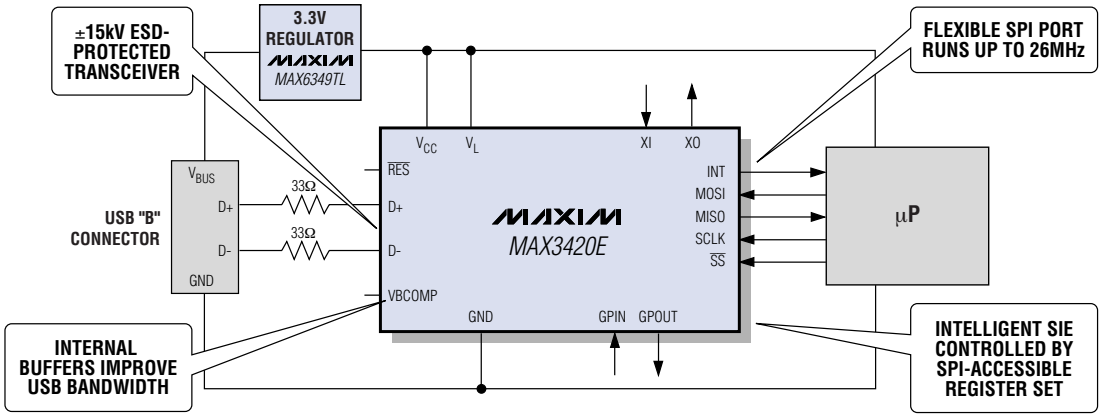
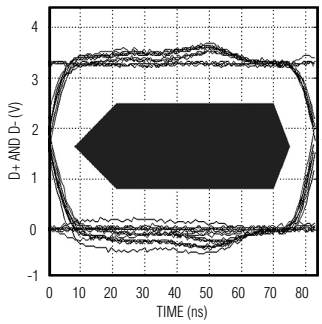
Add USB to Any System with a Single IC

Makes Your Microprocessor, DSP, or ASIC a Full-Speed USB Peripheral



EYE DIAGRAM



HI-SPEED USB CERTIFIED

FULL-SPEED (12Mbps) USB COMPLIANCE

Ideal for

- Industrial
- Meter Reading
- Automotive
- Medical

AVAILABLE IN SPACE-SAVING PACKAGES

24-TQFN 4mm x 4mm

- ±15kV ESD-Protected, Integrated Full-Speed USB Transceiver (12Mbps)
- Programmable 3- or 4-wire SPI™ Interface (Up to 26MHz)
- USB Functionality Added Through SPI Port
- Easy to Program
- Integrated USB Serial Interface Engine (SIE)
- Extra I/O: Four General-Purpose Inputs and Four General-Purpose Outputs
- Available in 24-Pin (4mm x 4mm) TQFN and 32-Pin (7mm x 7mm) TQFP Packages

Featured Products

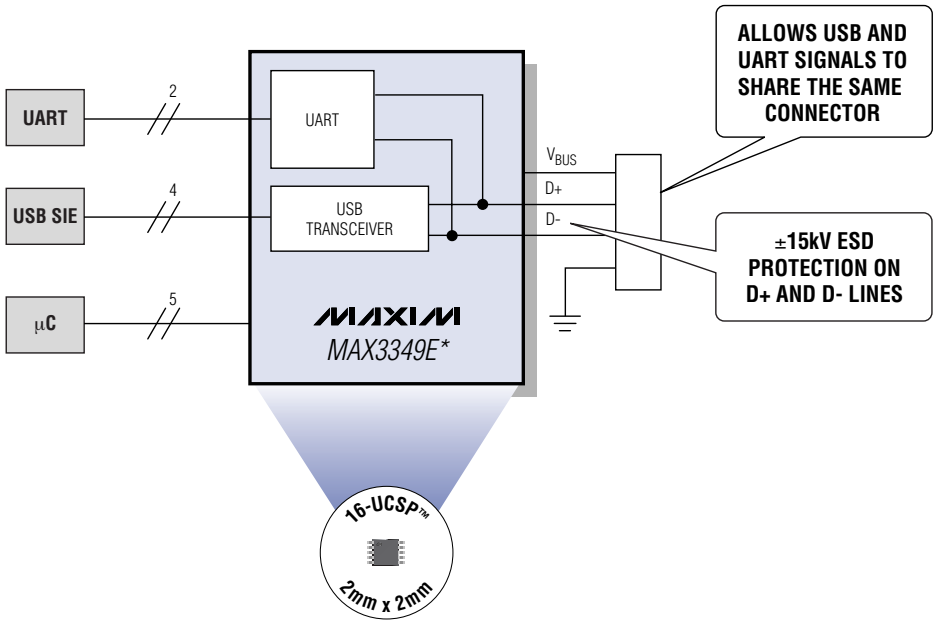
MAXIM

USB Transceivers

±15kV USB Full-Speed Transceiver Has UART Multiplexer

FUTURE PRODUCT

Ideal for Routing USB and UART Signals Through the Same Connector Pins

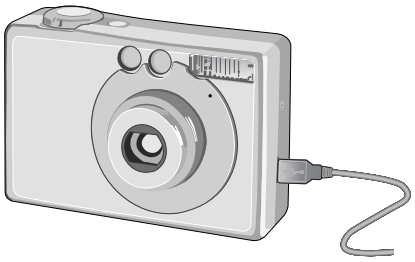


Features

- Integrated Functions Reduce System Component Count
- Switchable Pullup Resistor
- D+/D- Series Termination Resistors
- 5µA Low-Power Shutdown Mode

