

Product Features

- RF frequency: 3 to 18 GHz
- Insertion Loss: 2 dB
- Amplitude Balance: 0.4 dB
- Phase Balance: 1 deg
- AC Coupled
- High Power Handling
- Die Size: X=1250 um, Y=2170 um, Z=100 um
- Package Size: 3x3, 10Lead, 0.5mm pitch DFN

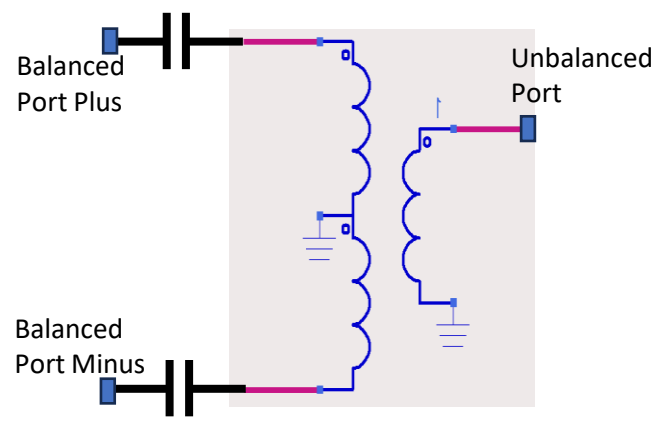
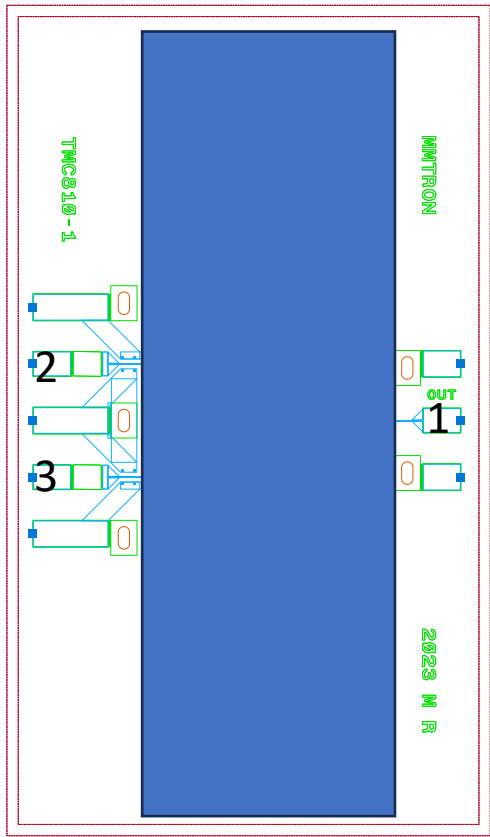
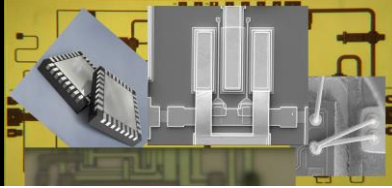
Application

- Instrumentation
- Wireless Communication
- SATCOM
- Radar, EW
- WLAN, WiMax

Product Description

The TMC810-1D is a wideband low loss MMIC balun (balanced to unbalanced transformer) die with an impedance ratio of 1:2 . TMC810-1D is AC coupled thus eliminating the need for decoupling capacitors. It is designed for use in 5G wireless, SATCOM, Instrumentation, high-speed track-and-hold amplifiers, digital-to-analog converters, balanced amplifiers, signal integrity and Military Radar and EW applications. The TMC810-1D is a 50 Ω matched, AC-coupled and ROHS-compliant design. To ensure rugged and reliable operation and moisture protection, the TMC810-1D is designed and fabricated for maximum repeatability with low insertion loss, low amplitude unbalance, low phase unbalance, and excellent common mode rejection. Both bond pad and backside metallization are Au-based that are compatible with ribbon and wedge bonding and high conductivity epoxy and eutectic die attach methods. TMC810-1D is laid out symmetrically and is in die format thus enabling the integration of the balun directly into hybrid modules. The DFN packaged version is available under TMC810-1.

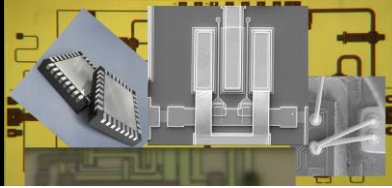
<i>Electrical Performance</i>				
	min	Typ	Max	Units
Frequency	3		18	GHz
Excess Insertion Loss		2		dB
Return Loss		10		dB
Common Mode Rejection		35		dB
Amplitude Balance		0.4		dB
Phase Match		1		deg



