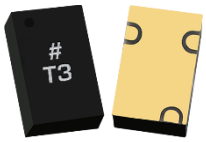
Miniature Surface Mount Bias-Tee **BTM-0026PSM**

1 Device Overview



PSM

1.1 General Description

The BTM-0026PSM is a packaged miniature bias tee featuring excellent insertion loss and superior isolations over a broad 10MHz to 26GHz bandwidth. The BTM-0026PSM works well for K-Band applications. The BTM-0026PSM is available in a 2.25 x 3.7 mm surface mount package or as a connectorized evaluation board. Tight fabrication tolerances allow for low unit to unit variation enabling accurate simulations using the provided s3p file taken from measured production units, making it an excellent alternative to uncharacterized, untested bias tees built with off-the-shelf inductors and capacitors.

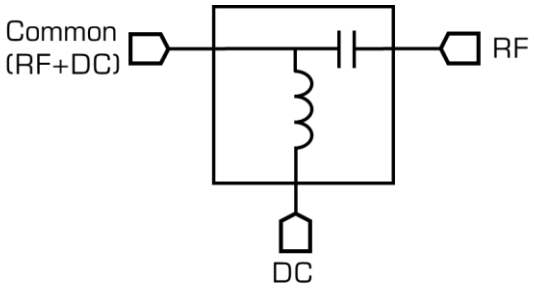
1.2 Features

- Low Insertion Loss
- Miniature Surface Mount Package
- Broad 10MHz to 26GHz Bandwidth
- S3P Data Available

1.3 Applications

- Test and Measurement
- Aerospace and Defense
- SATCOM

1.4 Functional Block Diagram



1.5 Part Ordering Options[1]

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
BTM-0026PSM-2	2.25 x 3.7 mm SMT	PSM	RoHS	Active	EAR99
EVB-BTM-0026P	Connectorized Evaluation Fixture	EVB	RoHS	Active	EAR99

[1] Refer to our website for a list of definitions for terminology presented in this table.

Table of Contents

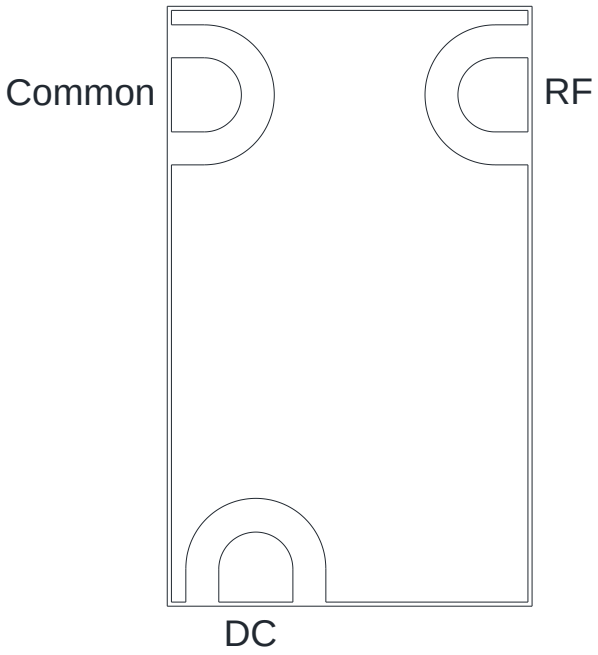
Revision History

Revision Code	Revision Date	Comment
-	March 2023	Datasheet Initial Release

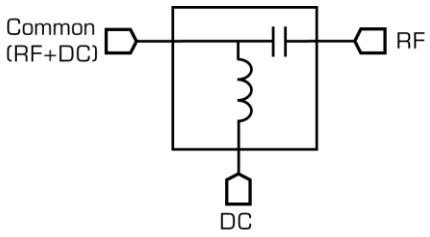
2 Port Configurations and Functions

2.1 Port Diagram

A top-down x-ray view of the BTM-0026PSM's PSM package outline drawing is shown below. The BTM-0026PSM has input and output ports given in Port Functions below. To use, apply a DC voltage to the DC pin, and an RF signal to the RF pin.



2.2 Port Functions

Pin	Function	Description	Equivalent Circuit
Common	RF+DC	The Common port is AC coupled to the RF pin and DC coupled to the DC pin.	
RF	RF	The RF pin is AC coupled to the common pin and DC blocked to the DC pin.	
DC	DC	The DC port is DC blocked to the RF pin and DC coupled to the common port.	