Ideal for

- Cellular Handsets
- PDAs
- Digital Cameras
- MP3 Players



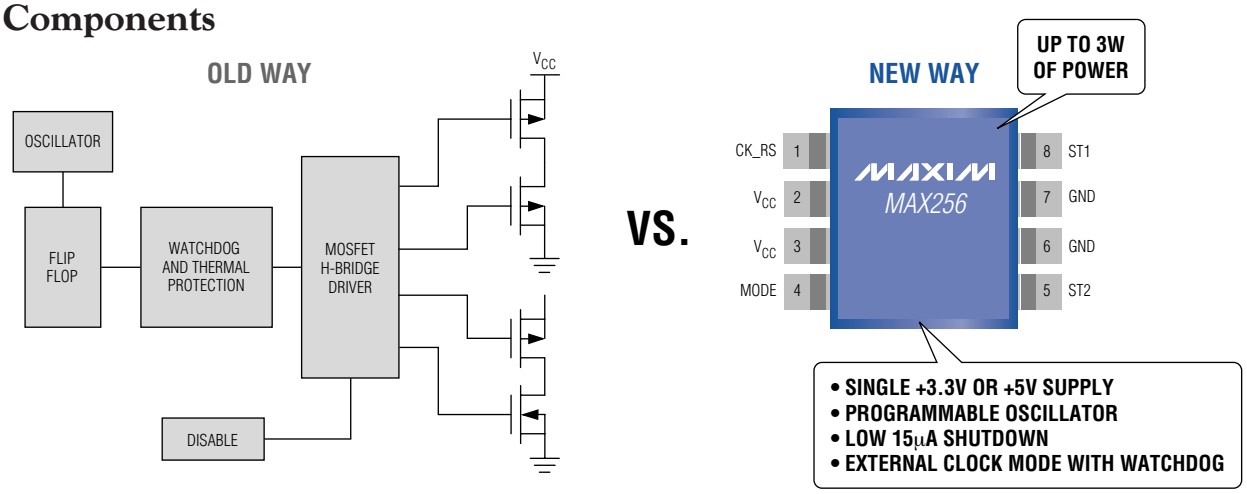
For Maxim's Full Line of USB Products, Go to:
www.maxim-ic.com/usb

UCSP is a trademark of Maxim Integrated Products, Inc.
*Future product—contact factory for availability

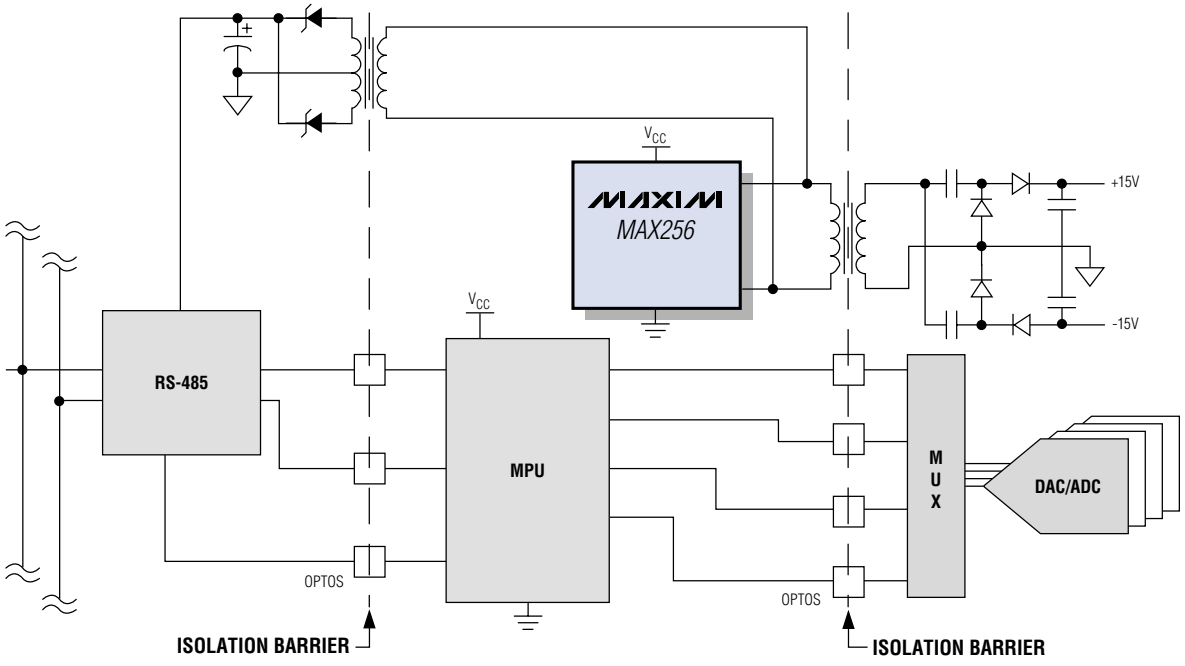
Isolate Multiple Supply Voltages Using One H-Bridge Driver

Isolated Supplies

Reduces Isolated Supply Design and Board Area by Eliminating External Components



IDEAL SOLUTION FOR INDUSTRIAL CONTROLS AND PLC SYSTEMS



	Part	Supply Voltage (V)	Supply Current (mA)	Shutdown Current (µA)	Programmable Oscillator (kHz)	External Clock Mode	Power On Primary Winding (W)	Temperature Range (°C)	Package
NEW	MAX256	3.3 or 5	3	Yes	100 to 1000	Yes	3	-40 to +125	8-SO
	MAX253	5	5	Yes	200/350	—	1	0 to +75, 40 to +85, -55 to +125	8-PDIP, 8-SO, 8-µMAX®

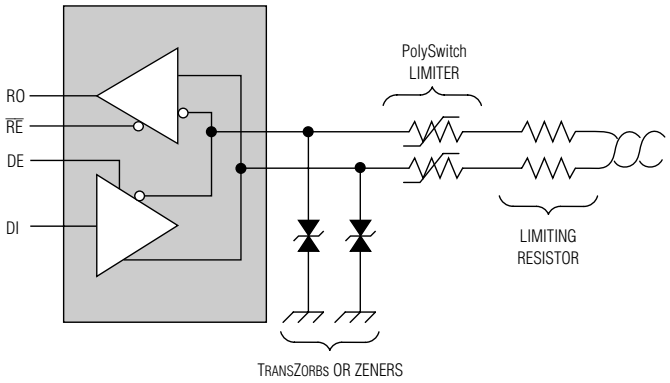
µMAX is a registered trademark of Maxim Integrated Products, Inc.

