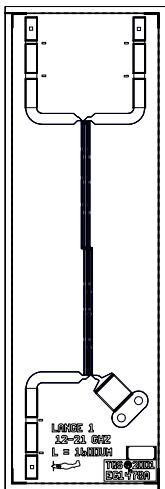
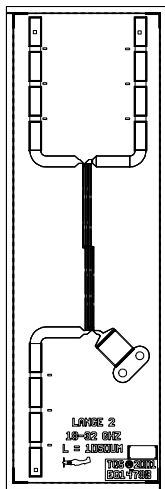


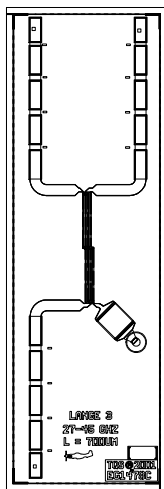
**Large Coupler Set**



**TGB2001**  
12-21GHz



**TGB4001**  
18-32GHz



**TGB4002**  
27-45GHz

**Key Features and Performance**

- Very Low Loss (<0.25dB Typical)
- High Power 1W 50Ω Termination
- Broadband 3dB Power Split
- Chip dimensions: 1.0 x 3.0 x 0.1 mm  
(40 x 120 x 4 mils)
- 3 sizes Cover 12GHz - 45GHz

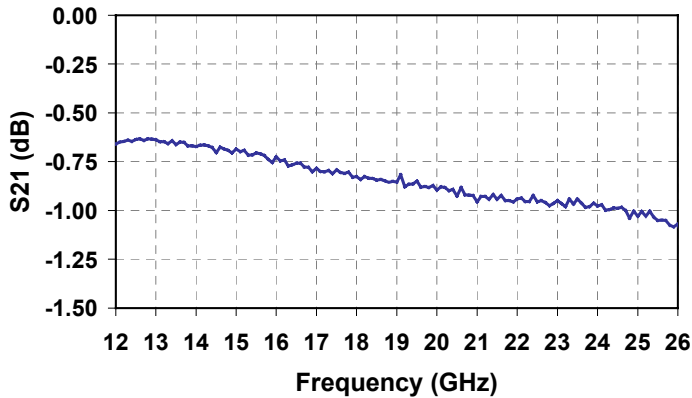
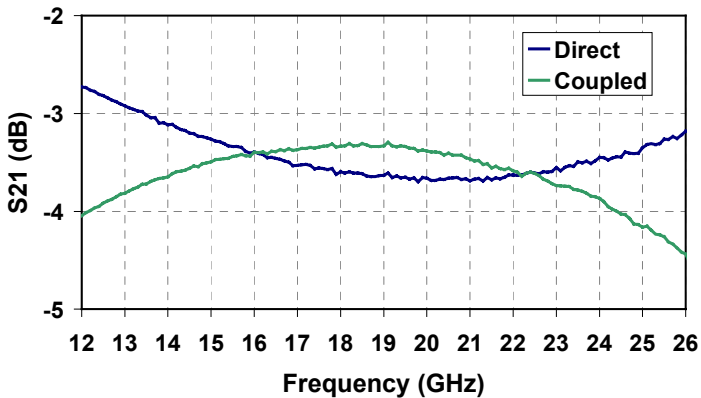
**Primary Applications**

- Power Combining

**Preliminary Measured Data**

**TGB2001**

**TGB2001 Back-to-Back**



Note: Datasheet is subject to change without notice.

**TABLE I  
MAXIMUM RATINGS**

Symbol	Parameter 1/	Value	Notes
$P_{IN}$	Input Continuous Wave Power	TBD dBm	
$T_M$	Mounting Temperature	320 °C	
$T_{STG}$	(30 Seconds) Storage Temperature	-65 to 150 °C	