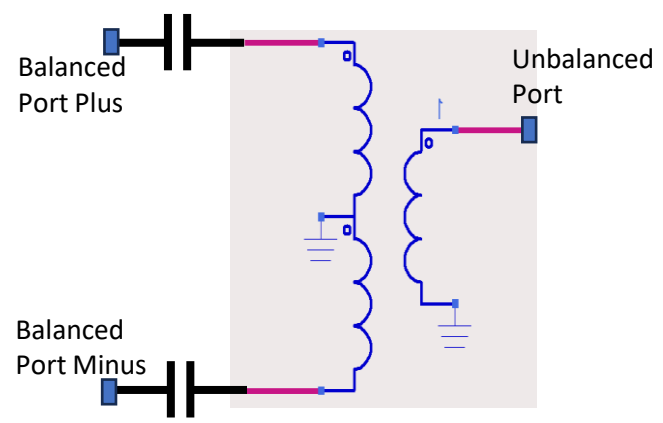
Pad #	Function
1	Unbalanced port
2	Balanced Port Plus
3	Balanced Port Minus

Pads 1, 2, and 3 are open to ground.
 The remaining 5 pads are GND.

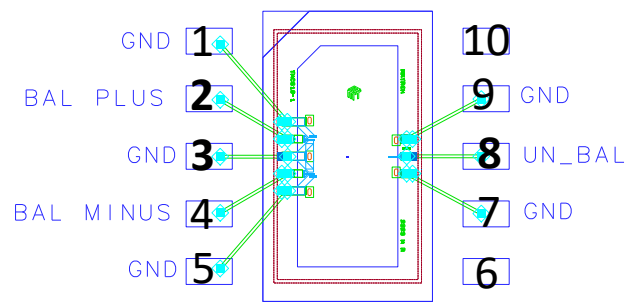
TMC810-1
3-18 GHz
Low Loss High Power Balun



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Pad #	Function
8	Unbalanced port
2	Balanced Port Plus
4	Balanced Port Minus
1,3,5,7,9	GND

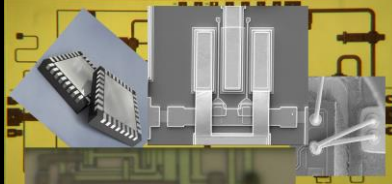


Packaged Version

TMC810-1

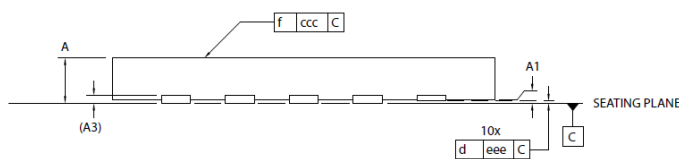
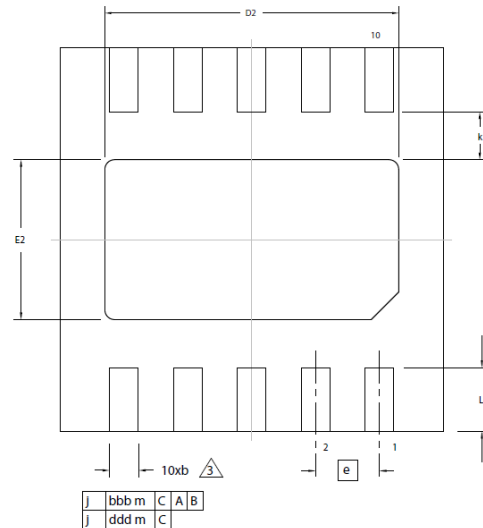
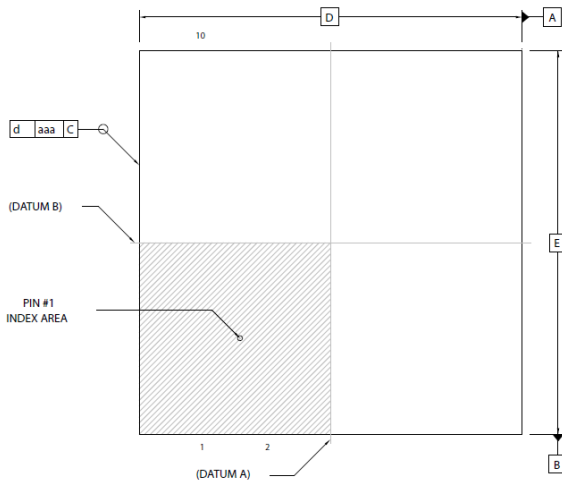
3-18 GHz

Low Loss High Power Balun



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REVISIONS		
REV	DESCRIPTION	DATE
B	ADDED PACKAGE THICKNESS OPTIONS	4-1-2016



NOTES:
1) ALL DIMENSIONS IN MM
2) DIMENSIONING AND TOLERANCING PER ASME Y14.5-2009
3) DIMENSION b APPLIES TO METALLIZED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 MM FROM TERMINAL TIP