RS-485/ CAN

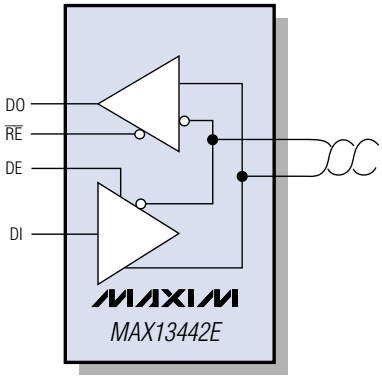
Protect RS-485/CAN Communication Bus Up to ±80V Faults Without Any External Components

Eliminate the Need for TRANSZORBs™, Zeners, Limiting Resistors, and PolySwitches®

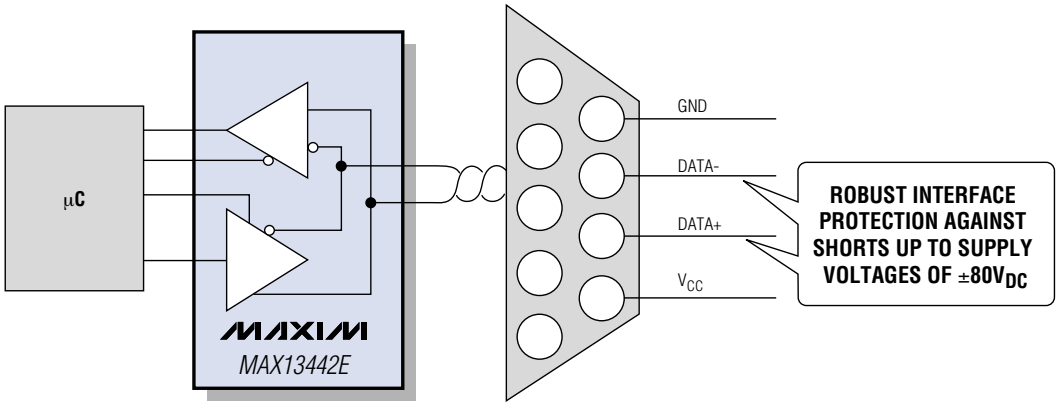
COMPETITORS' DEVICES REQUIRE EXTERNAL COMPONENTS



Maxim's FAULT-PROTECTED DEVICES REQUIRE NO EXTERNAL COMPONENTS



IDEAL SOLUTIONS FOR PLC, HVAC, AND AUTOMOTIVE APPLICATIONS WHERE DC POWER IS DISTRIBUTED ALONG THE COMMUNICATION BUS



	Part	Protocol	Power Supply (V)	Fault-Protection (V)	ESD Protection (kV)	Data Rate (Mbps)	Fold-Back Current	Fault Pin	Shutdown	Hot-Swap	True Fail-Safe	Price† ($)
NEW	MAX13442E/MAX13443E	RS-485	+5	±80/±60	±15	0.25/10	Yes	—	Yes	Yes	Yes	2.20
NEW	MAX13444E	J1708	+5	±80	±15	0.25	Yes	—	Yes	Yes	Yes	2.20
	MAX3430	RS-485	+3	±80	±15	0.25	—	—	—	Yes	Yes	2.20
	MAX3440E/MAX3441	RS-485	+5	±60	±15	0.25/10	—	Yes	—	Yes	Yes	2.20
	MAX13051/MAX13052	CAN	+5	±80	±6	1	—	—	Yes	—	—	1.51
	MAX3050/MAX3053/MAX3057	CAN	+5	±80	±3	2	—	—	Yes	—	—	1.51

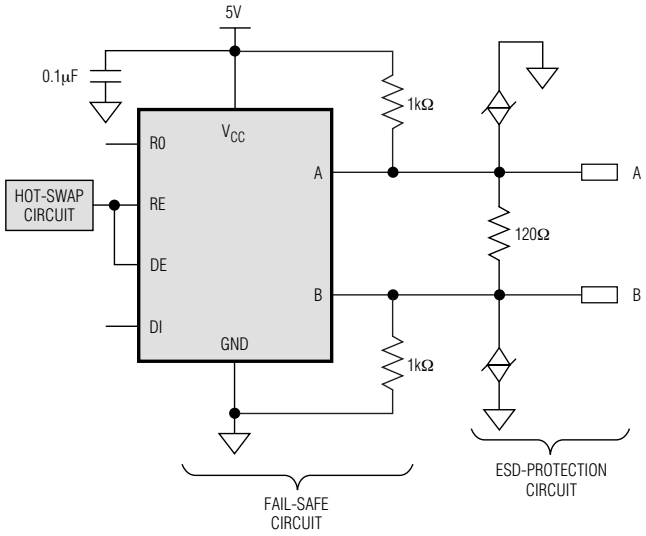
TRANSZORB is a trademark of Vishay Intertechnology, Inc.
PolySwitch is a registered trademark of Tyco International Ltd.
†1000-up recommended resale. Prices provided are for design guidance and are FOB USA. International prices will differ due to local duties, taxes, and exchange rates. Not all packages are offered in 1k increments, and some may require minimum order quantities.

Highest Functionality RS-485/RS-422 Transceivers Outperform the Competition

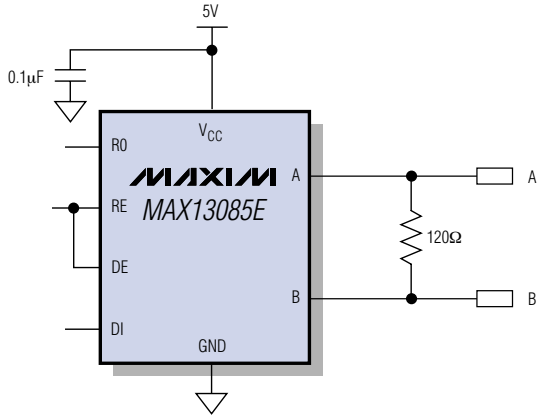
RS-485

±15kV ESD Protection, True Fail Safe, Slew-Rate Limit, and Hot-Swap Eliminate External Components and Reduce Design Complexity

COMPETITION



Maxim



Pin-for-pin with industry-standard pinout and eliminates external components.

Feature	Benefits
Integrated ±15kV ESD protection	ESD-protected drivers and receivers are ideal for industrial and harsh environments.
Slew-rate limiting	Provides better signal integrity and allows longer transmission lengths.
Hot-swap	Reduces false transmissions by disabling the drivers when the part is initially powered up.
True fail-safe	Guarantees a logic-high when receivers are open or shorted to V_{CC} or to GND.

