UMW SP232EEN

+5 V-Powered,Multi-Channel RS-232 Drivers/Receivers

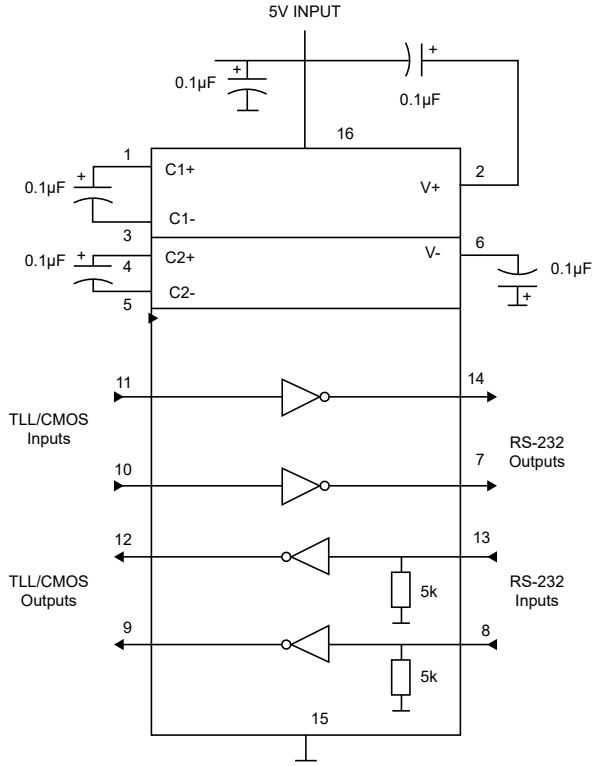
1.Description

The UMW SP232EEN have two drives and two receivers. The drivers and receivers meet all EIA/TIA-232and CCITT V.28 specifications at data rates up to 120kbps when loaded in acc-ordance with the EIA/TIA-232E specification.

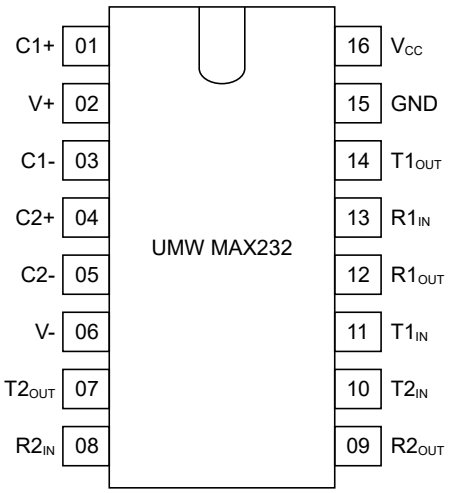
2.Features

- Operate from Single +5 V Power Supply
- Guaranteed 120 kbps Data Rate
- Latchup Free
- ESD Protection ±2kV

3.Typical Operating Circuit



4.Pinning Information



SOP-16

Pin No	Symbol	Function
01	C1+	Terminal for positive charge-pump capacitor
02	V+	+2 V_{CC} voltage generated by the charge-pump
03	C1-	Terminal for positive charge-pump capacitor
04	C2+	Terminal for negative charge-pump capacitor
05	C2-	Terminal for negative charge-pump capacitor
06	V-	-2 V_{CC} voltage generated by the charge-pump
07	$T2_{OUT}$	RS-232 Driver Output
08	$R2_{IN}$	RS-232 Receiver Input
09	$R2_{OUT}$	RS-232 Receiver Output
10	$T2_{IN}$	RS-232 Driver Input
11	$T1_{IN}$	RS-232 Driver Input
12	$R1_{OUT}$	RS-232 Receiver Output
13	$R1_{IN}$	RS-232 Receiver Input
14	$T1_{OUT}$	RS-232 Driver Output
15	GND	Ground
16	V_{CC}	+ 4.5 V to 5.5 V Supply Voltage Input

5.Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Supply voltage	V_{CC}	-0.3	6	V
Transmitter high output voltage	V+	V_{CC}-0.3	14	
Transmitter low output voltage	V-	-14	+0.3	
Transmitter input voltage	V_{TIN}	-0.3	V_{CC}+0.3	
Receiver input voltage	V_{RIN}	-30	30	
Output voltages (transmitters)	V_{TOUT}	V_-0.3	V_++0.3	
Output voltages (receivers)	V_{ROUT}	-0.3	V_{CC}+0.3	
Power dissipation	P_D	-	-	mW
DIP - package (derate 10.53 mw/c above 70°C)		-	842	
So-package (derate 9.52 mW/C above 70°C)		-	762	
Short-Circuit Duration (T_{OUT})	I_{SC}	-	Continuous	
Storage temperature	T_{STG}	-60	150	°C
Operating voltage range	T_A	-40	105	°C