3 Specifications

3.1 Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded or met simultaneously, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Units
Power Handling	+30	dBm
DC Voltage	16	V
DC Current	320	mA
Operating Temperature	-55 to +100	°C
Storage Temperature	-65 to +125	°C

3.2 Package Information

Parameter	Details	Rating
ESD	Human Body Model (HBM), per MIL-STD-750, Method 1020	1A
Weight	PSM Package	690mg

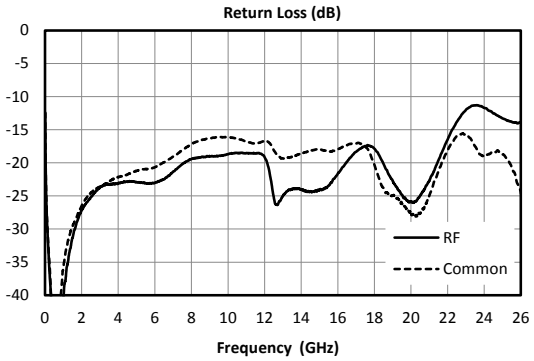
3.3 Electrical Specifications

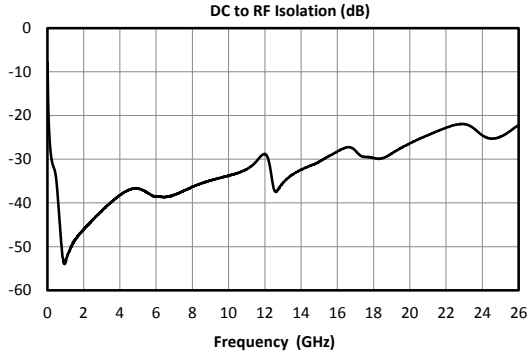
The electrical specifications apply at T_A=+25°C in a 50Ω system. Typical data shown is for the Bias Tee in a PSM package with a sine wave input applied to the RF port.

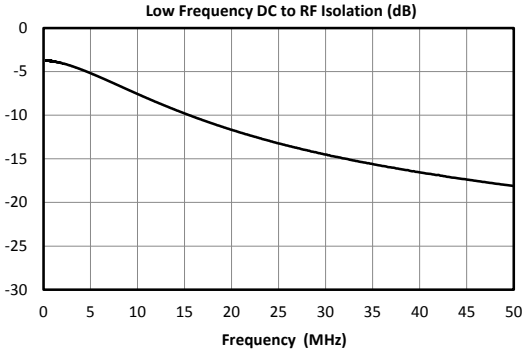
Min and Max limits are guaranteed at T_A=+25°C.

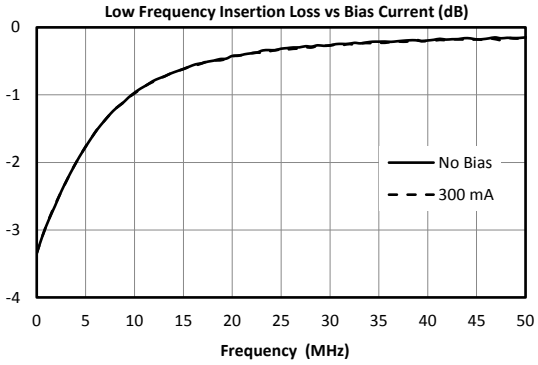
Parameter	Frequency Range (GHz)	Min	Typ	Max	Units
Insertion Loss	10MHz – 26GHz		0.43	2	dB
RF-DC Isolation			25		dB
Common Return Loss			19		dB
RF Return Loss			21		dB
DC Resistance			1.5		Ω
Capacitance			0.1		µF
Inductance			1.1		µH
Impedance			50		Ω

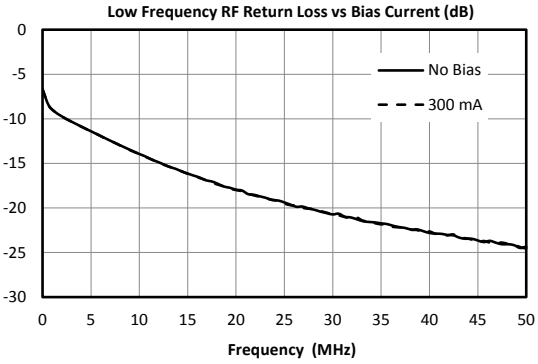
3.4 Typical Performance Plots[2]

