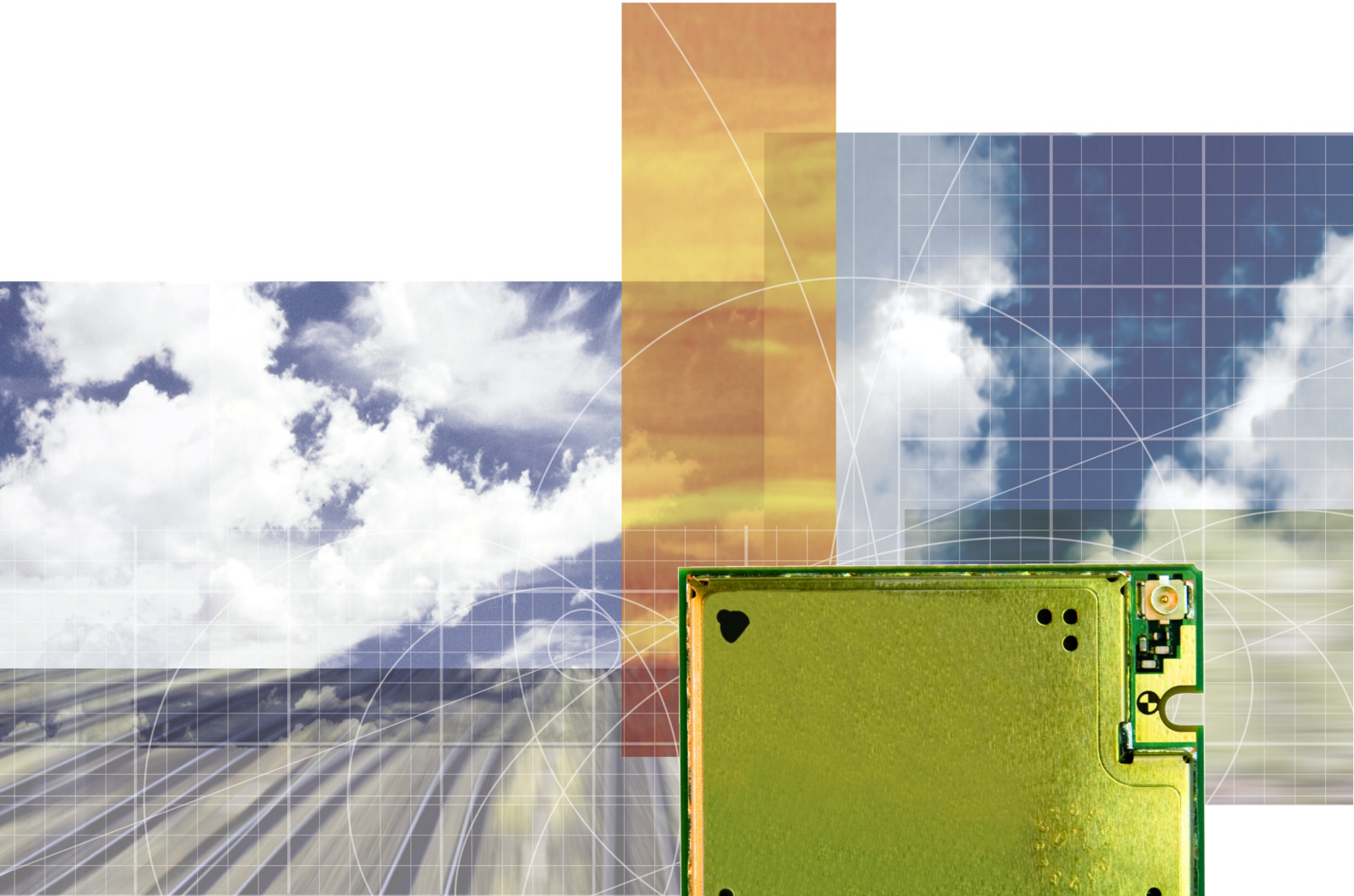


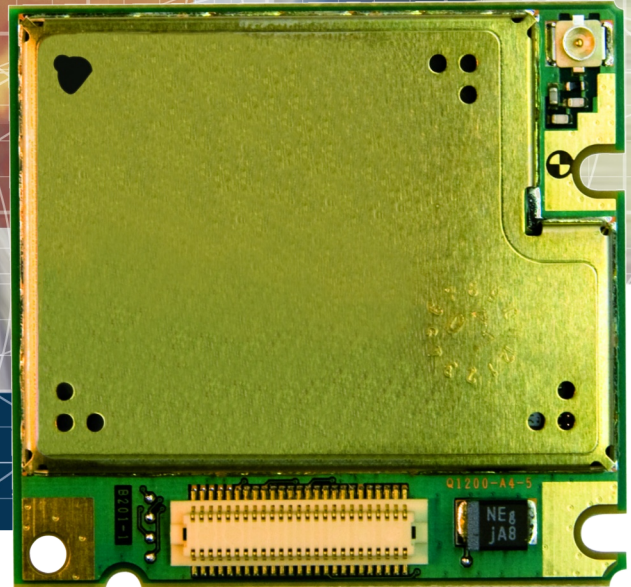


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TRM-3a



Approved Technology for the
GSM-Rail System

Datasheet

TRM-3a

The TRM-3a is a reliable and high performance module with ASCII features for GSM-R networks. Due to long standing product experience and innovative technologies this professional device is the high-end module for GSM-R.

Technical Data

- Dimensions 35 x 32.5 x 2.95 mm (L x W x H)
- Weight 5.5 g
- Supply voltage 3.3 - 4.8 volt
- Power consumption
Power down 50 μ A
Sleep mode 3.0 mA (DRX=5)
Idle mode 15 mA
Speech mode 260 mA (average),
GPRS (class 10) 450 mA (average)
Peak 3 A
- Temperature range
Normal operation: -20°C to +70°C
Restricted operation: -40°C to +70°C
Storage: -40°C to +85°C

System / Standards

- Quad-band GSM-R / EGSM 900 / GSM 1800 / GSM 1900
- GSM Phase 2 / Phase 2+
- GPRS multi-slot class 10
- Mobile station class B
- Output power
Class 4 (2 W) for GSM-R / EGSM 900
Class 1 (1 W) for GSM 1800 / GSM 1900
- AT commands via serial interface
- SIM Application Toolkit

Data Services

- GPRS class 10
- PBCCCH support
- Coding scheme CS 1-4
- CSD data transmission
Up to 14.4 kbps
Non transparent mode
Transparent mode
- Fax group 3, class 2
- TCP/IP stack access via AT command
- Internet protocols: TCP, UDP, HTTP, FTP, SMTP, POP3

Interfaces

- Interface to external SIM
- Board to board connector
- Digital and analog audio interfaces
- Two serial interfaces
- Power supply 3.3 - 4.8 V
- Antenna connector and antenna solder pad

Specifications for Voice

- Triple-rate codec for HR, FR, EFR
- Adaptive multi-rate (AMR) for non ASCII applications supported
- Hands-free operation supported
- Noise reduction and echo cancellation supported

SMS via GSM and GPRS

- Point-to-point MO and MT
- SMS cell broadcast
- Text and PDU mode

Target Applications

TRM-3a can be applied for data and voice embedded solutions within GSM-Rail environment.

ASCII Features

- VGCS (Voice Group Call Service)
- VBS (Voice Broadcast Service)
- UUS1 (User-to-User Signalling type 1)
- eMLPP (Enhanced Multi-Level Precedence and Preemption)

EIRENE Features

- FN supported (Functional Number)
- PFN supported (Presentation Functional Number)
- REC supported (Railway Emergency Call)