6.Electrical Characteristics

V_{CC}=4.5V to 5.5V,C1-C4 =0.1μF; T_A= -40 to +85°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Max	Units
DC CHARACTERISTICS					
Operating Voltage Range	V_{CC}	V_{IL}=0V	4.5	5.5	V
V_{CC} Suppiy Current	I_{CC}	No load, T_A= 25°C		10	mA
LOGIC					
Input Leakage Current	I_I	$T_{_IN}$=0V to V_{CC}	0.2	±10	μA
Input Threshold Low	V_{IL}	$T_{_IN}$		0.8	V
Input Threshold High	V_{IH}	$T_{_IN}$	2		V
Output Voltage Low	V_{OL}	$R_{_OUT}$, I_{OUT}=3.2mA		0.4	V
Output Voltage High	V_{OH}	$R_{_OUT}$, I_{OUT}=-1mA	3.5		V
RECEIVER INPUTS					
Input Voltage Range	V_{RIN}	All parts, normal operation	-30	30	V
Input Threshold Low	V_{ff}	T_A=+25°C, V_{CC}=5V	0.8		V
Input Threshold High	I_{on}	T_A=+25°C, V_{CC}=5V		2.4	V
Input Hysteresis	V_h	V_{CC}=5V	0.2	1	V
Input Resistance	R_I	T_A=+25°C, V_{CC}=5V	3	7	kΩ
TRANSMITTER OUTPUTS					
Output Voltage Swing	ΔV_O	All driver inputs loaded with 3kΩ to ground	±5		V
Output resistance	R_O	V_{CC}=V+=V-=0V, V_{OUT}=+2V	300		Ω
Output Short - Circuit Current	I_{SC}			±60	mA

Parameter	Symbol	Conditions	Min	Max	Units
TIMING CHARACTERISTICS					
Maximum Data Rate	ST	R_L=3kΩ to 7 kΩ C_L=50pF to 1000pF onetransmitter switcing	120		kbps
Reseiver Propagation Delay	t_{PLHR} t_{PHLR}	C_L=150pF All parts, normal operation(Fig. 1)		10	μS
Transmitter Propagation Delay	t_{PLHT} t_{PHLT}	R_L=3kΩ, C_L=2500pF all transmitters loaded (Fig.2)		6	μS
Transition-Region Slew Rate	SR	T_A=25°C, V_{CC}= 5V R_L=3kΩ to 7 kΩ C_L=50pF to 2500pF measured from _3V to +3V or +3V to -3V(Fig.3)	3	30	V/μS

