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## 30mm DISK TRANSPONDER

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### FEATURES

- Best in Class Performance Through Patented HDX Technology
- Patented Transponder Tuning Provides Stable and High Read/Write Performance
- 64 Bit Read Only, 80 Bit Read/Write
- ISO 11784/11785 Compliant
- Insensitive to Almost All Non Metallic Materials

### APPLICATIONS

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



### DESCRIPTION

Texas Instruments' 30 mm disk transponder provides superior performance and operates at a resonance frequency of 134.2 kHz. Specific products are compliant to ISO/IEC 11784/11785 global open standards. Texas Instruments LF transponders are manufactured with TI's patented tuning process to provide consistent read and write performance. Prior to delivery, the transponders undergo complete functional and parametric testing, in order to provide the high quality customers have come to expect from TI. The transponder 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.



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.

TI-RFid is a trademark of Texas Instruments.

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

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

	RI-TRP-R9QL	RI-TRP-W9QL	UNIT
Operating Temperature	–25 to +85	–25 to +70	°C
Storage Temperature	–40 to +100	–40 to +100	°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.

## OPERATING CHARACTERISTICS

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

PARAMETER	PART NUMBER		UNIT
	RI-TRP-R9QL	RI-TRP-W9QL	
Functionality	Read Only	Read/Write	
Memory (Bits)	64	80 <sup>(1)</sup>	
Memory (Pages)	1	1	
Operating Frequency	134.2		kHz
Modulation	FSK (Frequency Shift Keying) 134.2 kHz / 123.2 kHz		
Transmission Principle	HDX (Half Duplex)		
Power Source	Powered from the reader signal (batteryless)		
Typical Reading Range	≤ 60 <sup>(2)</sup>		cm
Typical Programming Range	—	30% of specified reading range	
Typical Reading Time	70		ms
Typical Programming Time	—	309	ms
Typical Programming Cycles @ 25°C	—	100,000	
Case Material	Poly-Oxy-Methylen (POM), black		
Protection Class	IP 67		
EMC	Programmed code is not affected by normal electromagnetic interference or x-rays		
Signal Penetration	Transponder can be read through virtually all non-metallic material		
Mechanical Shock	IEC 68-2-27, Test Ea; 1500 g, 1 ms, half sine, 3 axes, 6 shocks per axis		
Vibration	IEC 68-2-6, Test Fc; 25 g, 10 - 2000 Hz, 3 axes, 10 cycles per axis		
Dimensions	29.4 mm ± 0.5 mm × 8.4 mm ± 0.4 mm		
Weight	8		g

- (1) We recommend that you split each 80 bit page into 64 user programmable bits plus a 16 bit wide CRC CCITT Block Check Character as is done by TI-RFid™ LF readers.

- (2) Depending on RF regulation in country of use, the Reader Antenna configuration used, and the environmental conditions.

PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package   Pins	Package qty   Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
RI-TRP-R9QL-30	Active	Production	RFIDP (TED)   0	250   null	-	Call TI	Call TI	-25 to 85	

- (1) **Status:** For more details on status, see our [product life cycle](#).
- (2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.
- (3) **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.
- (4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.
- (5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.
- (6) **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "-" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

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Last updated 10/2025