

带有集成 **DST80** 认证、**EEPROM** 和 **LF** 发动机防盗系统的数字签名应答机

查询样品: **TMS37145**

特性

- 低频 (**LF**) 发动机防盗系统接口
 - **75** 字节 **EEPROM**
 - **80** 位 **DST80** 安全认证协处理器
 - 集成无电池发动机防盗系统接口
 - 半双工 (**HDX**) 发动机防盗系统通信实现高达 **4** 英寸 (**10cm**) 读取范围
 - 特别选择寻址模式支持可靠学习实践队列
 - **80** 位认证密钥长度
 - 高达每秒 **8k** 位上行数据速率
 - **5/3** 字节质询/应答算法
 - **42ms** 内的快速认证
- **65ms** 内的快速相互认证
- **75** 字节 **EEPROM**
 - **48** 字节可用 **EEPROM** 用户内存
 - **32** 位唯一串号
 - 高 **EEPROM** 安全性和灵活性
 - 只写入认证密钥
 - 页是不可逆可锁定的和可保护的
 - 只通过相互认证, 才可对受保护的页编程
- 每个用户页是可锁定的
- 谐振频率: **134.2kHz**

描述

这个全新一代安全 **RFID** 应答机, 此应答机借助其集成的 **80** 位加密算法提供最高的安全级别。5 字节质询和 3 字节应答算法与现有的 **TI** 产品向后兼容, 并且与突发长度编码一起, 提供较短加密电报时间。

DST80 提供 **65** 字节的空闲可编程用户数据, 这些数据存储于九个页内, 其中的每个页可针对编程进行锁定。两个 **80** 位加密密钥的每一个密钥可使用一个单一电报进行编程。

DST80 有两个版本, 使用脉宽调制 (**PWM**) 或者脉冲位置调制 (**PPM**) 通信格式进行预编程, 这样用户就不必改变这个字段。

订购信息⁽¹⁾

T _A	封装 ⁽²⁾	通信格式	可订购部件号
-40°C 至 85°C	中插	PWM	TMS37145TEAIE
		PPM	TMS37145TEAIEG

(1) 要获得最新的封装和订货信息, 请参阅本文档末尾的封装选项附录, 或者登录 **TI** 的网站 www.ti.com 进行查询。

(2) 封装图样、热数据和符号可登录 www.ti.com/packaging 获取。

WEDGE PACKAGE



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.

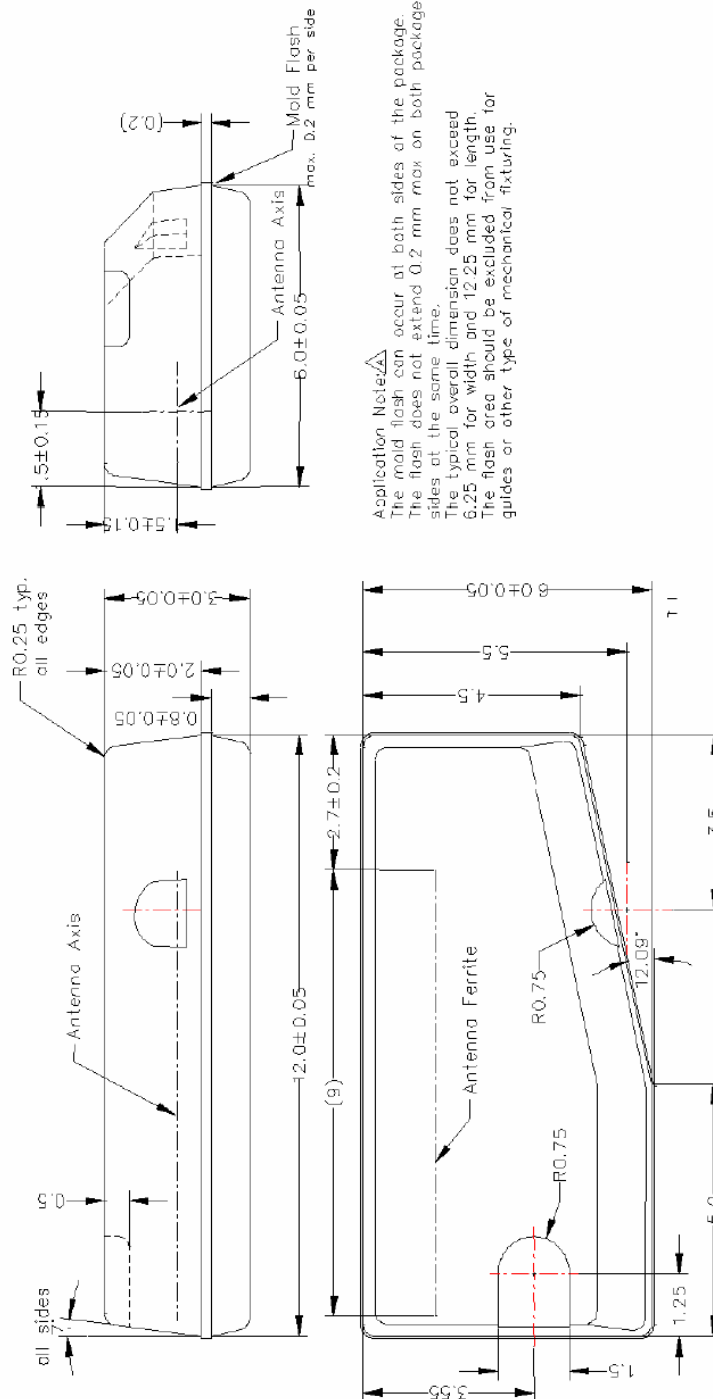
PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of the Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

