MULTIPLE RS-232 DRIVERS AND RECEIVERS AZ75232

General Description

The AZ75232 combines three drivers and five receivers, which conform to the EIA/TIA-232-F and ITU v.28 standards. Each receiver converts EIA/TIA-232-F inputs to 5-V TTL/CMOS levels and each driver converts TTL/CMOS input levels into EIA/TIA-232-F levels.

The flow-through pinout facilitates simple non-cross-over board layout. The AZ75232 provides a one-chip solution for the common 9-pin serial RS-232 interface between data terminal and data communications equipment.

The AZ75232 is available in SOIC-20, SSOP-20 and TSSOP-20 packages.

Features

- Single Chip with Easy Interface between UART and Serial-Port Connector
- Meet the Requirement of EIA/TIA-232-F and ITU v.28 Standards
- Designed to Support Data Rates up to 120kbit/s
- 3 Drivers and 5 Receivers
- Flow-through Pinout

Applications

- Mother Board
- Peripheral Equipment

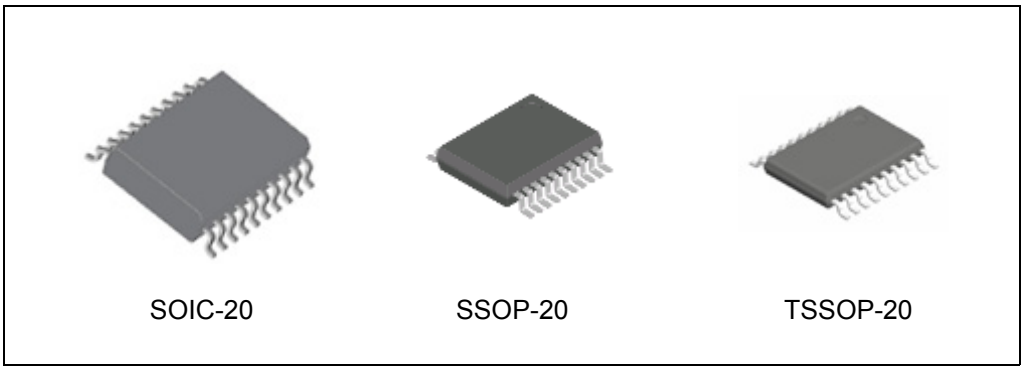


Figure 1. Package Types of AZ75232

Pin Configuration

M/GS/G Package
(SOIC-20/SSOP-20/TSSOP-20)

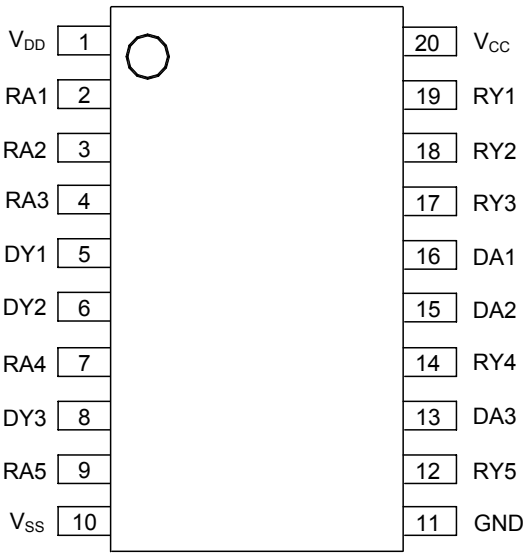


Figure 2. Pin Configuration of AZ75232 (Top View)

Pin Description

Pin Number	Pin Name	Function	Pin Number	Pin Name	Function
1	V_{DD}	Positive Supply Voltage for Driver	11	GND	Ground
2	RA1	Receiver Input	12	RY5	Receiver Output
3	RA2	Receiver Input	13	DA3	Driver Input
4	RA3	Receiver Input	14	RY4	Receiver Output
5	DY1	Driver Output	15	DA2	Driver Input
6	DY2	Driver Output	16	DA1	Driver Input
7	RA4	Receiver Input	17	RY3	Receiver Output
8	DY3	Driver Output	18	RY2	Receiver Output
9	RA5	Receiver Input	19	RY1	Receiver Output
10	V_{SS}	Negative Supply Voltage for Driver	20	V_{CC}	Supply Voltage for Receiver

