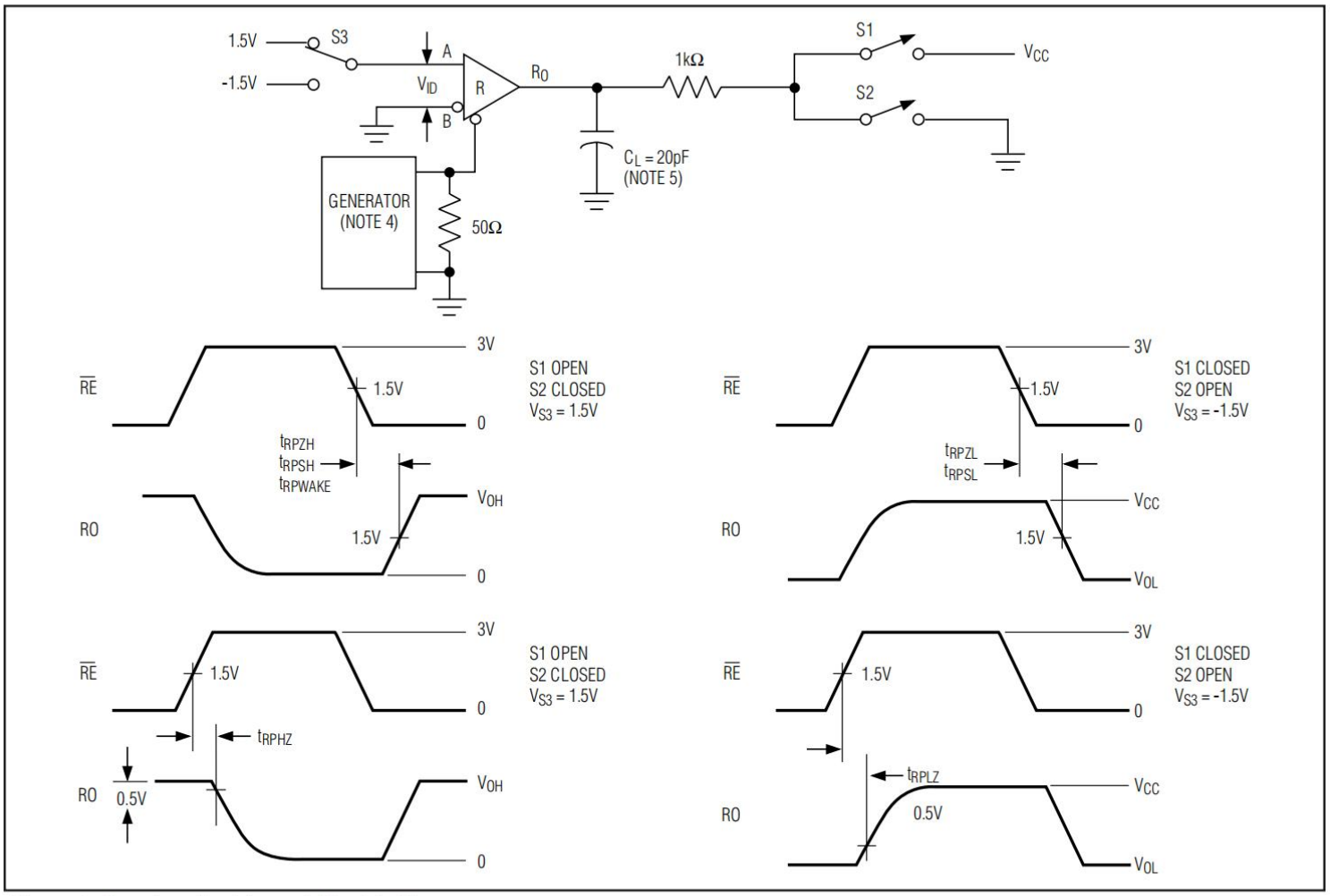


Figure 8. Receiver Enable and Disable Times

Note 4: The input pulse is supplied by a generator with the following characteristics: f = 5MHz, 50% duty cycle; tr ≤ 6ns; Z_O = 50Ω.
Note 5: C_L includes probe and stray capacitance.