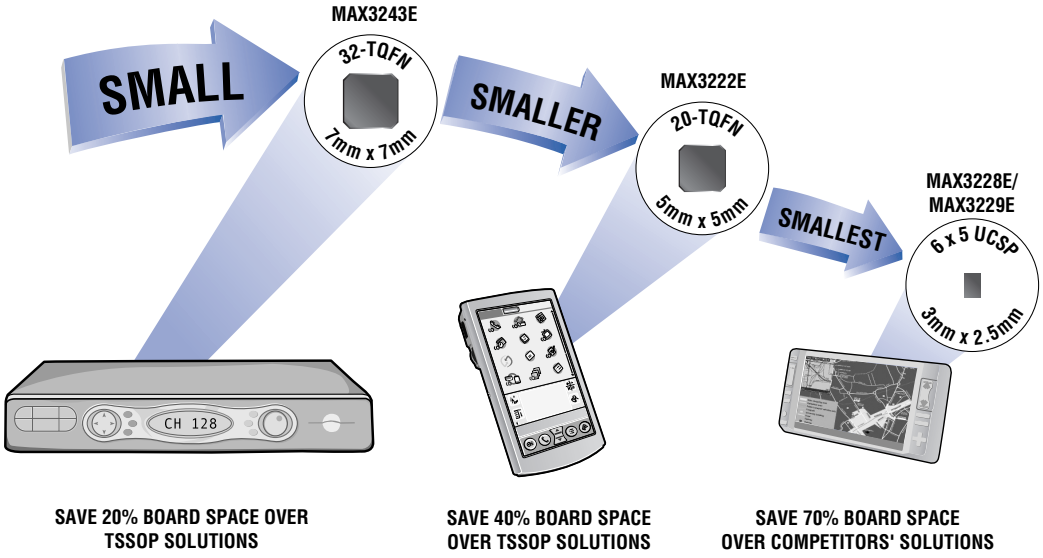
RS-485/RS-422 Transceivers with Highest Integration

	Part	No. of Tx/Rx	Duplex	I_{CC} (mA, typ)	Data Rate (kbps)	ESD Protection (±kV)	Tx EN	Rx EN	No. of Rx/Tx on Bus	Rx Fail-Safe with Inputs	Supply Voltage (V)	Features
NEW	MAX13082E	1/1	Half	1.2	250	15	Yes	Yes	256	Open or shorted	5.0	Low-power shutdown, hot-swap support
NEW	MAX13085E			1.2	500						5.0	
NEW	MAX13088E			1.2	16,000						5.0	
	MAX3072E			0.8	250						3.3	
	MAX3075E			0.8	500						3.3	
	MAX3078E			0.8	16,000						3.3	

RS-232

Industry-Standard RS-232 Transceivers Now Even Smaller

RS-232 Transceivers Available in UCSP, TQFN, and TSSOP Packages



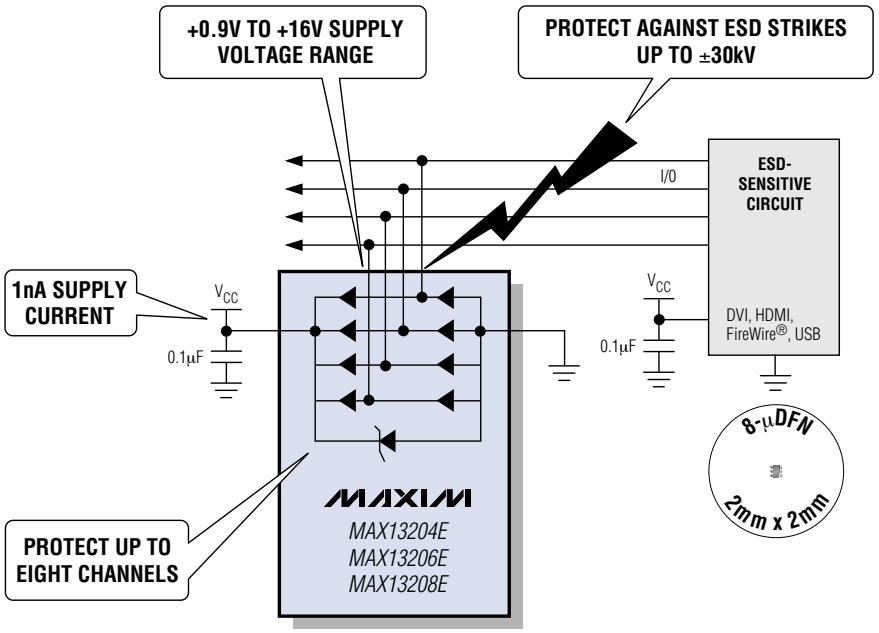
- Fastest Data Rates—Up to 1Mbps
- V_L Provides Compatibility with Low-Voltage Logic Down to +1.65V
- 2.4V Operation (MAX3228E/MAX3229E)
- Enhanced ESD Protection
  - ±15kV per Human Body Model
  - ±15kV per IEC 1000-4-2 Air-Gap Discharge
  - ±8kV per IEC 1000-4-2 Contact Discharge

	Part	No. of Tx/Rx	Supply Voltage (V)	Shutdown Supply Current (µA)	Data Rate (bps)	RS-232 Compliant	Package (mm x mm)
	MAX3228E	2/2	+2.35 to +5.5	1	250k	Yes	30-UCSP
	MAX3229E	1/1	+2.35 to +5.5		250k		30-UCSP
	MAX3241E/ MAX3243E/ MAX3244E	3/5	+3.0 to +5.5		250k		32-TQFN (7 x 7)
	MAX3245E	3/5	+3.0 to +5.5		1M		32-TQFN (7 x 7)
NEW	MAX3221E	1/1	+3.0 to +5.5		250k		16-TSSOP, 20-TQFN (5 x 5)
NEW	MAX3222E/ MAX3223E	2/2	+3.0 to +5.5		250k		20-TSSOP/ 20-TQFN (5 x 5)
NEW	MAX3232E	2/2	+3.0 to +5.5		250k		16-TSSOP, 20-TQFN (5 x 5)
	MAX3224E	2/2	+3.0 to +5.5		250k		20-TQFN (5 x 5)
	MAX3225E	2/2	+3.0 to +5.5		1M		20-TQFN (5 x 5)
	MAX3226E	1/1	+3.0 to +5.5		250k		16-TSSOP, 20-TQFN (5 x 5)
	MAX3227E	1/1	+3.0 to +5.5		1M		16-TSSOP, 20-TQFN (5 x 5)

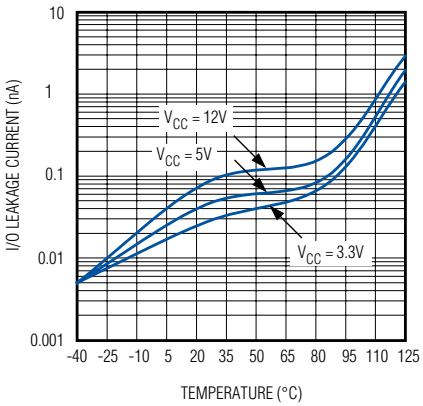
World's Only ±30kV ESD Protection Arrays in 2mm x 2mm µDFN

