TGL2208-SM

2-20 GHz Dual Stage VPIN Limiter

Applications

- Receiver Channel Protection
- Commercial and Military Radar

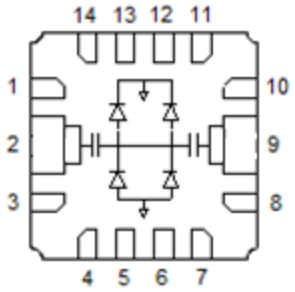


QFN 3x3mm 14L

Product Features

- Frequency Range: 2 – 20 GHz
- Insertion Loss < 1.0 dB
- Return Loss > 12 dB
- Flat Leakage < 18 dBm
- Input Power CW Survivability up to 5W
- Integrated DC Block on both input and output
- Package Dimensions: 3.0 x 3.0 x 1.35 mm

Functional Block Diagram



General Description

TriQuint's TGL2208-SM is a packaged dual stage Limiter fabricated on TriQuint's proven GaAs VPIN process. Operating over 2 to 20 GHz, the TGL2208-SM has < 1dB of insertion loss under small signal operation and flat leakage of < 18 dBm under large signal input.

The TGL2208-SM is suitable for a variety of systems that require input protection for sensitive receive channel components.

The TGL2208-SM is available in a low-cost, surface mount 14 lead 3x3 AIN QFN package base with air cavity Liquid Crystal Polymer (LCP) lid. TGL2208-SM is ideally suited to support both commercial and defense related applications.

Lead-free and RoHS compliant.

Evaluation Boards are available upon request.

Pad Configuration

Pad No.	Symbol
1, 3, 8, 10	GND
2	RF IN/OUT
4 – 7, 11 - 14	N/C
9	RF OUT/IN

Ordering Information

Part	ECCN	Description
TGL2208-SM	EAR99	2- 20 GHz VPIN Limiter

© 2013 TriQuint

Absolute Maximum Ratings

Parameter	Value
RF Input Power, CW, 50 Ω, T = 25 °C (P_{IN})	37 dBm
Mounting Temperature (30 Seconds)	260 °C
Storage Temperature	-55 to 150 °C

Operation of this device outside the parameter ranges given above may cause permanent damage. These are stress ratings only, and functional operation of the device at these conditions is not implied.

Recommended Operating Conditions

Parameter	Value
Passive - no bias	

Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions.

Electrical Specifications

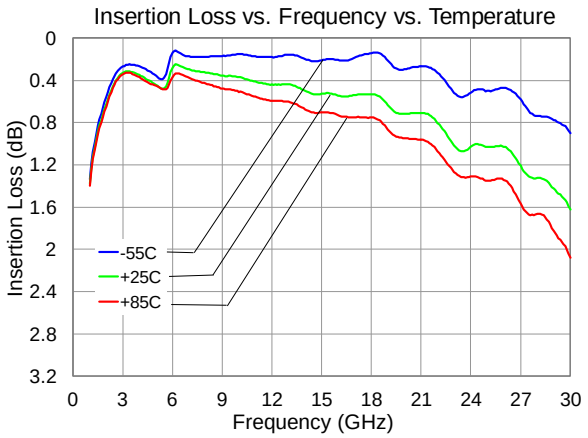
Test conditions unless otherwise noted: 25 °C

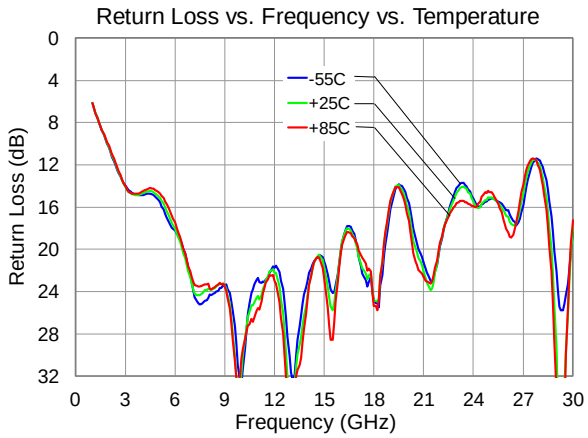
Parameter	Min	Typical	Max	Units
Operational Frequency Range	2		20	GHz
Insertion Loss		0.5		dB
Input Return Loss		15		dB
Output Return Loss		15		dB
Flat Leakage Power @ Pin > 27dBm		18		dBm
Insertion Loss Temperature Coefficient		0.003		dB/°C