7.Timing Diagram

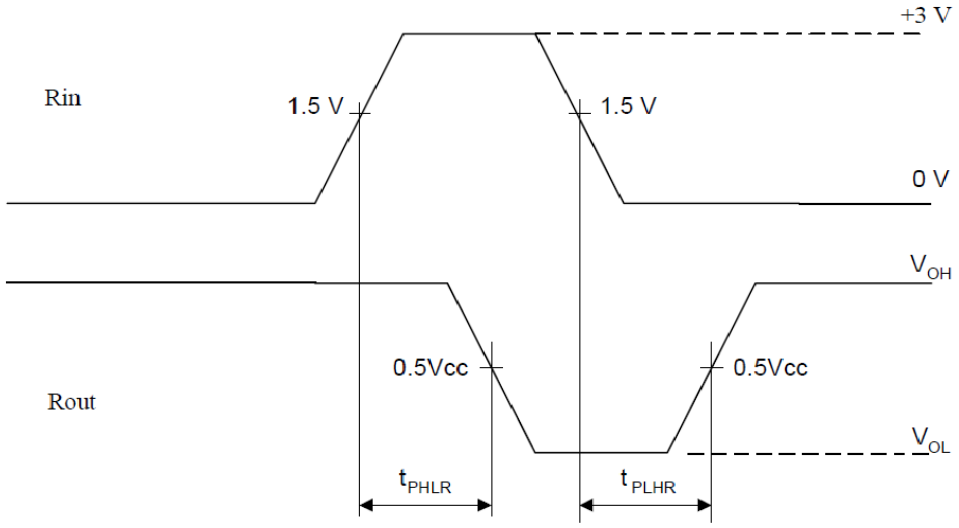


Figure 1

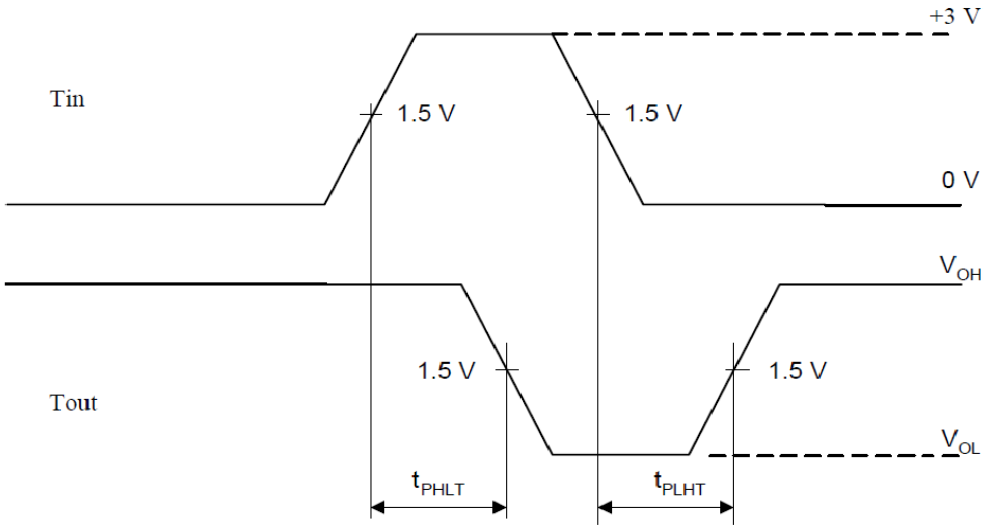


Figure 2

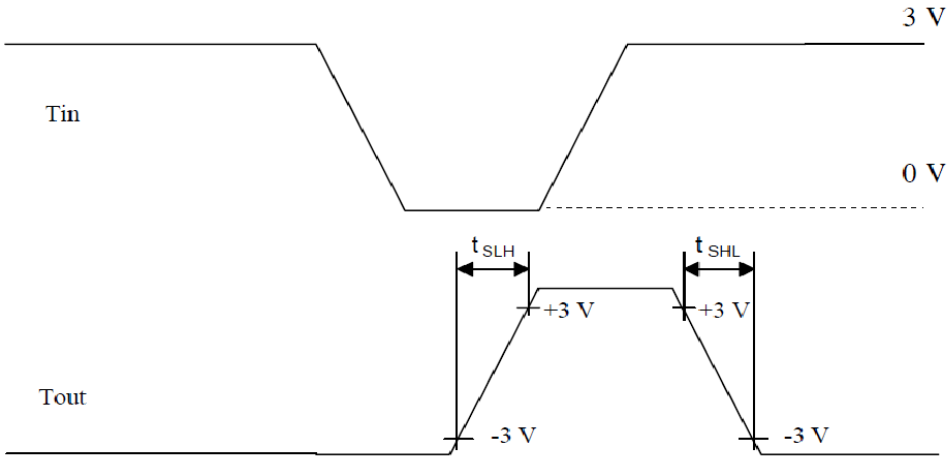
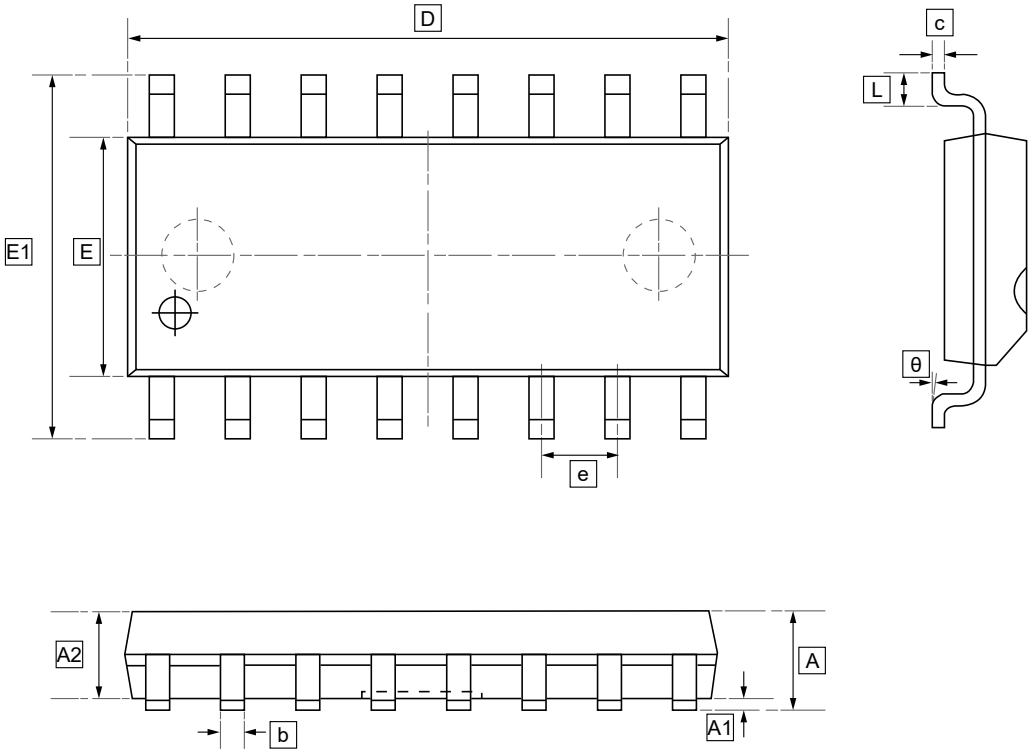


Figure 3

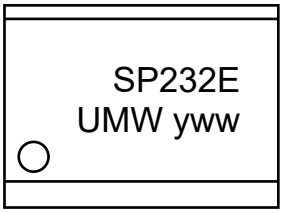
8.SOP-16 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	L	θ
Min	1.350	0	1.350	0.330	0.170	9.800	3.800	5.800	1.270	0.400	0°
Max	1.750	0.100	1.550	0.510	0.250	10.200	4.000	6.200	BSC	1.270	8°

9.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW SP232EEN	SOP-16	2500	Tape and reel

10.Disclaimer

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