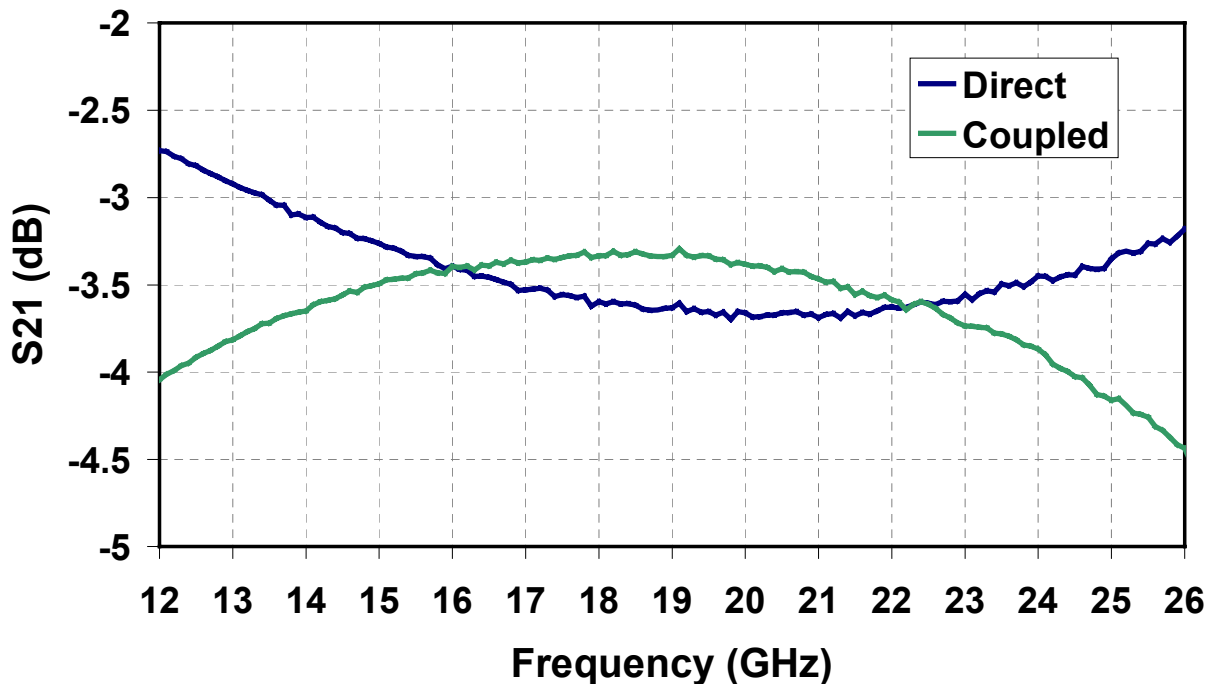
1/ These ratings represent the maximum operable values for this device.

