

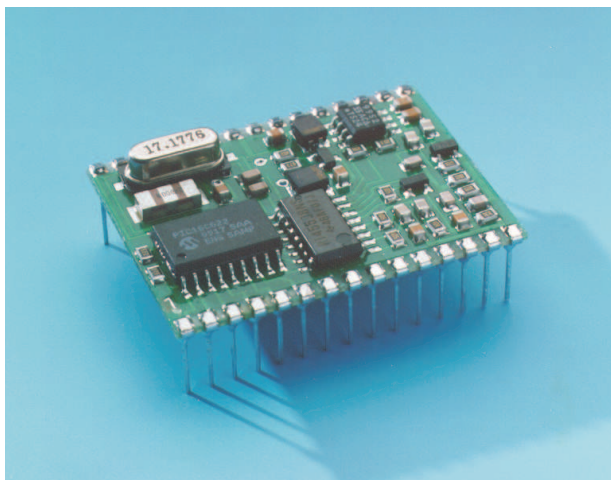
## SERIES 2000 MICRO READER

### FEATURES

- Best in Class Performance Through Patented HDX Technology
- RS232 Interface (5 Volt Logic Level)
- Multi Purpose I/Os
- Proven in Harsh Industrial Environments
- Easy to Design in and Use

### APPLICATIONS

- Access Control
- Vehicle Identification
- Container Tracking
- Asset Management
- Waste Management



### DESCRIPTION

The Series 2000 Micro Reader is an intelligent module that provides all RF and control functions in order to communicate with 134.2 kHz HDX/FSK transponders and a host application. It is designed as a 30-pin Dual in-line printed circuit board. The Series 2000 Micro Reader is equipped with a serial communication interface (RS232, 5 Volt level) and works in combination with a 47  $\mu$ H low-Q antenna that eliminates the need to tune the system to resonance. It converts the received RF signals to the transponder's identification number, checks the validity and handles the conversion to the RS232 serial interface protocol.

The RI-STU-MRD1 is well suited for usage in a broad range of applications including, but not limited to, access control, vehicle identification, container tracking, asset management and waste management applications.

### ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>

over operating free-air temperature range (unless otherwise noted)

	RI-STU-MRD1	UNIT
Operating Temperature	–20 to +50	°C
Storage Temperature	–40 to +85	°C

(1) 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 under *Recommended Operating Conditions* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

**OPERATING CHARACTERISTICS**

over operating free-air temperature range (unless otherwise noted)

PARAMETER	PART NUMBER	UNIT
	RI-STU-MRD1	
Relative Humidity	<97% non-condensing, IEC 68-2-30 Test Db, 21 cycles	
RF Transmit Frequency	134.2	kHz
Power Supply	5 Vdc, regulated	
Typical Current Consumption	Active mode: 100 Idle mode: 5	mA
Host Communication	Point-to-Point	
Communications Parameters	9600 baud, 8 data bits, no parity, 1 start bit, 1 stop bit	
Communications Protocol	Micro Reader specific communications protocol with Xon / Xoff handshake	
Communications Interface	Serial Communications Interface (SCI), TTL voltage level	
Reader Interference Protection	Wireless and wired synchronization	
Antenna	47 $\mu$ H, Q 10 – 20	
Typical Read Time	Without synchronization: 100 With synchronization: 120	ms
Transponder Types	134.2 HDX/FSK	kHz
Package	30-pin Dual-in-line for plug- or to solder-in	
Reference Documentation	11-06-21-027 (SCBU027) Reference Guide S2000 Reader System Micro Reader RI-STU-MRD1	
Dimensions	(38.3 $\times$ 29.3 $\times$ 13.5) $\pm$ 0.5	mm
Weight	approx. 5	g
Approval	CE, FCC	

**PACKAGING INFORMATION**

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	Eco Plan <sup>(2)</sup>	Lead/Ball Finish	MSL Peak Temp <sup>(3)</sup>
RI-STU-MRD1-30	ACTIVE			0	1	TBD	Call TI	Call TI

<sup>(1)</sup> The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

<sup>(2)</sup> Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

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**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

<sup>(3)</sup> MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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