Pin Description

PIN			NAME	FUNCTION
MAX3440E MAX3441E	MAX3442E MAX3443E	MAX3444E		
1	—	—	FAULT	Fault output. 1 = fault; 0 = normal operation A or B under the following conditions: • A-B differential <200mV • A shorted to B • A shorted to a voltage within the common-mode range (detected only when the driver is enabled) • B shorted to a voltage within the common-mode range (detected only when the driver is enabled) • A or B outside the common-mode range
2	1	1	RO	Receiver Output. If receiver enabled and (A-B) ≥ -50mV, RO = high; if (A-B) ≤ -200mV, RO = low.
—	2	2	$\overline{RE}$	Receiver Output Enable. Pull $\overline{RE}$ low to enable RO.
—	—	3	$\overline{DE}$	Driver Output Enable. Pull $\overline{DE}$ low to enable the outputs. Force $\overline{DE}$ high to three-state the outputs. Drive $\overline{RE}$ and $\overline{DE}$ high to enter low-power shutdown mode.
3	—	—	DE/RE	Driver/Receiver Output Enable. Pull DE/RE low to three-state the driver output and enable RO. Force DE/RE high to enable driver output and three-state RO.
—	3	—	DE	Driver Output Enable. Force DE high to enable driver. Pull $\overline{DE}$ low to three-state the driver output. Drive $\overline{RE}$ high and pull DE low to enter low-power shutdown mode.
4	4	—	DI	Driver Input. A logic-low on DI forces the noninverting output low and the inverting output high. A logic-high on DI forces the noninverting output high and the inverting output low.
—	—	4	TXD	J1708 Input. A logic-low on TXD forces outputs A and B to the dominant state. A logic-high on TXD forces outputs A and B to the recessive state.
5	5	5	GND	Ground
6	6	6	A	Noninverting Receiver Input/Driver Output
7	7	7	B	Inverting Receiver Input/Driver Output
8	8	8	V_{CC}	Positive Supply, V_{CC} = +4.75V to +5.25V

Function Tables

Table 1. MAX3440E/MAX3441E Fault Table

INPUTS		OUTPUTS		FAULT CONDITION
A-B V_{ID} DIFFERENTIAL INPUT VOLTAGE	COMMON-MODE VOLTAGE	RO	FAULT CONDITIONED BY DELAY	
≥0.45V	≤12V and ≥-7V	1	0	Normal operation
<0.45V and ≥0.27V		1	Indeterminate	Indeterminate
<0.27V and ≥-0.05V		1	1	Low-input differential voltage
≤-0.05V and ≥-0.2V		Indeterminate (Note 1)	1	Low-input differential voltage
≤-0.2V and >-0.27V		0	1	Low-input differential voltage
≤-0.27V and >-0.45V		0	Indeterminate	Indeterminate
≤-0.45V		0	0	
X	<-7V or >+12V	Indeterminate	1	Outside common-mode voltage range

X = Don't care.

Note 1: Receiver output may oscillate with this differential input condition.

Table 2. MAX3440E/MAX3441E (RS-485/RS-422)

TRANSMITTING			
INPUTS		OUTPUTS	
DE/RE	DI	A	B
0	X	High-Z	High-Z
1	0	0	1
1	1	1	0

X = Don't care.

Table 3. MAX3442E/MAX3443E (RS-485/RS-422)

TRANSMITTING				
INPUTS			OUTPUTS	
$\overline{RE}$	DE	DI	A	B
0	0	X	High-Z	High-Z
0	1	0	0	1
0	1	1	1	0
1	0	X	Shutdown	Shutdown
1	1	0	0	1
1	1	1	1	0

X = Don't care.

Table 4. MAX3444E (J1708) Application

TRANSMITTING				
INPUTS		OUTPUTS		CONDITIONS
TXD	$\overline{DE}$	A	B	—
0	1	High-Z	High-Z	—
1	1	High-Z	High-Z	—
0	0	0	1	Dominant state
1	0	High-Z	High-Z	Recessive state

Table 5. MAX3440E/MAX3441E (RS-485/RS-422)

RECEIVING		
INPUTS		OUTPUTS
DE/RE	(A - B)	RO
0	≥-0.05V	1
0	≤-0.2V	0
0	Open/shorted	1
1	X	High-Z

X = Don't care.

Function Tables (continued)

Table 6. MAX3442E/MAX3443E (RS-485/RS-422)

RECEIVING			
INPUTS			OUTPUTS
$\overline{RE}$	DE	(A - B)	RO
0	X	≥-0.05V	1
0	X	≤-0.2V	0
0	X	Open/shorted	1
1	1	X	High-Z
1	0	X	Shutdown

X = Don't care.