—

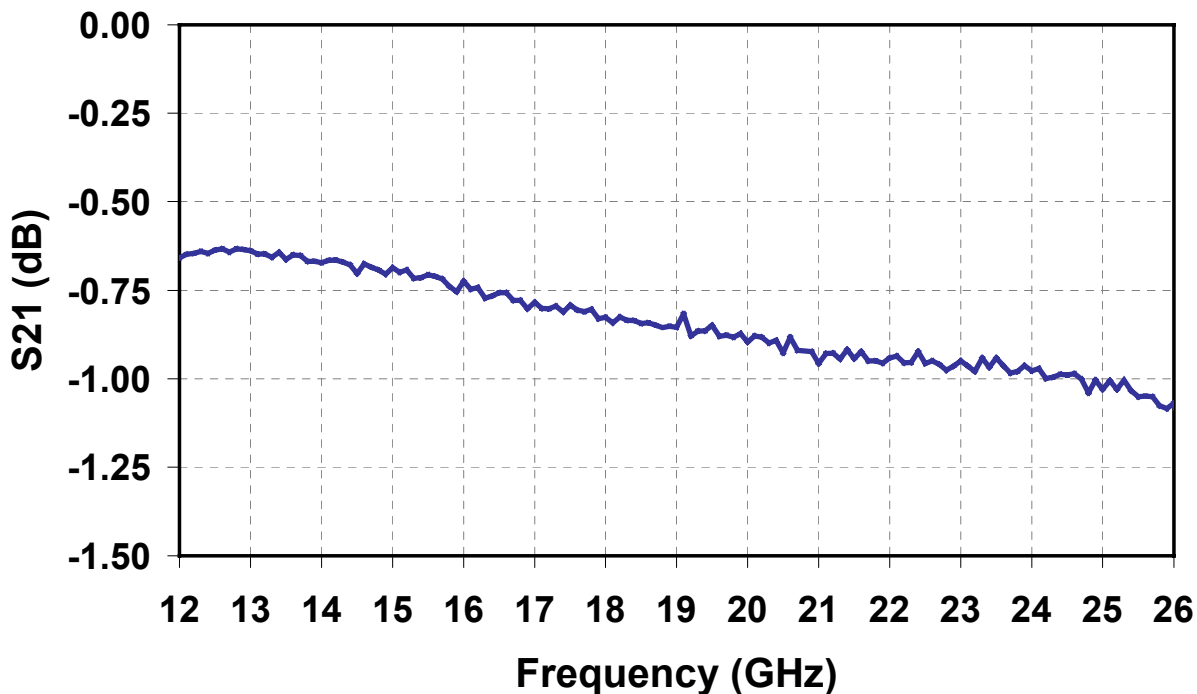


Typical Fixtured Performance  
TGB2001

TGB2001  
TGB4001  
TGB4002

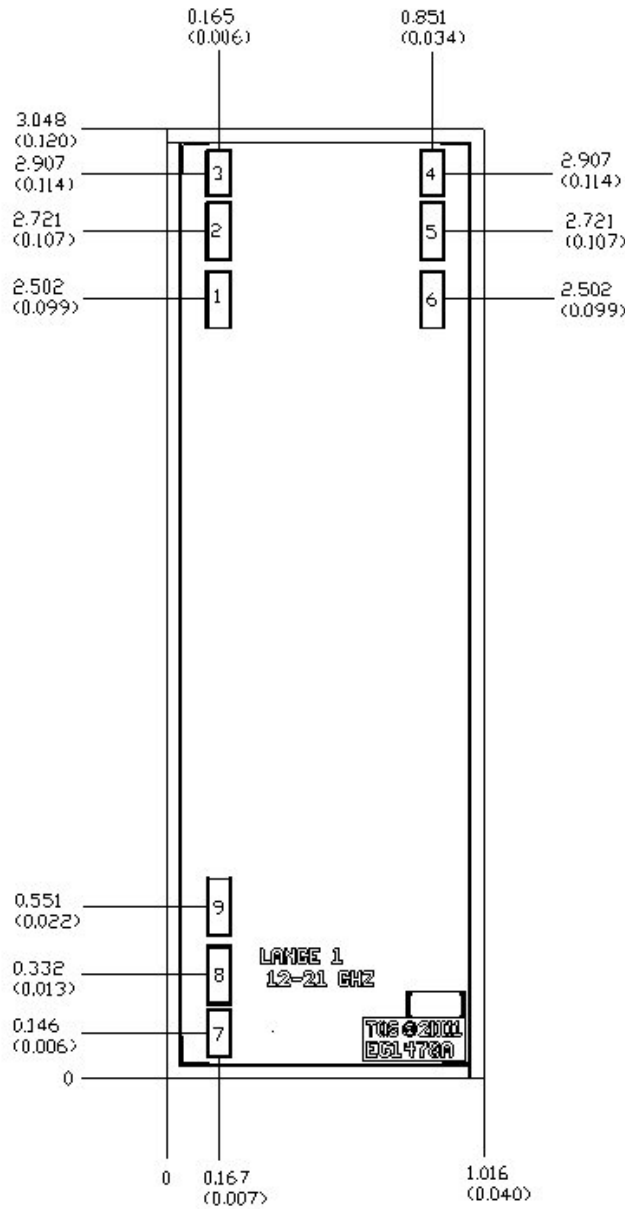


TGB2001 Back-to-Back



**Mechanical Drawing  
TGB2001**

**TGB2001  
TGB4001  
TGB4002**



Units: millimeters (inches)

Thickness: 0.100 (0.004)