Functional Block Diagram

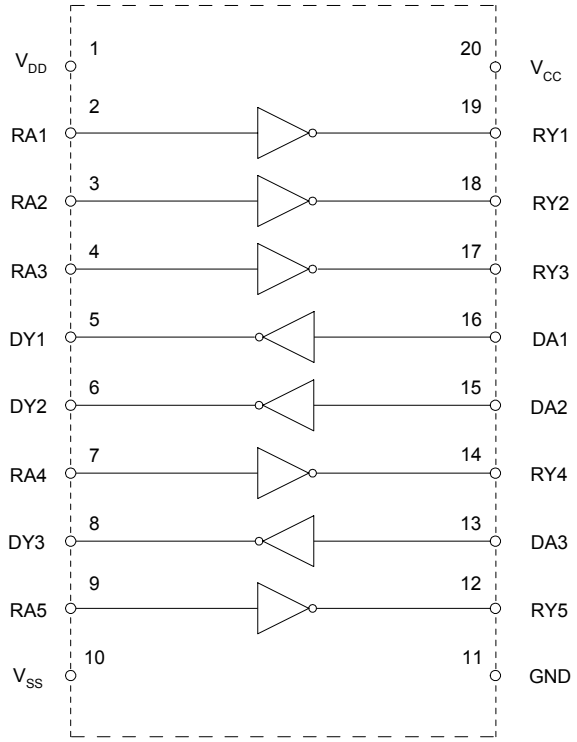
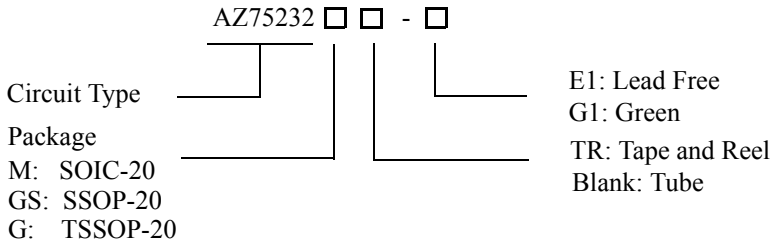


Figure 3. Functional Block Diagram of AZ75232

Ordering Information



Package	Temperature Range	Part Number		Marking ID		Packing Type
		Lead Free	Green	Lead Free	Green	
SOIC-20	-40 to 85°C	AZ75232M-E1	AZ75232M-G1	AZ75232M-E1	AZ75232M-G1	Tube
		AZ75232MTR-E1	AZ75232MTR-G1	AZ75232M-E1	AZ75232M-G1	Tape & Reel
SSOP-20	-40 to 85°C	AZ75232GS-E1	AZ75232GS-G1	AZ75232GS-E1	AZ75232GS-G1	Tube
		AZ75232GSTR-E1	AZ75232GSTR-G1	AZ75232GS-E1	AZ75232GS-G1	Tape & Reel
TSSOP-20	-40 to 85°C	AZ75232G-E1	AZ75232G-G1	232GE	232GG	Tube
		AZ75232GTR-E1	AZ75232GTR-G1	232GE	232GG	Tape & Reel

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with "G1" suffix are available in green packages.

Absolute Maximum Ratings (Note 1)

Parameter	Symbol	Value		Unit
Supply Voltage	V_{DD}	15		V
	V_{SS}	-15		
	V_{CC}	7		
Input Voltage Range	V_I	Driver	-15 to 7	V
		Receiver	-30 to 30	
Power Dissipation (T_A=25°C)	P_D	SOIC-20	1340	mW
		SSOP-20	1210	
		TSSOP-20	1100	
Driver Output Voltage Range	V_O	-15 to 15		V
Receiver Low-Level Output Current	I_{OL}	20		mA
Operating Junction Temperature	T_J	150		°C
Storage Temperature Range	T_{STG}	-65 to 150		°C
Lead Temperature (Soldering, 10sec)	T_{LEAD}	260		°C

Note 1: Stresses greater than 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 under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Recommended Operating Conditions

Parameter		Symbol	Min	Max	Unit
Supply Voltage		V_{DD}	7.5	15	V
		V_{SS}	-15	-7.5	
		V_{CC}	4.5	5.5	
High-Level Input Voltage (Driver Only)		V_{IH}	1.9		V
Low-Level Input Voltage (Driver Only)		V_{IL}		0.8	V
High-Level Output Current	Driver	I_{OH}		-6	mA
	Receiver			-0.5	
Low-Level Output Current	Driver	I_{OL}		6	mA
	Receiver			16	
Operating Temperature Range		T_A	-40	85	°C

Electrical Characteristics

(T_A=25°C, unless otherwise specified.)

