mmTron
Unleashing the mmWave Frontier

TMC806-D
DC-90 GHz Single-Pole-Double-Thru Switch

Product Features

- RF frequency: DC to 70 GHz
- Insertion Loss: 2 dB
- Isolation: 30 dB
- Die Size: X=680 um, Y=730 um, Z=0.05mm
- Control Voltage: 5 VDC

Application

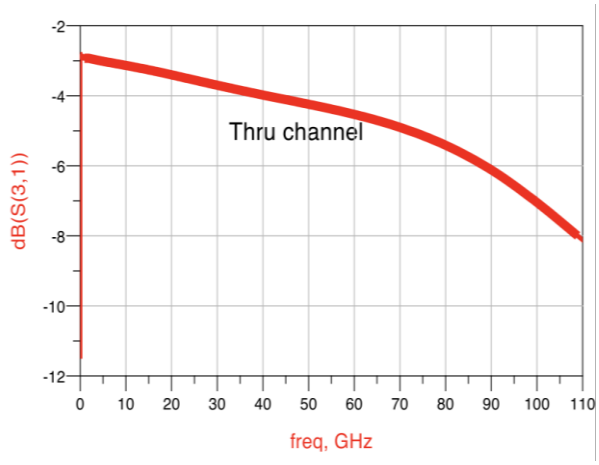
- Point-to-Point Radios and VSATs
- Test instrumentation
- Fiber Optics
- Military, EW and Space

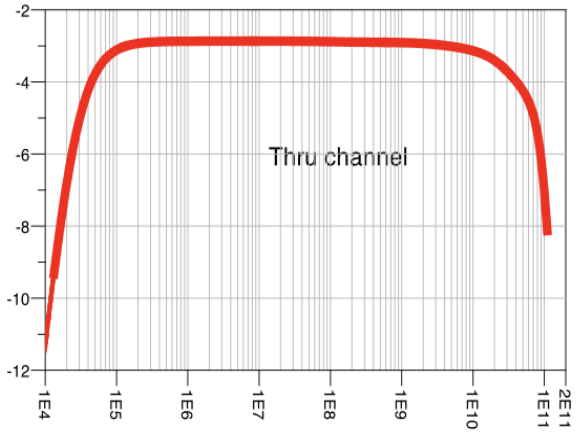
Product Description

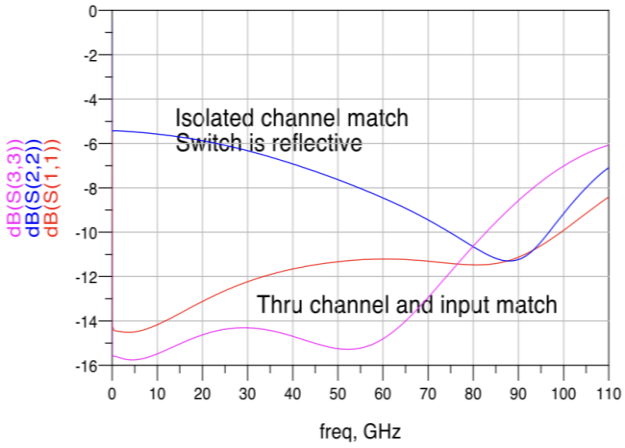
The TMC806-D GaAs PHEMT SPDT is a wideband single pole double thru, designed for use in Radios, Test instrumentation, Military, EW and Space applications. The TMC806-D is a 50 W matched design and eliminates the need for RF port matching. Both bond pad and backside metallization are Au-based that is compatible with ribbon and wedge bonding and conductivity epoxy die attach methods.