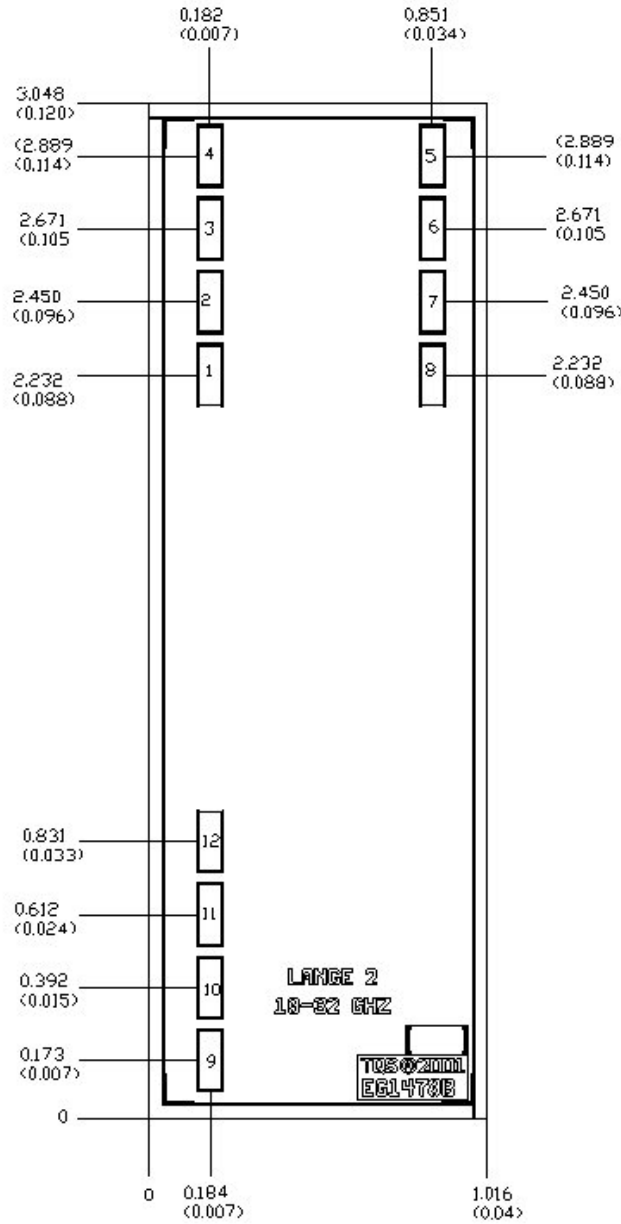
Chip edge to bond pod dimensions are shown to center of bond pod

Chip size tolerance: +/- 0.051 (0.002)

Bond pod #1:	(Part 1)	0.08 x 0.188 (0.003 x 0.007)
Bond pod #2:	(Part 1)	0.08 x 0.190 (0.003 x 0.007)
Bond pod #3:	(Part 1)	0.08 x 0.153 (0.003 x 0.006)
Bond pod #4:	(Part 2)	0.08 x 0.153 (0.003 x 0.006)
Bond pod #5:	(Part 2)	0.08 x 0.190 (0.003 x 0.007)
Bond pod #6:	(Part 2)	0.08 x 0.188 (0.003 x 0.007)
Bond pod #7:	(Part 3)	0.08 x 0.153 (0.003 x 0.006)
Bond pod #8:	(Part 3)	0.08 x 0.190 (0.003 x 0.007)
Bond pod #9:	(Part 3)	0.08 x 0.188 (0.003 x 0.007)

**TGB2001**  
**TGB4001**  
**TGB4002**

**Mechanical Drawing**  
**TGB4001**



Units: millimeters (inches)

Thickness: 0.100 (0.004)

Chip edge to bond pod dimensions are shown to center of bond pod

Chip size tolerance: +/- 0.051 (0.002)

Bond pod #1: (Port 1) 0.08 x 0.188 (0.003 x 0.007)

Bond pod #2: (Port 1) 0.08 x 0.190 (0.003 x 0.007)

Bond pod #3: (Port 1) 0.08 x 0.190 (0.003 x 0.007)

Bond pod #4: (Port 1) 0.08 x 0.188 (0.003 x 0.007)

Bond pod #5: (Port 2) 0.08 x 0.188 (0.003 x 0.007)

Bond pod #6: (Port 2) 0.08 x 0.190 (0.003 x 0.007)

Bond pod #7: (Port 2) 0.08 x 0.190 (0.003 x 0.007)

Bond pod #8: (Port 2) 0.08 x 0.188 (0.003 x 0.007)

Bond pod #9: (Port 3) 0.08 x 0.188 (0.003 x 0.007)