Parameter	Symbol	Conditions		Min	Typ	Max	Unit
VOLTAGE SUPPLY SECTION (V_{CC}=5V, V_{DD}=9V, V_{SS}=-9V, unless otherwise specified)							
Supply Current from V_{DD}	I_{DD}	All inputs at 1.9V, no load	V_{DD}=9V, V_{SS}=-9V			15	mA
			V_{DD}=12V, V_{SS}=-12V			19	
			V_{DD}=15V, V_{SS}=-15V			25	
		All inputs at 0.8V, no load	V_{DD}=9V, V_{SS}=-9V			4.5	
			V_{DD}=12V, V_{SS}=-12V			5.5	
			V_{DD}=15V, V_{SS}=-15V			9	
Supply Current from V_{SS}	I_{SS}	All inputs at 1.9V, no load	V_{DD}=9V, V_{SS}=-9V			-15	mA
			V_{DD}=12V, V_{SS}=-12V			-19	
			V_{DD}=15V, V_{SS}=-15V			-25	
		All inputs at 0.8V, no load	V_{DD}=9V, V_{SS}=-9V			-3.2	
			V_{DD}=12V, V_{SS}=-12V			-3.2	
			V_{DD}=15V, V_{SS}=-15V			-3.2	
Supply Current from V_{CC}	I_{CC}	All inputs at 5V, no load, V_{CC}=5V				30	mA
DRIVER SECTION (V_{CC}=5V, V_{DD}=9V, V_{SS}=-9V, unless otherwise specified)							
High-Level Output Voltage	V_{OH}	V_{IL}=0.8V, R_L=3kΩ		6	7.5		V
Low-Level Output Voltage	V_{OL}	V_{IH}=1.9V, R_L=3kΩ			-7.5	-6	V
High-Level Input Current	I_{IH}	V_I=5V				10	μA
Low-Level Input Current	I_{IL}	V_I=0V				-1.6	mA
High-Level Short-Circuit Output Current	$I_{OS(H)}$	V_{IL}=0.8V, V_O=0V		-4.5	-12	-19.5	mA
Low-Level Short-Circuit Output Current	$I_{OS(L)}$	V_{IH}=2V, V_O=0V		4.5	12	19.5	mA
Output Resistance	r_O	V_{CC}=V_{DD}=V_{SS}=0, V_O=-2Vto 2V		300			Ω
DRIVER SECTION (V_{CC}=5V, V_{DD}=12V, V_{SS}=-12V, unless otherwise specified)							
Propagation Delay Time Low to High Level Output	t_{PLH}	R_L=3kΩ to 7kΩ, C_L=15pF			315	500	ns
Propagation Delay Time High to Low Level Output	t_{PHL}	R_L=3kΩ to 7kΩ, C_L=15pF			75	175	ns
Transition Time Low to High Level Output	t_{TLH}	R_L=3kΩ to 7kΩ	C_L=15pF		60	100	ns
			C_L=2500pF (Note 2)		1.7	2.5	μs
Transition Time High to Low Level Output	t_{THL}	R_L=3kΩ to 7kΩ	C_L=15pF		40	75	ns
			C_L=2500pF (Note 2)		1.5	2.5	μs

Electrical Characteristics (Continued)

(T_A=25°C, unless otherwise specified.)

Parameter	Symbol	Conditions		Min	Typ	Max	Unit
RECEIVER SECTION (V_{CC}=5V, V_{DD}=9V, V_{SS}=-9V, unless otherwise specified)							
Positive-Going Input Threshold Voltage	V_{IT+}			1.75	1.9	2.3	V
		T_A = -40 to 85 °C		1.55		2.3	V
Negative-Going Input Threshold Voltage	V_{IT-}			0.75	0.97	1.25	V
Input Hysteresis Voltage	V_{HYS}			0.5			V
High-Level Output Voltage	V_{OH}	I_{OH}=-0.5mA	V_{IH}=0.75V	2.6	4	5	V
			Input Open	2.6			
Low-Level Output Voltage	V_{OL}	I_{OL}=10mA, V_I=3V			0.2	0.45	V
High-Level Input Current	I_{IH}	V_I=25V		3.6		8.3	mA
		V_I=3V		0.43			
Low-Level Input Current	I_{IL}	V_I=-25V		-3.6		-8.3	mA
		V_I=-3V		-0.43			
Short-Circuit Output Current	I_{OS}	V_I=0.8V			-3.4	-12	mA
RECEIVER SECTION (V_{CC}=5V, V_{DD}=12V, V_{SS}=-12V, unless otherwise specified)							
Propagation Delay Time Low to High Level Output	t_{PLH}	R_L=5kΩ, C_L=50pF			105	250	ns
		R_L=1.5kΩ, C_L=15pF			100	160	
Propagation Delay Time High to Low Level Output	t_{PHL}	R_L=5kΩ, C_L=50pF			60	150	ns
		R_L=1.5kΩ, C_L=15pF			42	100	
Transition Time Low to High Level Output	t_{TLH}	R_L=5kΩ, C_L=50pF			170	350	ns
		R_L=1.5kΩ, C_L=15pF			90	175	
Transition Time High to Low Level Output	t_{THL}	R_L=5kΩ, C_L=50pF			16	60	ns
		R_L=1.5kΩ, C_L=15pF			15	50	