ESD Protectors

Ideal for High-Speed Applications Such as USB, HDMI™, and DVI™



LEAKAGE CURRENT vs. TEMPERATURE



ULTRA-LOW LEAKAGE CURRENT

CELL PHONE

SET-TOP BOX

Select the Ideal ESD-Protection Device for Your Application

Part	V_{CC} Supply Voltage (V)	No. of ESD-Protection Channels	Input Capacitance (pF)	ESD Protection: ±30kV IEC 61000-4-2 Air-Gap ±14kV IEC 61000-4-2 Contact ±15kV Human Body Model	Supply Current (nA)	Package (mm x mm)
MAX13204E	+0.9 to +16	4	6	Yes	1	6-µDFN (2 x 2)
MAX13206E		6				8-µDFN (2 x 2)
MAX13208E		8				10-µDFN (2 x 2)

FireWire is a registered trademark of Apple Computer, Inc.
HDMI is a trademark of HDMI Licensing LLC
DVI is a trademark of the Digital Display Working Group

Interface Products

Part	V_{CC} Supply Voltage (V)	Fault Protection (V)	AutoShutdown™	Data Rate (kbps)	Shutdown Supply Current (µA)	Fault Tolerant	Features
CONTROLLER AREA NETWORK (CAN) TRANSCEIVERS							
MAX3050/3053	4.5 to 5.5	±80	✔	2000	15		Slope control, autowakeup
MAX3051	3.0 to 3.6	No		1000	5		3V supply, standby mode
MAX3054/3055/3056	4.5 to 5.5	±80		250/125/40	3	✔	Full wakeup, bus-failure detection
MAX3057	4.5 to 5.5	±80		2000	3		Slope control, standby mode
MAX3058	4.5 to 5.5	No		1000	5		Standby mode
MAX3059	4.5 to 5.5	No		1000	10		Switched termination resistor
MAX13051/13052	4.5 to 5.5	±80	✔	1000	15		Autoband (MAX13051), ±12V common-mode range

Part	Power Supply (V)	V_{CC} Supply Current (mA)	V1 Supply Current (mA)	USB Speed Supported	Features
USB CONTROLLER					
MAX3420E	3.0 to 3.6	15	6	Full	±15kV ESD-protected, peripheral controller

Part	Power Supply (V)	Supply Current (mA)	Suspend Supply Current (µA)	USB Level Detect	Enumerate	USB Speed Supported	Features
USB TRANSCEIVERS							
MAX3344E/3345E	4 to 5.5	10	40	✔	✔	Full	±15kV ESD protected, internal 1.5kΩ pullup resistor, UCSP
MAX3346E	4 to 5.5	8	40		✔	Low/full	±15kV ESD protected, internal 1.5kΩ pullup resistor, UCSP
MAX3453E	4 to 5.5	10	40	✔	✔	Full	±15kV ESD protected, internal 1.5kΩ pullup resistor
MAX3454E	3 to 5.5	10	35		✔	Low/full	±15kV ESD protected, internal 1.5kΩ pullup resistor
MAX3455E	4 to 5.5	10	35	✔		Low/full	±15kV ESD protected
MAX3456E	3 to 5.5	10	40			Low/full	±15kV ESD protected, pin-for-pin compatible with MIC2550A
MAX13481E	4 to 5.5	10	35		✔	Full	±15kV ESD protected
MAX13482E	4 to 5.5	10	35	✔	✔	Full	±15kV ESD protected, internal 1.5kΩ pullup resistor
MAX3349E*	4 to 5.5	10	65	✔	✔	Full	Multiplexed USB and UART lines, ±15kV ESD protected, internal 1.5kΩ pullup resistor and resistor and series resistors

Part	Power Supply (V)	Supply Current (mA)	Low-Power Shutdown (µA)	Receive FIFO Width (words)	Timing Compatible	Data Rate (kbps)	Package	Features
SPI/MICROWIRE™ UART								
MAX3100	2.7 to 5.5	150	10	8	✔	230	16-QSOP	9-bit address-recognition interrupt, receive-activity interrupt shutdown
INTEGRATED UART AND RS-232 TRANSCEIVERS								
MAX3110E	3 to 3.6	270	20	8	✔	230	28-SO	Combination UART and ±15kV ESD, RS-232 with internal capacitors
MAX3111E	4.5 to 5.5	150	20	8	✔	230	28-SO	Combination UART and ±15kV ESD, RS-232 with internal capacitors

Part	Power Supply (V)	No. of Tx/Rx	±15kV ESD Protection	Supply Current (1µA)	AutoShutdown Plus™	AutoShutdown	External Capacitors (µF)	Shutdown and Tri-State	Rx Active in Shutdown	Data Rate (bps)
RS-232 INTERFACE PRODUCTS										
MAX3180E/3181E	3 to 5.5	0/1	✔	✔			—	✔ (MAX3180E)	✔ (MAX3181E)	1.5M
MAX3182E/3183E	3 to 5.5	0/1	✔	✔			—	✔ (MAX3182E)	✔ (MAX3183E)	1.5M
MAX3188E/3189E	±4.5 to ±6	1/0	✔			✔	—	✔		250k/1M
MAX3190E	±7 to ±12	1/0	✔			✔	—	✔		460k
MAX3209E	3 to 5.5, 12	6/10	✔			✔	2 x 0.1	✔	✔	460k
MAX3212	2.7 to 3.6	3/5		✔		✔	0.33/0.68	✔	✔	235k
MAX3218	1.8 to 4.25	2/2		✔		✔	0.33/0.68	✔	✔	120k
MAX3221E	3 to 5.5	1/1	✔	✔		✔	4 x 0.1	✔	✔	250k
MAX3222E/3223E	3 to 5.5	2/2	–/✔		–/✔		4 x 0.1	✔	✔	250k
MAX3224E/3225E	3 to 5.5	2/2	✔	✔	✔		4 x 0.1	✔	✔	250k/1M
MAX3226E/3227E	3 to 5.5	1/1	✔	✔	✔		4 x 0.1	✔	✔	250k/1M
MAX3228E**	2.35 to 5.5	2/2	✔	✔		✔	4 x 0.1	✔		250k
MAX3229E**	2.35 to 5.5	1/1	✔	✔		✔	4 x 0.1	✔		250k
MAX3230E**	2.35 to 5.5	2/2	✔	✔		✔	4 x 0.1	✔		250k
MAX3231E**	2.35 to 5.5	1/2	✔	✔		✔	4 x 0.1	✔		250k
MAX3232E	3 to 5.5	2/2	✔				4 x 0.1			250k
MAX3233E	3 to 3.6	2/2	✔	✔	✔		—	✔	✔	250k
MAX3237E	3 to 5.5	5/3	✔	✔			4 x 0.1	✔	✔	1M
MAX3238E	3 to 5.5	5/3	✔	✔	✔		4 x 0.1	✔	✔	250k
MAX3241E/3243E	3 to 5.5	3/5	✔	–/✔		–/✔	4 x 0.1	✔	✔	250k
MAX3244E/3245E	3 to 5.5	3/5	✔	✔	✔		4 x 0.1	✔	✔	250k/1M
MAX3246E**	3 to 5.5	3/5	✔	✔		✔	4 x 0.1	✔	✔	250k

MICROWIRE is a trademark of National Semiconductor Corp.