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SYMBOL	MIN	MAX	SYMBOL	MIN	MAX
A, V	0.80	1.00	E2	1.15	1.35
A, W	0.70	0.80	e	0.50 BSC	
A, L	1.40	1.70	k	0.20	-
A1	0.00	0.05	L	0.45	0.55
A3	0.20 REF		aaa	0.10	
b	0.18	0.30	bbb	0.10	
D	3.00 BSC		ccc	0.10	
D2	2.20	2.40	ddd	0.05	
E	3.00 BSC		eee	0.08	



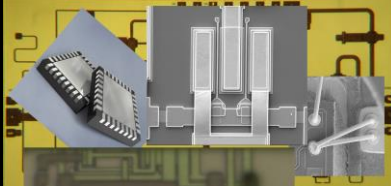
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TITLE: **DFN 10L 3x3 mm 0.50 PITCH PACKAGE OUTLINE**

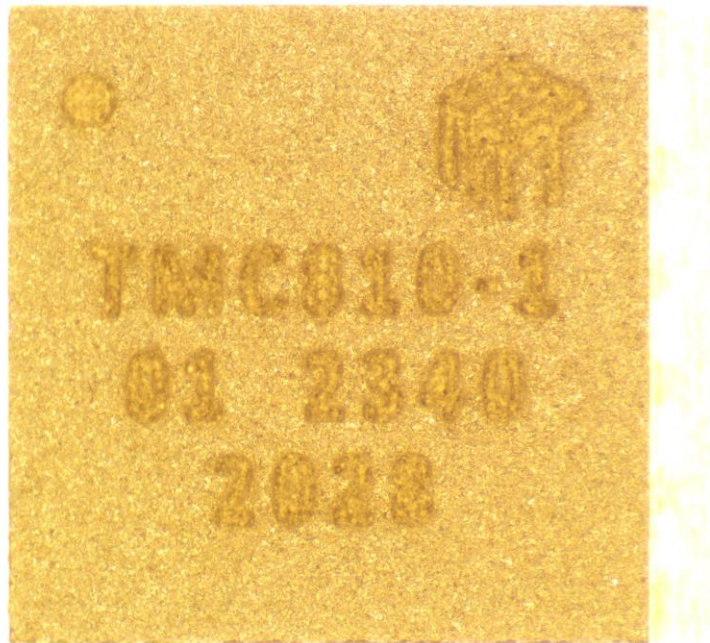
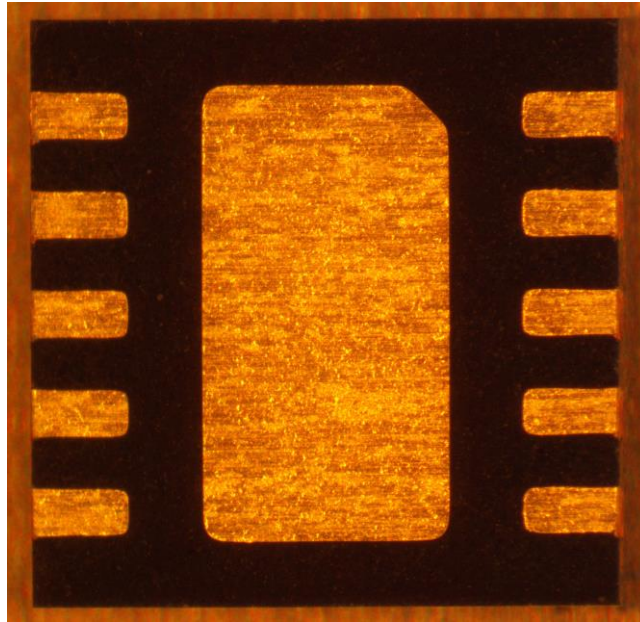
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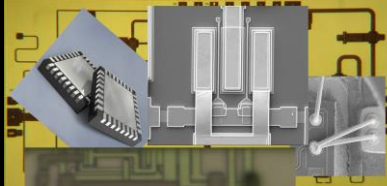
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TMC810-1
3-18 GHz
Low Loss High Power Balun



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- **Assembly Techniques**

- The TMC810-1D is fabricated using a GaAs-based semiconductor material structure. The die is back-metalized and can be mounted with standard assembly techniques. The mounting surface should be clean and flat.

- **ESD Warning**

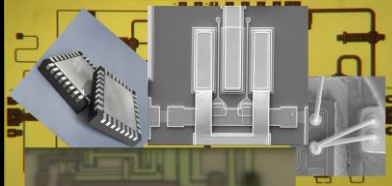
- III-V MMICs are ESD-sensitive. Preventative ESD measures must be employed in all aspects of storage, handling, and assembly. MMIC ESD precautions, handling considerations, and die-attach and bonding methods are critical factors in successful III-V MMIC performance and reliability.

- **RoHS Compliance**

- 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.

- **Maximum Ratings**

Parameter	Function
Operating Temperature	-55 °C to 100 °C
Input RF Power	35 dBm at 25 °C



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