Note 2: Measured between -3V and 3V points of the output waveform (EIA/TIA-232-F conditions); all unused inputs are tied either high or low.

Typical Performance Characteristics

Driver Section

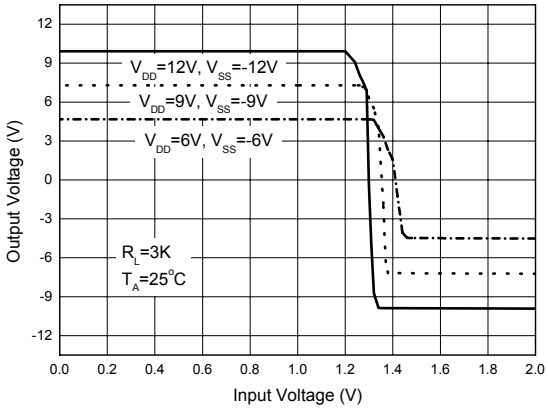


Figure 4. Voltage Transfer Characteristics

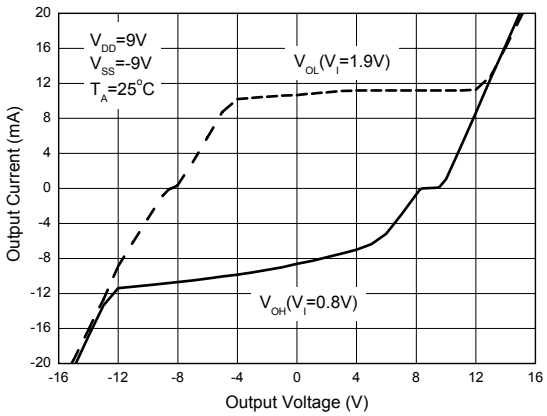


Figure 5. Output Current vs. Output Voltage

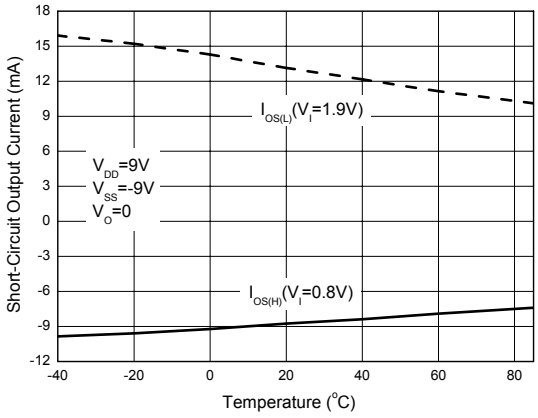


Figure 6. Short-Circuit Output Current vs. Temperature

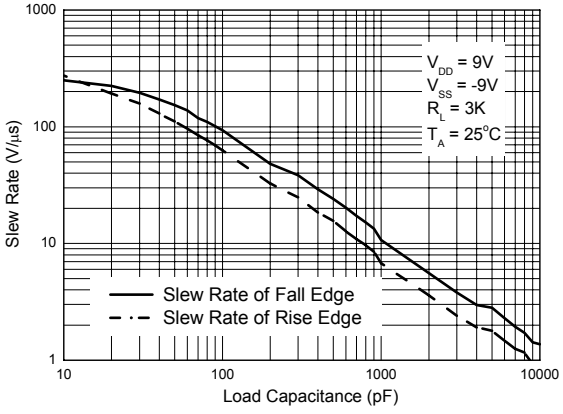


Figure 7. Slew Rate vs. Load Capacitance

Typical Performance Characteristics (Continued)