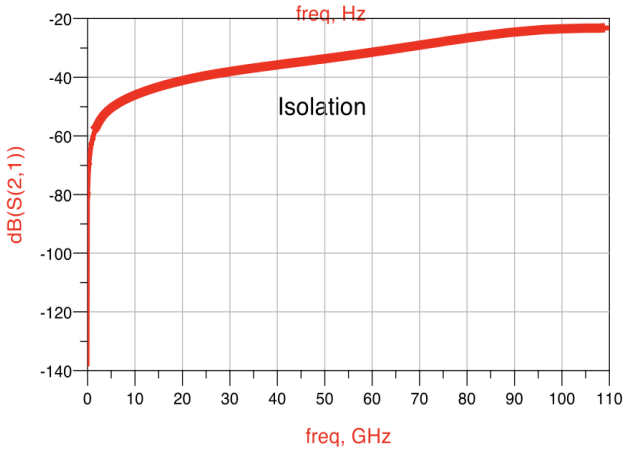
Electrical Performance : **Ta = 25 °C, F = 45 GHz**

	min	Typ	Max	Units
Frequency	DC		90	GHz
Insertion Loss		2		dB
Isolation		30		dB
IP0.1dB		24		dBm
T_{on}		9		ns
T_{rise}		4		ns
T_{off}		4		ns
T_{fall}		9		ns
Settling Time		50		ns


Thru channel
dB(S(3,1))
freq, GHz


Thru channel


Isolated channel match
Switch is reflective
Thru channel and input match
dB(S(3,3))
dB(S(2,2))
dB(S(1,1))
freq, GHz

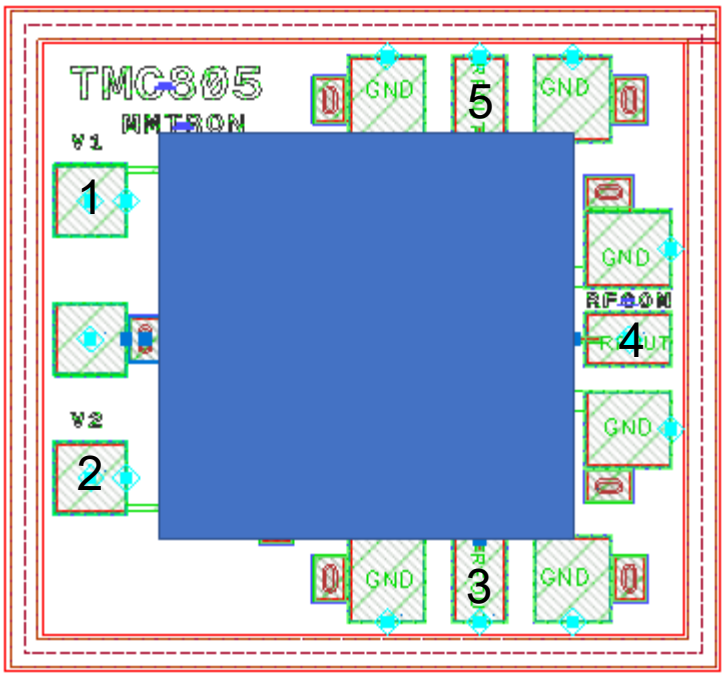

freq, Hz
Isolation
dB(S(2,1))
freq, GHz

Absolute Maximum Ratings

Parameter	Value/Range
Control Voltage	+6V
Input Power, CW, 50 Ω	25 dBm
Operating temperature	-55 to +85 C
Storage Temperature	-65 to +150 C

Operation of TMC806-D outside the parameter ranges given above can cause irreversible damage.

TMC806-D is sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. When handling these devices, please use proper ESD control measures.



Pad #	Function
1	Control Voltage 1
2	Control Voltage 2
3	RF1
4	RF_COM
5	RF2



Electrostatic Discharge Caution

This integrated circuit can be damaged by ESD. mmTron Inc. recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications. III-V MMICs are ESD-sensitive. Preventative ESD measures must be employed in all aspects of storage, handling, and assembly. MMIC ESD precautions, handling considerations, and die-attach and bonding methods are critical factors in successful III-V MMIC performance and reliability.



RoHS Compliant

This part is RoHS compliant, meeting the requirements of the EU Restriction of Hazardous Substances Directive 2002/95/EC, commonly known as RoHS. Six substances are regulated: lead, mercury, cadmium, chromium VI (hexavalent chromium), polybrominated biphenyls (PBB), and polybrominated biphenyl ethers (PBDE). RoHS compliance requires that any residual concentration of these substances is below the Directive's maximum concentration values (MCV): cadmium 100ppm by weight and all others 1000ppm by weight.

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