Table 7. MAX3444E (RS-485/RS-422)

RECEIVING			
INPUTS			OUTPUTS
$\overline{RE}$	$\overline{DE}$	(A - B)	RO
0	X	≥-0.05V	1
0	X	≤-0.2V	0
0	X	Open/shorted	1
1	0	X	High-Z
1	1	X	Shutdown

X = Don't care.

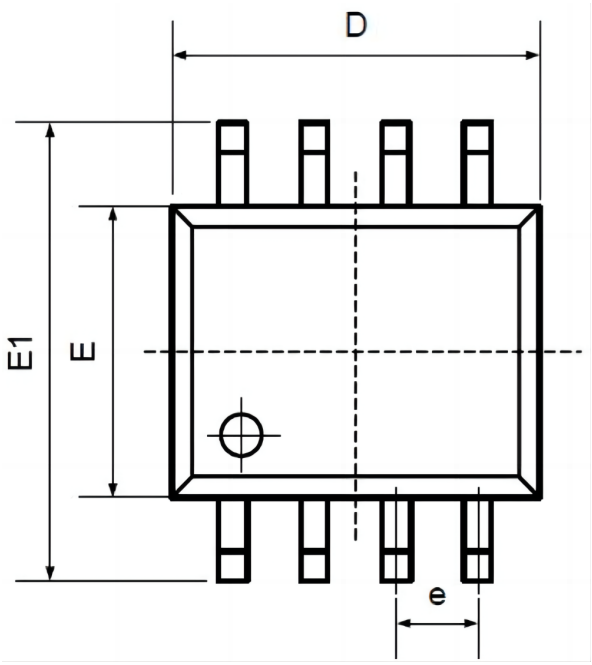
Detailed Description

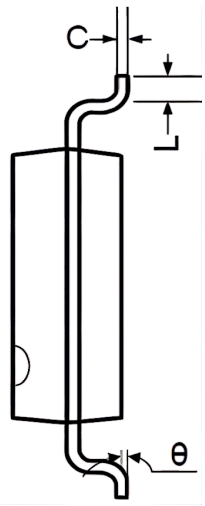
The MAX3440E–MAX3444E fault-protected transceivers for RS-485/RS-422 and J1708 communication contain one driver and one receiver. These devices feature fail-safe circuitry, which guarantees a logic-high receiver output when the receiver inputs are open or shorted, or when they are connected to a terminated transmission line with all drivers disabled (see the *True Fail-Safe* section). All devices have a hot-swap input structure that prevents disturbances on the differential signal lines when a circuit board is plugged into a hot back-plane (see the *Hot-Swap Capability* section). The MAX3440E/MAX3442E/MAX3444E feature a reduced slew-rate driver that minimizes EMI and reduces reflections caused by improperly terminated cables, allowing error-free data transmission up to 250kbps (see the *Reduced EMI and Reflections* section). The MAX3441E/MAX3443E drivers are not slew-rate limited, allowing transmit speeds up to 10Mbps.

