

User Manual

TFGMEIBBCD3

BEJTFGMEIBBCD1 [FCC ID]
2703H-TFGMEIBBCD1 [ISED ID]

Contains FCC ID : BEJTM05FNNAGM0
Contains IC : 2703H-BEJTM05FNNAGM0

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1. Product Introduction

The RF platform of **TFGMEIBBCD3** supports highly integrated RF transceiver, with all necessary features to enable multi mode, multi band car telematics applications. **TFGMEIBBCD3** compliant high speed data and control interface, a multi mode timer unit and all necessary front end signals for the complete RF Engine control. Overall the TM05FNNAGM0 directly supports RF engines with up to 5G bands.

Table 1. Supported Band

Region		NA (North America)
Band	NR	n2/n5/n7/n12/n13/n14/n25/n26/ n29(Rx only)/n30(Rx only)/ n41/n66/n71/n77/n78
	LTE	B2/B4/B5/B7/B12/B13/B14/B25/B26/B29(Rx only)/ B30(Rx only)/B66/B71
	WCDMA	B2/B4/B5

1.1 Block Diagram

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1.2 Environmental Specifications

The environmental specification for operating and storage of the **TFGMEIBBCD3** are defined in the table below.

Table 2. Environmental Specifications

Parameter	Temperature Range
Operating Temperature	-40°C to 85°C
Storage Temperature	-40°C to 95°C
Humidity	95% or less

1.3 Electrical Specifications

This section provides details for some of the key electrical specifications of the **TFGMEIBBCD3** embedded modules.

1.3.1 Absolute Maximum Rating

Table 3. Absolute Maximum Ratings

Parameter		Min	Max	Units
VPWR	Main power supply input	6	18	V

Table 4. Absolute Maximum Ratings (input voltage of PMIC in embedded module (NAD))

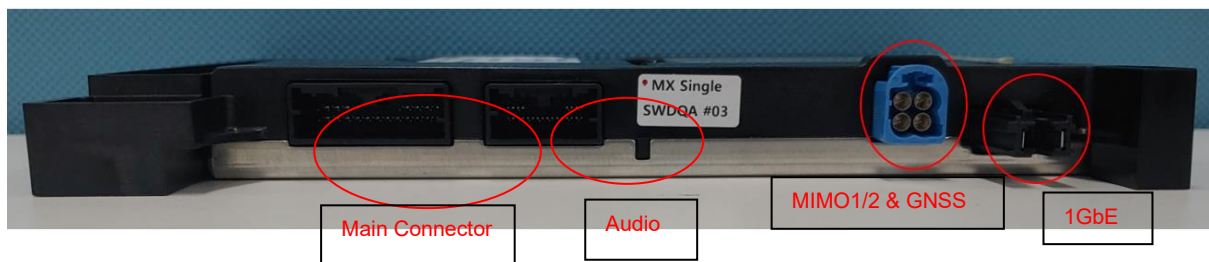
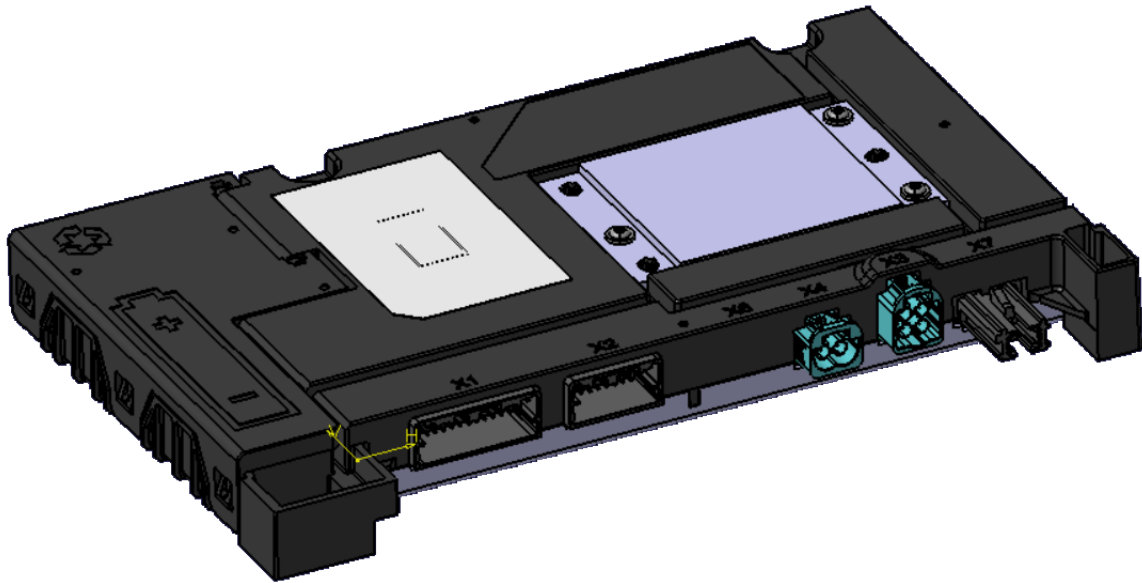
Parameter		Min	Max	Units
VPH_PWR (VDD_CP_PMIC_3VP_IN)	Power Supply Input	-	6	V
VIN	Voltage on any digital input or output pin	-	6	V