Receiver Section

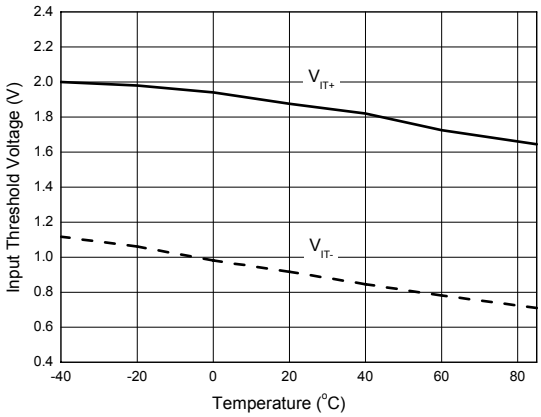


Figure 8. Input Threshold Voltage vs. Temperature

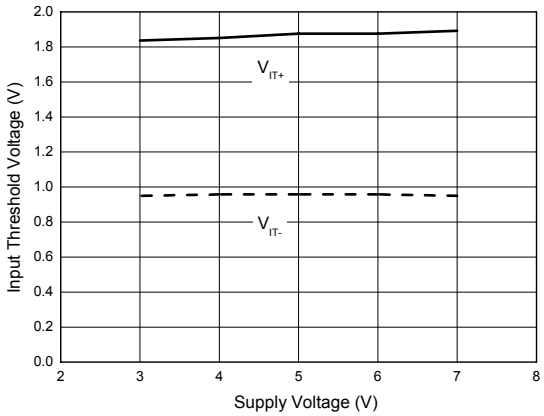


Figure 9. Input Threshold Voltage vs. Supply Voltage