AutoShutdown and AutoShutdown Plus are trademarks of Maxim Integrated Products, Inc.

*Future product—contact factory for availability.

**UCSP offered.

Interface Products (continued)

Part	Power Supply (V)	No. of Tx/Rx	±15kV ESD Protection	Supply Current (1µA)	AutoShutdown Plus	AutoShutdown	External Capacitors (µF)	Shutdown and Tri-State	Rx Active in Shutdown	Data Rate (bps)
RS-232 INTERFACE PRODUCTS (continued)										
MAX3248E	3 to 5.5	5/3	✔	✔	✔		4 x 0.1	✔	✔	250k
MAX3311E/3313E	5	1/1					3 x 0.1			460k
MAX3314E	±5	1/1	✔				—			460k
MAX3322E	3 to 5.5	2/2	✔	✔			4 x 0.1	✔		250k
MAX3323E	3 to 5.5	1/1	✔	✔			4 x 0.1	✔		250k
MAX3325	3 to 3.6	2/2		✔			4 x 0.22	✔	✔	250k
MAX3380E/3381E	2.5 to 5.5	2/2	✔	✔	✔	✔	4 x 0.1	✔		250k
MAX3384E/3385E	3 to 5.5	2/2	✔	✔			4 x 0.1	✔	✔ (MAX3385E)	250k
MAX3386E	3 to 5.5	3/2	✔	✔	✔		4 x 0.1	✔	✔	230k
MAX3387E	3 to 5.5	3/3	✔	✔	✔		4 x 0.1	✔	✔	250k
MAX3388E	2.35 to 3	3/2	✔	✔			4 x 0.1	✔		460k

Part	Power Supply (V)	No. of RS-232 Tx/Rx	Nom Reset Threshold (V)	Min Reset Pulse Width (ms)	$\overline{\text{RESET}}$ Valid to V_{CC} = 1V	Supply Current (µA)	No. of External Capacitors	Nom Capacitor Value (µF)	Shutdown and Tri-State	Rx Active in Shutdown	AutoShutdown Plus	Data Rate (kbps)
INTEGRATED µP SUPERVISORS AND RS-232 TRANSCEIVERS												
MAX3320A	3 to 5.5	2/2	4.25	100	✔	✔	4	0.1	✔	✔	✔	250
MAX3320B	3 to 5.5	2/2	2.85	100	✔	✔	4	0.1	✔	✔	✔	250
MAX3320L	3 to 5.5	2/2	4.63	100	✔	✔	4	0.1	✔	✔	✔	250
MAX3320T	3 to 5.5	2/2	3.08	100	✔	✔	4	0.1	✔	✔	✔	250

Part	Power Supply (V)	Data Rate (kbps)	No. of Tx/Rx	Supply Current (mA)	Isolation Voltage (V)	Shutdown Supply Current (µA)	Features
ISOLATION PRODUCT (RS-232)							
MAX3250	3.0 to 5.5	250	2/2	15	±50	20	Surface-mount isolation, no external transformer needed

RS-485/RS-422 Products

Part	Power Supply (V)	No. of RS-485 Tx/Rx	Duplex	Data Rate (Mbps)	No. of Tx/Rx on Bus	Features
PRE-EMPHASIS FOR LONG DISTANCE AND HIGH SPEED						
MAX3291	5	1/1	Full	5 to 10	128	Pin compatible with industry standards
MAX3292	5	1/1	Full	Programmable	128	Pin compatible with industry standards

Part	Power Supply (V)	Supply Current (µA)	No. of RS-485 Tx/Rx	Duplex	Data Rate (kbps)	True Fail-Safe	1/8-Unit Load	Features
BATTERY POWERED (2.5V, 1.6µA)								
MAX3471	2.5 to 5.5	1.6	1/1	Half	64	✔	✔	Ideal for lithium battery-powered applications

Part	Data Rate (Mbps)	No. of RS-485 Tx/Rx	±15kV ESD Protection	Supply Current (mA)	Shutdown Supply Current (nA)	Duplex	No. of Tx/Rx on Bus	Features
3V SUPPLY (3.0V TO 3.6V)								
MAX3030E	20	4/0	✔	0.1	—	—	—	Pin compatible with 26LS31
MAX3031E	2	4/0	✔	0.1	—	—	—	Pin compatible with 26LS31
MAX3032E	20	4/0	✔	0.1	—	—	—	Pin compatible with 75174, 34C87
MAX3033E	2	4/0	✔	0.1	—	—	—	Pin compatible with 75174, 34C87
MAX3077E	16	1/1	✔	0.8	—	Full	256	True fail-safe receiver, hot-swap capable
MAX3094E/3096	10	0/4	✔	2.4	1	—	128	Rugged RS-422/RS-485 bus receiver
MAX3097E/3098EA	32	0/3	✔	3.1	—	—	256	32Mbps, four fault outputs
MAX3098EB	32	0/3	✔	3.1	—	—	256	32Mbps, four fault outputs
MAX3280E–3284E	52	0/1	✔	9	—	—	128	True fail-safe RS-485 in SOT23
MAX3362	20	1/1	—	1.7	1µA	Half	256	High-speed RS-485 transceiver in SOT23
MAX3483E	0.25	1/1	✔	1	2	Half	32	Slew-rate limiting reduces EMI and reflections
MAX3485E	12	1/1	✔	1	2	Half	32	Guaranteed 12Mbps data rate
MAX3486E	2.5	1/1	✔	1	2	Half	32	Slew-rate limiting reduces EMI and reflections
MAX3293	0.25	1/0	—	5	1	—	256	6-SOT, slew-rate limited, hot-swap inputs
MAX3294	2.5	1/0	—	5	1	—	256	6-SOT, slew-rate limited, hot-swap inputs
MAX3295	20	1/0	—	5	1	—	256	6-SOT, hot-swap inputs