1.4 Mechanical Specifications

1.4.1 Function of Active Devices

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1.4.2 Mechanical Drawing



2. RF Specification

The specifications for the 5G NR, LTE and WCDMA interfaces are defined.

TFGMEIBBCD3 is designed to be compliant with the standard shown in the table below.

Table 6. Standards Compliance

Technology	Standards
5G NR	• 3GPP Release 15
LTE	• 3GPP Release 11
WCDMA	• 3GPP Release 9

Notice

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC, IC radiation exposure limits set forth for an uncontrolled environment.

This equipment (Internal Antenna) and external Antenna (87832572) should be installed and operated with minimum distance 3 cm between the radiator & Human body.

The external Antenna (84933920) should be installed and operated with minimum distance 17 cm between the radiator & Human body.

The external Antenna (85015365, 85015378) should be installed and operated with minimum distance 16.9 cm between the radiator & Human body.

The external Antenna (86784729, 85647584) should be installed and operated with minimum distance 2 cm between the radiator & Human body.

The external Antenna (85846852 ,85846853) should be installed and operated with each minimum distance 9 cm and 4 cm between the radiator & Human body.

The external Antenna (85737594 , 85737595) should be installed and operated with minimum distance 2.5 cm between the radiator & Human body.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Avis d'Industrie Canada sur l'exposition aux rayonnements

Cet appareil est conforme aux limites d'exposition aux rayonnements d'Industrie Canada pour un environnement non contrôlé.

Cet équipement (antenne interne) et l'antenne externe (87832572) doivent être installés et utilisés avec une distance minimale de 3 cm entre le radiateur et le corps humain.

L'antenne externe (84933920) doit être installée et utilisée à une distance minimale de 17 cm entre le radiateur et le corps humain.

L'antenne externe (85015365, 85015378) doit être installée et utilisée à une distance minimale de 16.9 cm entre le radiateur et le corps humain.

L'antenne externe (86784729, 85647584) doit être installée et utilisée à une distance minimale de 2 cm entre le radiateur et le corps humain.

L'antenne externe (85846852, 85846853) doit être installée et utilisée à une distance minimale de 9cm & 4 cm entre le radiateur et le corps humain.

L'antenne externe (85737594 , 85737595) doit être installée et utilisée à une distance minimale de 2.5 cm entre le radiateur et le corps humain.

REMARQUE: LE FABRICANT N'EST PAS RESPONSABLE DES INTERFÉRENCES RADIOÉLECTRIQUES CAUSÉES PAR DES MODIFICATIONS NON AUTORISÉES APPORTÉES À CET APPAREIL. DE TELLES MODIFICATIONS POURRAIT ANNULER L'AUTORISATION ACCORDÉE À L'UTILISATEUR DE FAIRE FONCTIONNER L'APPAREIL.

Operation is subject to the following two conditions:

- 1.This device may not cause interference.
- 2.This device must accept any interference, including interference that may cause undesired operation of the device.

L'exploitation est autorisée aux deux conditions suivantes :

- 1.L'appareil ne doit pas produire de brouillage;
- 2.L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.