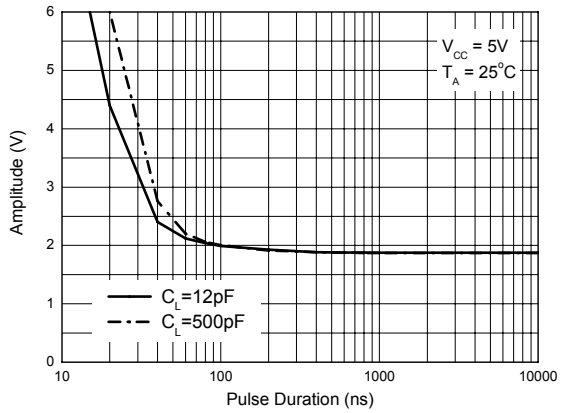


Figure 10. Noise Rejection

Typical Application

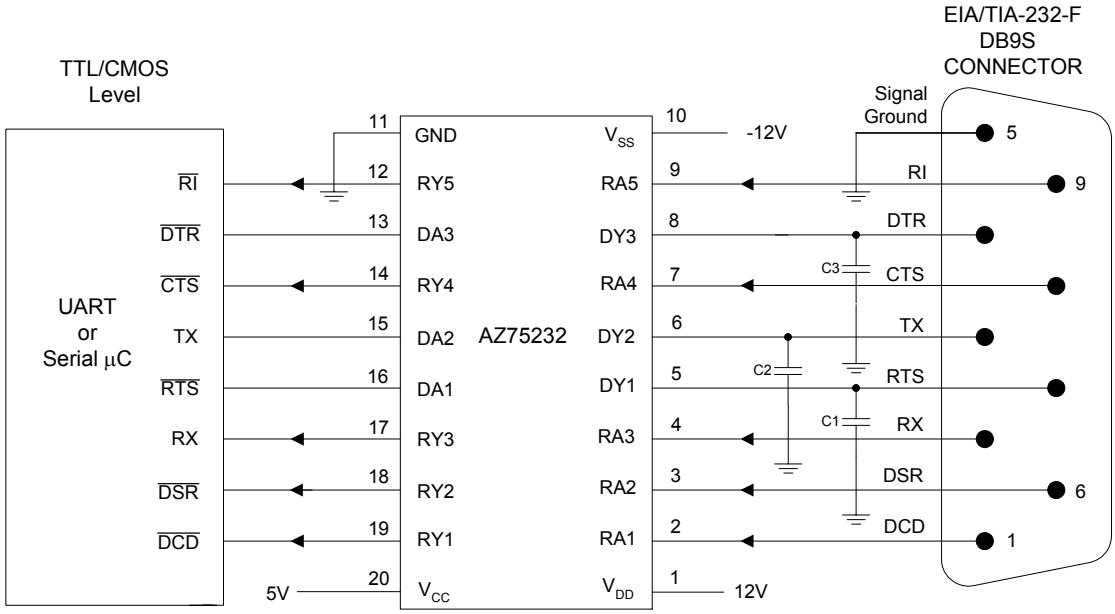
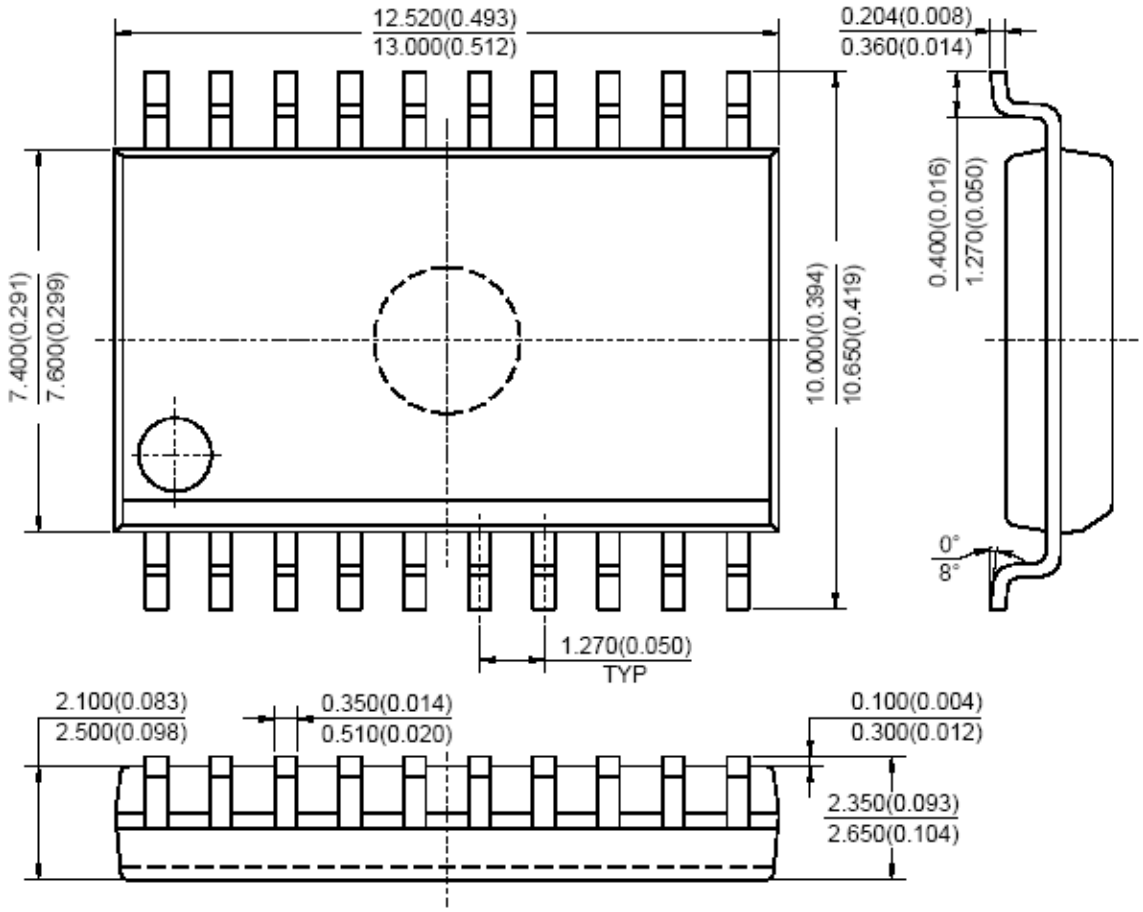