RS-485/RS-422 Products (continued)

Part	Data Rate (Mbps)	No. of RS-485 Tx/Rx	±15kV ESD Protection	Supply Current (mA)	Shutdown Supply Current (nA)	Duplex	No. of Tx/Rx on Bus	Features
3V SUPPLY (3.0V TO 3.6V) (continued)								
MAX3488E	0.25	1/1	✔	1	—	Full	32	Slew-rate limiting reduces EMI and reflections
MAX3490E	12	1/1	✔	1	—	Full	32	Guaranteed 12Mbps data rate
MAX3491E	12	1/1	✔	1	2	Full	32	MAX3490 plus driver/receiver enable

Part	Data Rate (Mbps)	No. of RS-485 Tx/Rx	Supply Current (mA)	Shutdown Supply Current (µA)	Duplex	No. of Tx/Rx on Bus	Features
5V SUPPLY							
MAX1481	0.25	1/1	0.3	0.1	Full	256	10-pin µMAX
MAX1482/1483	0.25	1/1	0.02	0.1	Full/half (1483)	256	20µA
MAX1484	12	1/1	0.3	0.1	Full	256	10-pin µMAX
MAX1487	2.5	1/1	0.23	—	Half	128	2.5Mbps

Part	Data Rate (Mbps)	No. of Tx/Rx	Supply Current (mA)	Hot-Swap	Shutdown Supply Current (nA)	Duplex	No. of Tx/Rx on Bus	Features
PROFIBUS								
MAX3465/3466	40	1/1	2.5	✔ (MAX3465)	1	Full	128	Complies with Profibus specifications
MAX3467	40	1/1	2.5		—	Full	128	Complies with Profibus specifications
MAX3468/3469	40	1/1	2.5	✔ (MAX3468)	1	Half	128	Complies with Profibus specifications

Part	Power Supply (V)	Data Rate (Mbps)	No. of RS-485 Tx/Rx	ESD Voltage (kV)	Supply Current (mA)	Shutdown Current (nA)	No. of Tx/Rx on Bus	Features
QUAD Tx/Rx								
MAX3040/3043	5	0.25	4/0	±10	1.0	2	—	±10kV ESD, hot-swap for live insertion
MAX3041/3044	5	2.5	4/0	±10	1.0	2	—	±10kV ESD, hot-swap for live insertion
MAX3042/3045	5	20	4/0	±10	1.0	2	—	±10kV ESD, hot-swap for live insertion
MAX3093E/3095	5	10	0/4	±15	2.4	< 1	128	5V, rugged RS-422/RS-485 bus receiver

Part	Standard	Power Supply(V)	Fault Protection (V)	Data Rate (Mbps)	No. of Tx/Rx	±15kV ESD Protection	Supply Current (mA)	Duplex	No. of Tx/Rx on Bus
FAULT-PROTECTED RS-485/RS-422/J1708									
MAX3430/13442E/13443E	RS-485	5	80	0.25	1/1	✔	30	Half	128
MAX3440E/3441E	RS-485	5	60	10	1/1	✔	10	Half	128
MAX13444E	J1708	5	80	0.25	1/1	✔	30	—	—

Part	Power Supply(V)	Data Rate (Mbps)	No. of RS-485 Tx/Rx	ESD Voltage (kV)	Supply Current (mA)	Shutdown Supply Current (µA)	Duplex	No. of Tx/Rx on Bus	Hot-Swap
TRUE FAIL-SAFE DEVICES									
MAX3070E/3073E/3076E	3.0 to 3.6	0.25/0.5/16	1/1	±15	0.8	.05	Full	256	✔
MAX3071E/3074E/3077E	3.0 to 3.6	0.25/0.5/16	1/1	±15	0.8	—	Full	256	✔
MAX3072E/3075E/3078E	3.0 to 3.6	0.25/0.5/16	1/1	±15	0.8	.05	Half	256	✔
MAX3079E	3.0 to 3.6	Selectable	1/1	±15	0.8	.05	Selectable	256	✔
MAX13080E/13081E	5	0.250	1/1	±15	1.2	2.8/–	Full	256	
MAX13082E	5	0.250	1/1	±15	1.2	2.8	Half	256	
MAX13083E/13084E	5	0.5	1/1	±15	1.2	2.8/–	Full	256	
MAX13085E	5	0.5	1/1	±15	1.2	2.8	Half	256	
MAX13086E/13087E	5	16	1/1	±15	1.2	2.8/–	Full	256	
MAX13088E	5	16	1/1	±15	1.2	2.8	Half	256	
MAX13089E	5	Selectable	1/1	±15	1.2	2.8	Selectable	256	
MAX3093E/3095	5	10	0/4	±15	2.4	< 1nA	—	128	

Part	Power Supply (V)	Data Rate (Mbps)	No. of Tx/Rx	Supply Current (mA)	Isolation Voltage (V_{RMS})	Shutdown Supply Current (µA)	Full Duplex	Features
ISOLATION PRODUCTS (RS-485/RS-422)								
MAX3535	3.0 to 5.5	1	1/1	100	2500	—	✔	3V to 5V supply operation, ±15kV ESD
MXL1535	5	0.25	1/1	100	2500	—	✔	±15kV ESD
MAX1480A	5	2.5	1/1	60	1500	0.2		Complete isolated RS-485 in one package
MAX1480B	5	0.25	1/1	35	1500	0.2		Complete isolated RS-485 in one package
MAX1480C	5	0.25	1/1	35	1500	0.2		MAX1480B with 1.5µs enable
MAX1490A	5	2.5	1/1	100	1500	0.2	✔	Complete, isolated RS-485 in one package
MAX1490B	5	0.25	1/1	65	1500	0.2	✔	Complete, isolated RS-485 in one package
MAX3480A	3.3	2.5	1/1	180	1500	0.2		Complete, isolated RS-485 in one package

RS-485/RS-422 Products (continued)

Part	Power Supply (V)	Data Rate (Mbps)	No. of Tx/Rx	Supply Current (mA)	Isolation Voltage (V)	Shutdown Supply Current (µA)	Full Duplex	Features
ISOLATION PRODUCTS (RS-485/RS-422) (continued)								
MAX3480B	3.3	0.25	1/1	120	1500	0.2	—	Complete, isolated RS-485 in one package
MAX3157	5	0.250	1/1	25	50	25	Selectable	Surface mount, no transformers required