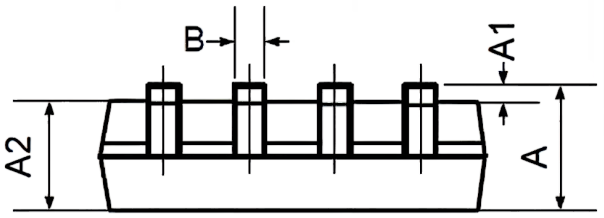
ORDERING INFORMATION

Order Number	Package	Package Quantity	Marking On The park
MAX3441EAPA-TUDI	DIP8	Tube,50,A box of 2000	MAX3441EAPA
MAX3441EASA-TUDI	SOP8	Tape,Reel,2500	MAX3441EASA
MAX3441EEPA-TUDI	DIP8	Tube,50,A box of 2000	MAX3441EEPA
MAX3441EESA-TUDI	SOP8	Tape,Reel,2500	MAX3441EESA
MAX3442EAPA-TUDI	DIP8	Tube,50,A box of 2000	MAX3442EAPA
MAX3442EASA-TUDI	SOP8	Tape,Reel,2500	MAX3442EASA
MAX3442ECPA-TUDI	DIP8	Tube,50,A box of 2000	MAX3442ECPA
MAX3442EEPA-TUDI	DIP8	Tube,50,A box of 2000	MAX3442EEPA
MAX3442EESA-TUDI	SOP8	Tape,Reel,2500	MAX3442EESA
MAX3443EAPA-TUDI	DIP8	Tube,50,A box of 2000	MAX3443EAPA
MAX3443EASA-TUDI	SOP8	Tape,Reel,2500	MAX3443EASA
MAX3443ECSA-TUDI	SOP8	Tape,Reel,2500	MAX3443ECSA
MAX3443EEPA-TUDI	DIP8	Tube,50,A box of 2000	MAX3443EEPA
MAX3443EESA-TUDI	SOP8	Tape,Reel,2500	MAX3443EESA
MAX3444EAPA-TUDI	DIP8	Tube,50,A box of 2000	MAX3444EAPA
MAX3444EASA-TUDI	SOP8	Tape,Reel,2500	MAX3444EASA
MAX3444EESA-TUDI	SOP8	Tape,Reel,2500	MAX3444EESA

Package SOP8

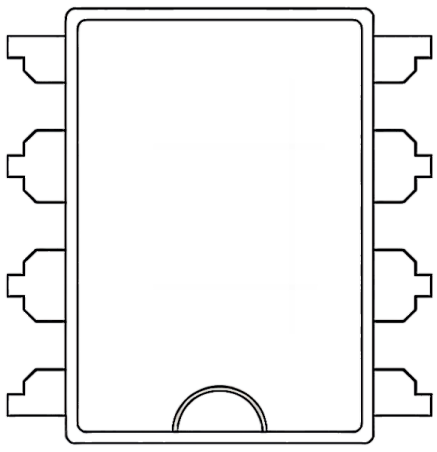


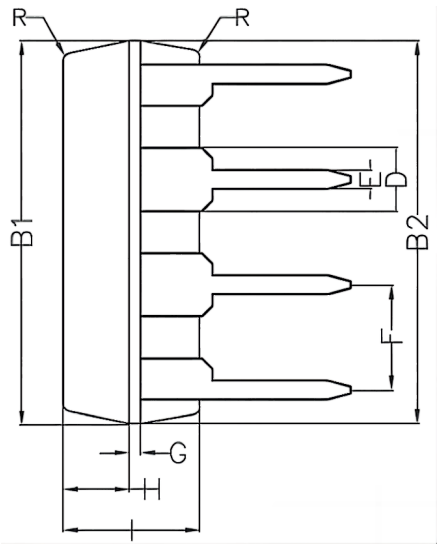


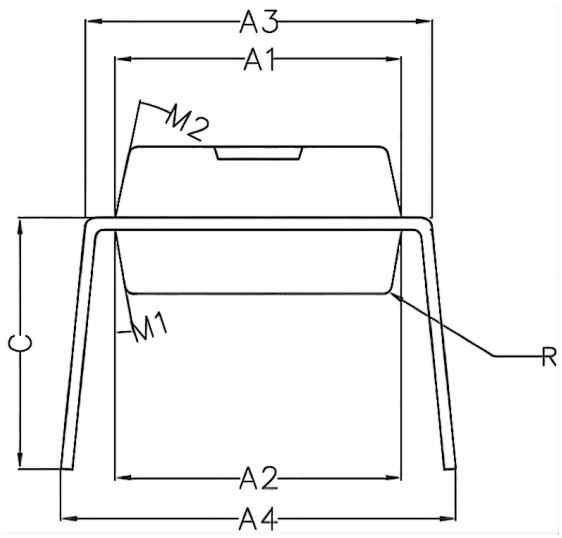


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
B	0.330	0.510	0.013	0.020
C	0.190	0.250	0.007	0.010
D	4.780	5.000	0.188	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.300	0.228	0.248
e	1.270TYP		0.050TYP	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Package DIP8







Symbol	Min	Non	Max
A1	6.28	6.33	6.38
A2	6.33	6.38	6.43
A3	7.52	7.62	7.72
A4	7.80	8.40	9.00
B1	9.15	9.20	9.25
B2	9.20	9.25	9.30
C		5.57	
D		1.52	
E	0.43	0.45	0.47
F		2.54	
G		0.25	
H	1.54	1.59	1.64
工	3.22	3.27	3.32
R		0.20	
M1	9°	10°	11°
M2	11°	12°	13°

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