Figure 11. Typical Application of AZ75232

Mechanical Dimensions

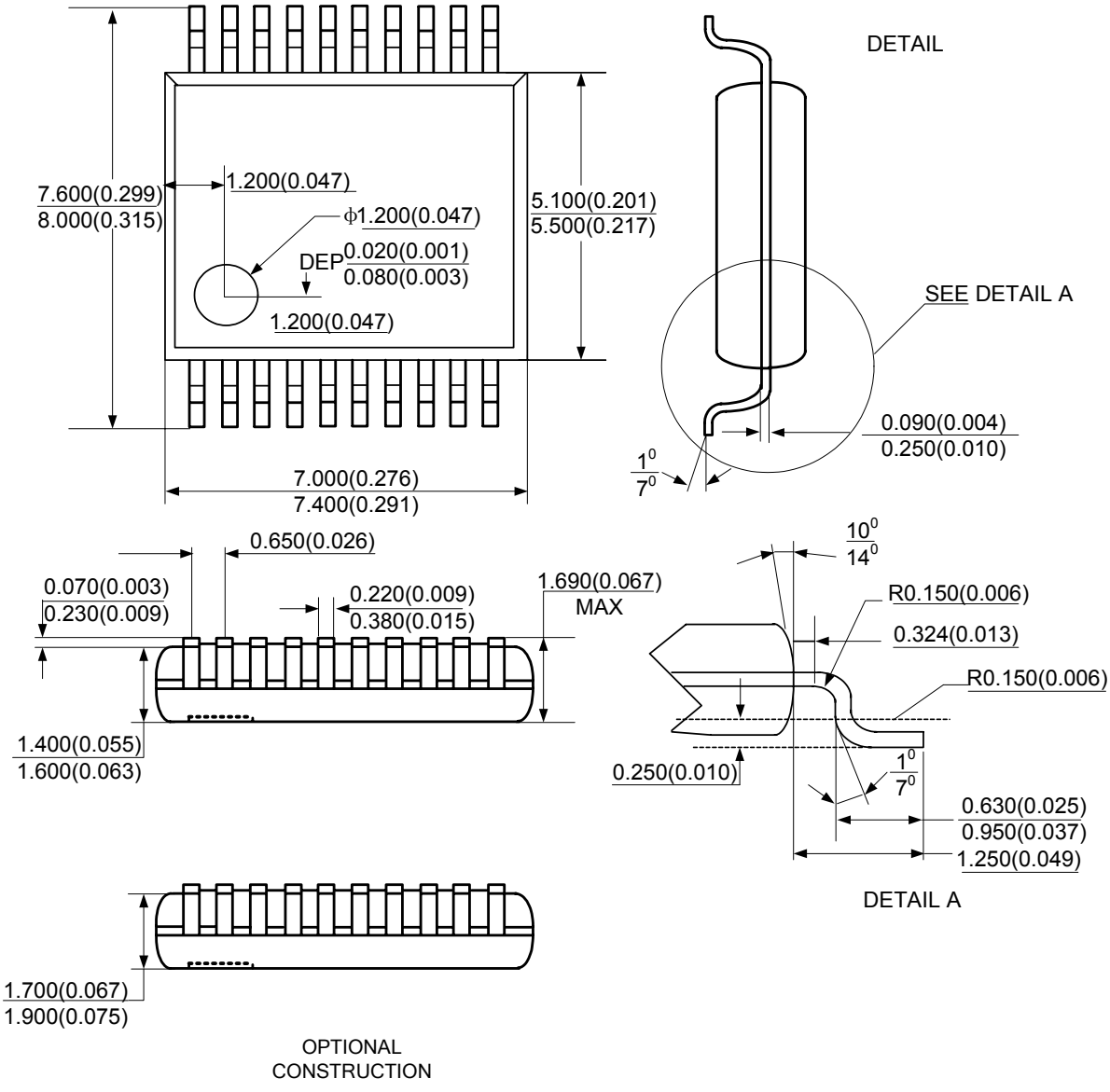
SOIC-20 **Unit: mm(inch)**



Note: Eject hole, oriented hole and mold mark is optional.

Mechanical Dimensions (Continued)