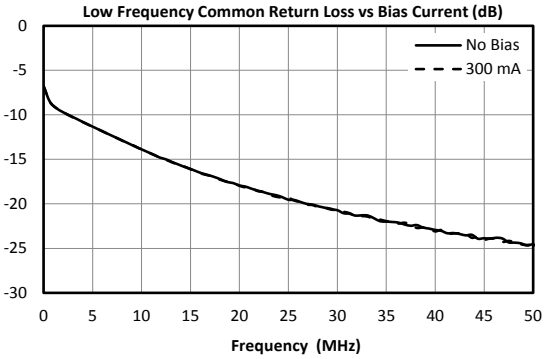










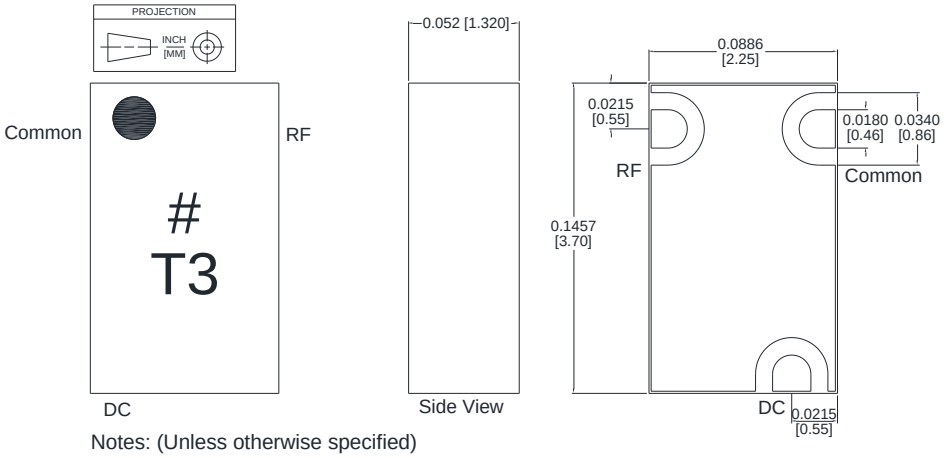


[2] Typical performance plots are evaluation board measurements with fixturing to the device pads de-embedded except for low frequency plots.

4 Mechanical Data

4.1 PSM Package Outline Drawing

All measurement are typical

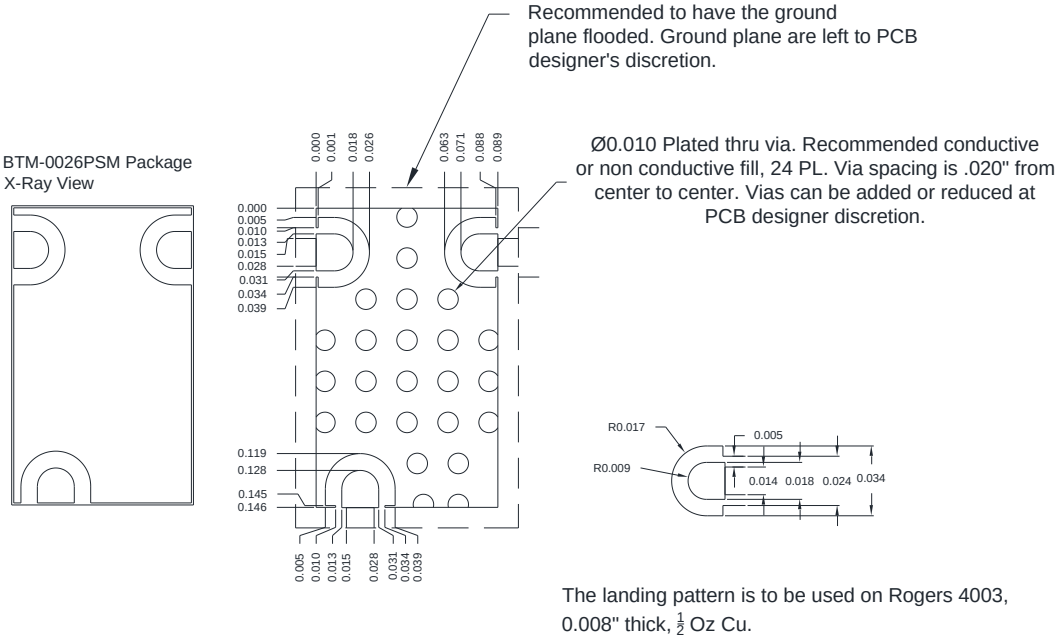


Notes: (Unless otherwise specified)

All dimensions are in INCHES [MM].

Finish: Gold 2-8µ-inches, over Solderable Electroplated Nickel, 100-200 µ-inches per QQ-N-290A. Or, ENIG.

4.2 PSM Package Footprint



The landing pattern is to be used on Rogers 4003, 0.008" thick, $\frac{1}{2}$ Oz Cu.

PSM-Package Surface-Mount Landing Pattern

Click here for a DXF of the above layouts.

Click here for leaded solder reflow. Click here for lead-free solder reflow

4.3 Evaluation Board Outline Drawing