Part	Supply Voltage (V)	No. of RS-232 Tx/Rx	No. of RS-485 Tx/Rx	RS-232/RS-485 Functionality	Half or Full Duplex	Fail-Safe	Data Rate	Supply Current (µA)	ESD Protection (kV)
RS-232/RS-485 MULTIPROTOCOL TRANSCEIVERS									
MAX3160/3161	3 to 5.5	2/2	1/1	Pin programmable	Pin selectable	Yes	Pin selectable	1	±15
MAX3162	3 to 5.5	2/2	1/1	Simultaneous	Full duplex	Yes	Pin selectable	1	±15

Part	Supply Voltage (V)	No. of Transceivers	No. of Termination Networks	Protocols Supported	Selectable DCE/DTE	Package
MULTIPROTOCOL TRANSCEIVERS AND TERMINATION NETWORKS						
MAX3170	3.3	3/3	—	V.28 (RS-232), V.11 (RS-449/V.36, EIA530, EIA530-A, X.21), V.35	✔	28-SSOP
MAX3171	3.3	3/3	—	V.28 (RS-232), V.10/V.11 (RS-449/V.36, EIA530, EIA530-A, X.21, RS-423)	✔	28-SSOP
MAX3172	3.3	1/1	5	V.28 (RS-232), V.11 (EIA530, EIA530-A, RS-449/V.36, X.21), V.35	✔	28-SSOP
MXL1543	5	3/3	—	V.28 (RS-232), V.11 (RS-449/V.36, EIA530, EIA530-A, X.21), V.35	✔	28-SSOP
MXL1544	5	4/4	—	V.28 (RS-232), V.10/V.11 (RS-449/V.36, EIA530, EIA530-A, X.21, RS-423)	✔	28-SSOP
MXL1344A	5	—	6	V.28 (RS-232), V.11 (EIA530, EIA530-A, RS-449/V.36, X.21), V.35	✔	24-SSOP
MAX3173	3.3	3/3	—	V.28 (RS-232), V.10/V.11 (RS-449, V.36, EIA530, EIA530-A, RS-423)	✔	28-SSOP
MAX3174	3.3	1/1	5	V.11 (RS-422), RS-530, RS-530A, V.36/RS-449, V.35, V28/RS-232, V.10/RS-423, X.21)	✔	28-SSOP
MAX3175	5	4/4	—	V.28 (RS-232), V.10/V.11 (RS-449/V.36, EIA530, EIA530-A, X.21, RS-423)	✔	28-SSOP

Part	No. of V_L to V_{CC}/V_{CC} to V_L Translators	V_L Supply Range (V)	V_{CC} Supply Range (V)	V_{CC} Supply Current (µA)	Guaranteed Data Rate (bps)	ESD Protection (kV)	Pin-Controlled Shutdown
LOGIC-LEVEL TRANSLATORS							
MAX3000E/3001E	8/8	1.2 to 5.5	1.65 to 5.5	10	230k/4M	±15	✔
MAX3002	8/8	1.2 to 5.5	1.65 to 5.5	10	35M	—	✔
MAX3013	8/8	1.2 to (V_{CC} - 0.4)	1.65 to 3.6	0.1	100M	—	✔
MAX13013/13014	1/1/2/2	1.2 to (V_{CC} - 0.4)	1.65 to 3.6	0.1	100M	—	✔
MAX3023	4/4	1.2 to (V_{CC} - 0.4)	1.65 to 3.6	0.1	100M	—	✔
MAX3372E/3373E**	2/2	1.2 to 5.5	1.65 to 5.5	130	230k/6M	±15	✔
MAX3377E/3378E**	4/4	1.2 to 5.5	1.65 to 5.5	130	230k/6M	±15	✔
MAX3394**	2	1.2 to 5.5	1.65 to 5.5	150	6M	±15	✔
MAX13000/13003E**	6	0.9 to 3.6	1.5 to 3.6	40	230k/20M	±15	✔
MAX13103E**	16	1.2 to 5.5	1.65 to 5.5	10	20M	±15	✔

Part	Power Supply (V)	No. of Tx/Rx	LCD Contrast Voltage Range (V)	1µA Supply Current	External Capacitors (µF)	Shutdown and Tri-State	Rx Active in Shutdown	Data Rate (kbps)
RS-232 TRANSCEIVER WITH SEPARATE LCD POWER AND BIAS								
MAX3325	3 to 3.6	2/2	-5 to +2	✔	4 x 0.22	✔	✔	250

Part	Supply Voltage Range (V)	Signal Range (V)	Termination Values (Ω)	Resistance Accuracy (%)
TERMINATION ICs				
MAX3406	4.5 to 5.5	±3.6	100/75	±2.5
MAX3407	4.5 to 5.5	±3.6	120/75	±2.5
MAX3408	4.5 to 5.5	±3.6	100/120	±2.5

Part	Power Supply (V)	No. of ESD-Protection Channels	Input Capacitance (pF)	ESD Protection: ±15kV Human Body, ±8kV IEC 61000-4-2 Contact, ±15kV IEC 61000-4-2 Air-Gap	Supply Current (nA)
ESD-PROTECTION DEVICES					
MAX3202E/3203E	0.9 to 5.5	2/3	5	✔	1
MAX3204E/3206E	0.9 to 5.5	4/6	5	✔	1
MAX3205E/3207E	0.9 to 5.5	6/2	2.5	✔	1
MAX3208E	0.9 to 5.5	4	2.6	✔	1
MAX13204E	0.9 to 16	4	6	±16kV (HBM), ±14kV (Contact) ±14kV (Contact), ±30kV (Air Gap)	1
MAX13206E	0.9 to 16	6	6	±16kV (HBM), ±14kV (Contact) ±14kV (Contact), ±30kV (Air Gap)	1
MAX13208E	0.9 to 16	8	6	±16kV (HBM), ±14kV (Contact) ±14kV (Contact), ±30kV (Air Gap)	1

Part	V_{CC} Supply Voltage (V)	V_L Supply Voltage (V)	±15kV ESD Protection	USB OTG Transceiver	V_{BUS} Supply and Signaling	Switchable D+/D- Resistors	Shutdown Supply Current (µA)
USB ON-THE-GO							
MAX3301E	3 to 4.5	1.65 to 3.6	✔	✔	✔	✔	3.5
MAX3353E**	2.6 to 5.5	1.65 to V_{CC}	✔		✔	✔	0.4
MAX3355E**	1.65 to 5.5	1.65 to V_{CC}	✔		✔		1

**UCSP offered.