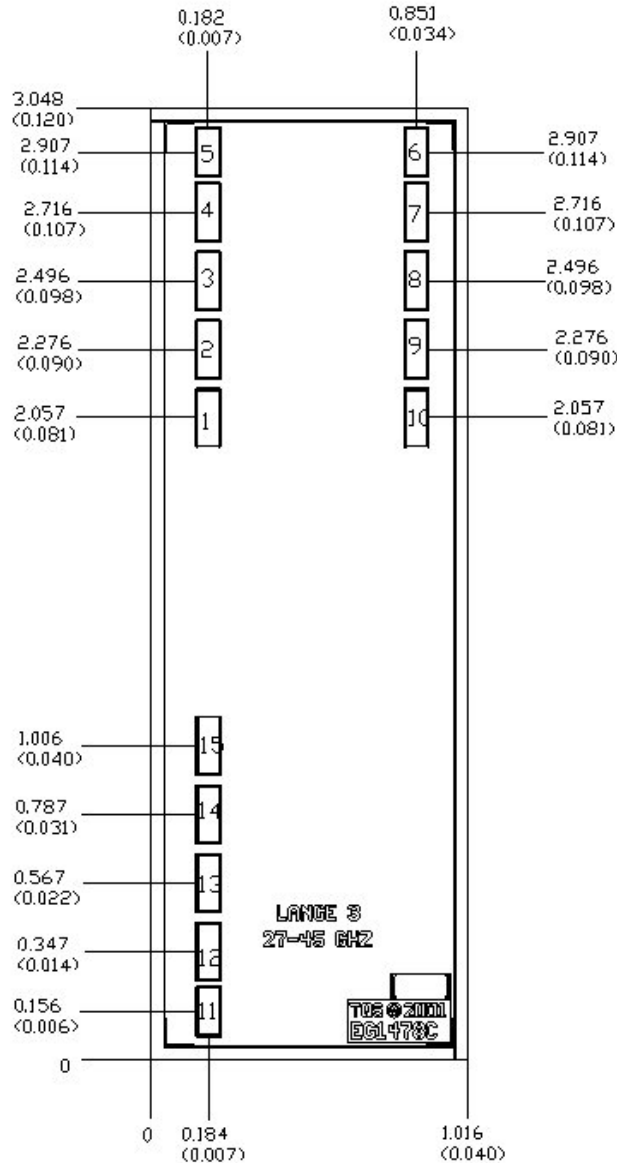
Bond pod #10: (Port 3) 0.08 x 0.190 (0.003 x 0.007)

Bond pod #11: (Port 3) 0.08 x 0.190 (0.003 x 0.007)

Bond pod #12: (Port 3) 0.08 x 0.188 (0.003 x 0.007)

**TGB2001**  
**TGB4001**  
**TGB4002**

**Mechanical Drawing**  
**TGB4002**



Units: millimeters (inches)  
Thickness: 0.100 (0.004)  
Chip edge to bond pad dimensions are shown to center of bond pad  
Chip size tolerance: +/- 0.051 (0.002)

Bond pad #1:	(Part 1)	0.08 x 0.188	(0.003 x 0.007)
Bond pad #2:	(Part 1)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #3:	(Part 1)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #4:	(Part 1)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #5:	(Part 1)	0.08 x 0.163	(0.003 x 0.006)
Bond pad #6:	(Part 2)	0.08 x 0.163	(0.003 x 0.006)
Bond pad #7:	(Part 2)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #8:	(Part 2)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #9:	(Part 2)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #10:	(Part 2)	0.08 x 0.188	(0.003 x 0.007)
Bond pad #11:	(Part 3)	0.08 x 0.163	(0.003 x 0.006)
Bond pad #12:	(Part 3)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #13:	(Part 3)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #14:	(Part 3)	0.08 x 0.190	(0.003 x 0.007)
Bond pad #15:	(Part 3)	0.08 x 0.188	(0.003 x 0.007)

**TGB2001**  
**TGB4001**  
**TGB4002**

## Assembly Process Notes

Reflow process assembly notes:

- Use AuSn (80/20) solder with limited exposure to temperatures at or above 300°C. (30 seconds maximum)
- An alloy station or conveyor furnace with reducing atmosphere should be used.
- No fluxes should be utilized.
- Coefficient of thermal expansion matching is critical for long-term reliability.
- Devices must be stored in a dry nitrogen atmosphere.

Component placement and adhesive attachment assembly notes:

- Vacuum pencils and/or vacuum collets are the preferred method of pick up.
- Air bridges must be avoided during placement.
- The force impact is critical during auto placement.
- Organic attachment can be used in low-power applications.
- Curing should be done in a convection oven; proper exhaust is a safety concern.
- Microwave or radiant curing should not be used because of differential heating.
- Coefficient of thermal expansion matching is critical.

Interconnect process assembly notes:

- Thermosonic ball bonding is the preferred interconnect technique.
- Force, time, and ultrasonics are critical parameters.
- Aluminum wire should not be used.
- Discrete FET devices with small pad sizes should be bonded with 0.0007-inch wire.
- Maximum stage temperature is 200°C.

***GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.***