Copyright © 2012, Texas Instruments Incorporated
English Data Sheet: **SCBS879**

Operating Characteristics

Part Number		TMS37145TEAIE, TMS37145TEAIEG	
Features		Immobilizer plus microcontroller with integrated power management	
DST80 authentication logic		80-bit key length, 4-byte or 5-byte challenge, 3-byte signature	
DST80 encryption time		Mutual authentication: 65 ms Fast authentication: 42 ms	
Transponder			
Transmission principle		HDX (half duplex telegram protocol)	
Operating frequency		134.2 kHz Integrated resonant frequency trimming capability via LF or test interface	
Security		Challenge/response, mutual authentication	
Downlink		100% AM, PPM bit coding with 2 kbit/s (typ)	
Uplink		FSK modulation with 7.9 kbit/s (typ)	
Read time for an encryption		PPM: 60 ms (typ) (including 20-ms charge time)	
Read time for mutual authentication		PPM: 85 ms (typ) (including 20-ms charge time)	
Protocol transmission security		16-bit block check character	
Activation field strength		141.5 dBμA/m	
Minimum required operation Q-factor		30	
EEPROM memory	75 bytes	48-byte free available EEPROM user memory	
		32-bit unique serial number	
		Two 80-bit security keys	
EEPROM endurance		200 000 (min) write-erase cycles (T _A = 25°C)	
Key learn-in		Special selective addressing to provide secure learn-in procedure	
Storage temperature		-40°C to 100°C (175°C for 5 minutes)	
Operating temperature		-40°C to 85°C	
Case material		Plastic	
Protection class		IP 68	
EMC		Programmed code is not affected by natural electromagnetic interference or X-rays	
Mechanical shock		IEC 68-2-27, Test Ea; 200 g, half sine, 3 ms, 6 shocks per axis	
Vibration		IEC 68-2-6, Test Fc; 10 to 500 Hz, 1.65 mm peak to peak, 10 g, 4 hours per axis	
Dimensions		12.0 mm ± 0.2 mm x 6.0 mm ± 0.2 mm x 3.0 mm ± 0.05 mm	
Weight		0.4 g	
Packaging		Bulk (2000 units per box)	

MECHANICAL DATA



If not otherwise noted tolerance according DIN 2768:
 Nominal dimension below 3 mm ± 0.1 mm
 Nominal dimension above 3 mm ± 0.2 mm
 Nominal angle: $\pm 1^\circ$

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)
TMS37145TEAIE	Active	Production	RFIDP (TEA) 0	2000 BULK	Yes	Call TI	Level-1-260C-UNLIM	-40 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.

Important Information and Disclaimer:The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

重要通知和免责声明

TI“按原样”提供技术和可靠性数据（包括数据表）、设计资源（包括参考设计）、应用或其他设计建议、网络工具、安全信息和其他资源，不保证没有瑕疵且不做任何明示或暗示的担保，包括但不限于对适销性、与某特定用途的适用性或不侵犯任何第三方知识产权的暗示担保。

这些资源可供使用 TI 产品进行设计的熟练开发人员使用。您将自行承担以下全部责任：(1) 针对您的应用选择合适的 TI 产品，(2) 设计、验证并测试您的应用，(3) 确保您的应用满足相应标准以及任何其他安全、安保法规或其他要求。

这些资源如有变更，恕不另行通知。TI 授权您仅可将这些资源用于研发本资源所述的 TI 产品的相关应用。严禁以其他方式对这些资源进行复制或展示。您无权使用任何其他 TI 知识产权或任何第三方知识产权。对于因您对这些资源的使用而对 TI 及其代表造成的任何索赔、损害、成本、损失和债务，您将全额赔偿，TI 对此概不负责。

TI 提供的产品受 [TI 销售条款](#)、[TI 通用质量指南](#) 或 [ti.com](#) 上其他适用条款或 TI 产品随附的其他适用条款的约束。TI 提供这些资源并不会扩展或以其他方式更改 TI 针对 TI 产品发布的适用的担保或担保免责声明。除非德州仪器 (TI) 明确将某产品指定为定制产品或客户特定产品，否则其产品均为按确定价格收入目录的标准通用器件。

TI 反对并拒绝您可能提出的任何其他或不同的条款。

版权所有 © 2025，德州仪器 (TI) 公司

最后更新日期：2025 年 10 月