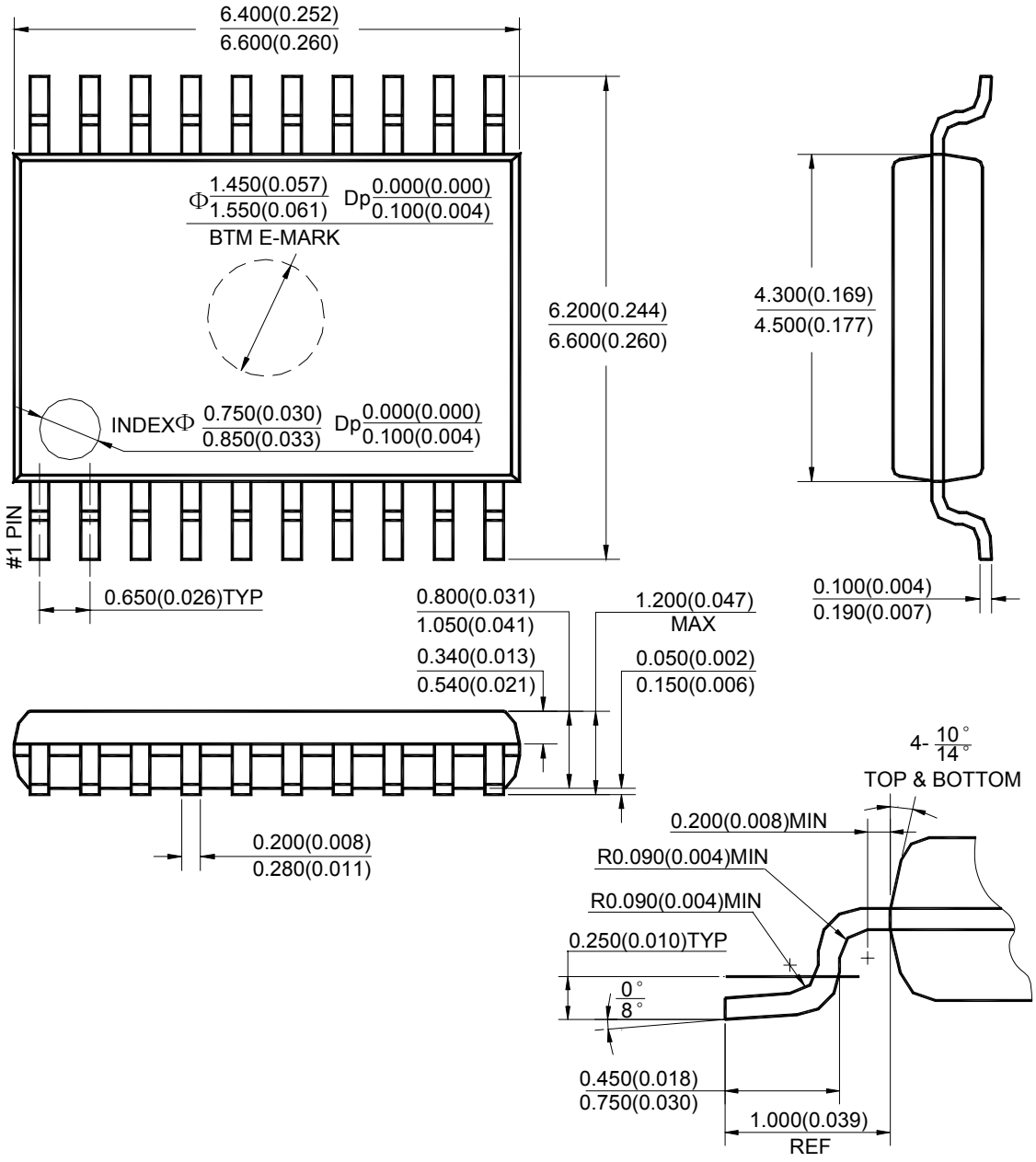
SSOP-20 **Unit: mm(inch)**



Note: Eject hole, oriented hole and mold mark is optional

Mechanical Dimensions

TSSOP-20 **Unit: mm(inch)**



Note: Eject hole, oriented hole and mold mark is optional.

BCD Semiconductor Manufacturing Limited

http://www.bcdsemi.com

IMPORTANT NOTICE

BCD Semiconductor Manufacturing Limited reserves the right to make changes without further notice to any products or specifications herein. BCD Semiconductor Manufacturing Limited does not assume any responsibility for use of any its products for any particular purpose, nor does BCD Semiconductor Manufacturing Limited assume any liability arising out of the application or use of any its products or circuits. BCD Semiconductor Manufacturing Limited does not convey any license under its patent rights or other rights nor the rights of others.

MAIN SITE

- Headquarters
BCD Semiconductor Manufacturing Limited
No. 1600, Zi Xing Road, Shanghai ZiZhu Science-based Industrial Park, 200241, China
Tel: +86-21-24162266, Fax: +86-21-24162277

- Wafer Fab
Shanghai SIM-BCD Semiconductor Manufacturing Co., Ltd.
800 Yi Shan Road, Shanghai 200233, China
Tel: +86-21-6485 1491, Fax: +86-21-5450 0008

REGIONAL SALES OFFICE

Shenzhen Office
Shanghai SIM-BCD Semiconductor Manufacturing Co., Ltd., Shenzhen Office
Unit A Room 1203, Skyworth Bldg., Gaoxin Ave.1.S., Nanshan District, Shenzhen, China
Tel: +86-755-8826 7951
Fax: +86-755-8826 7865

Taiwan Office
BCD Semiconductor (Taiwan) Company Limited
4F, 298-1, Rui Guang Road, Nei-Hu District, Taipei, Taiwan
Tel: +886-2-2656 2808
Fax: +886-2-2656 2806

USA Office
BCD Semiconductor Corp.
30920 Huntwood Ave. Hayward, CA 94544, USA
Tel : +1-510-324-2988
Fax: +1-510-324-2788

OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А