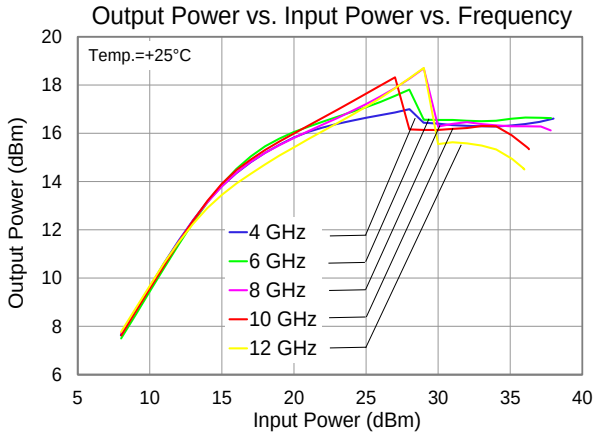
© 2013 TriQuint

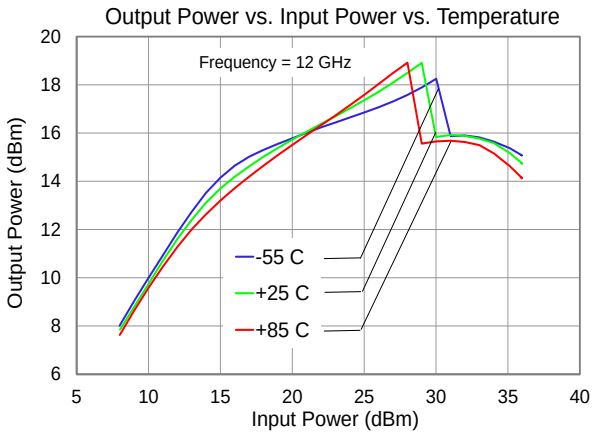
Typical Performance

Conditions unless otherwise specified: Passive – No Bias



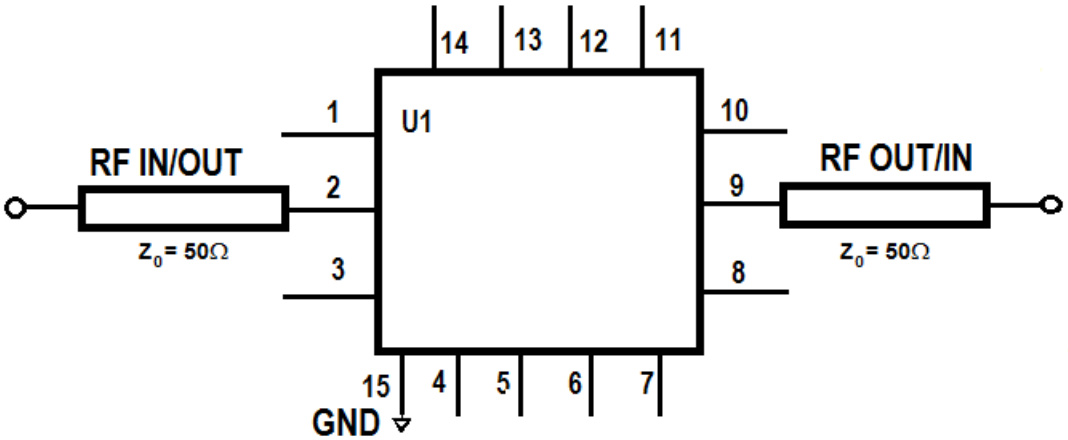






© 2013 TriQuint

Application Circuit

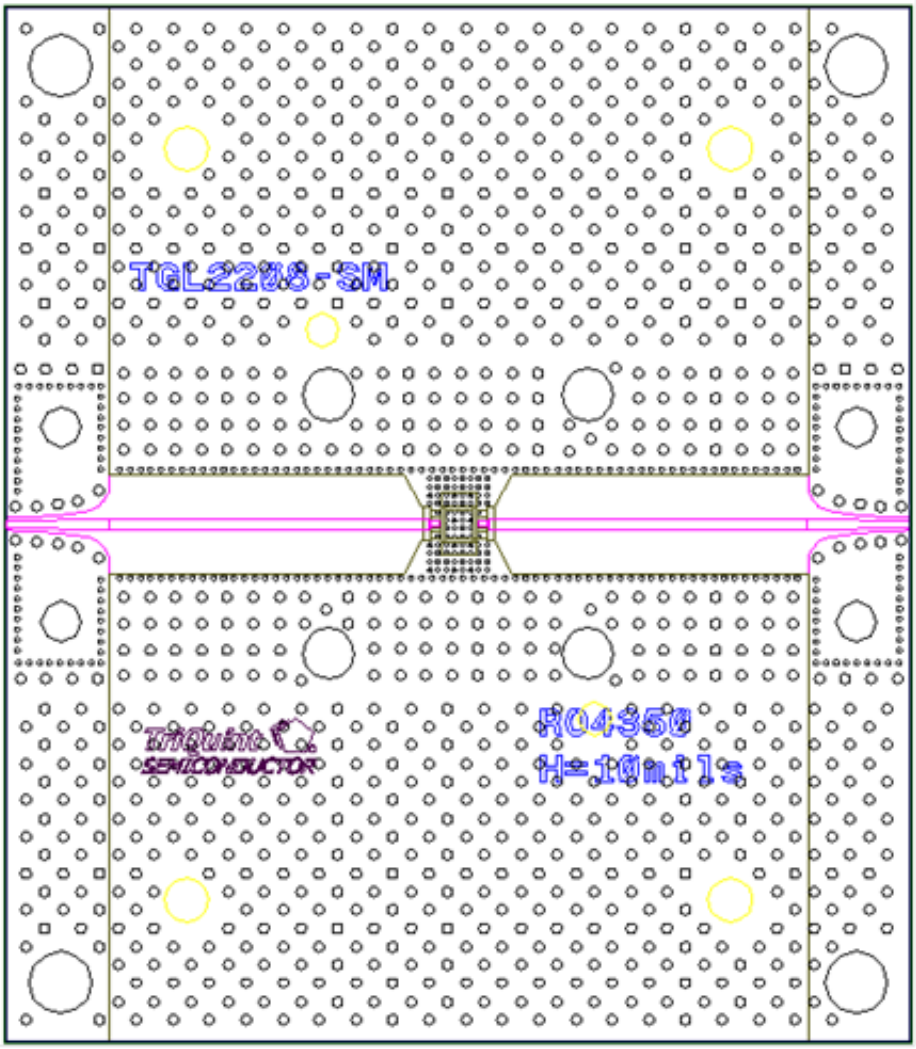


Notes: A heat sink is recommended for high power operation (RF input > 1 W)

© 2013 TriQuint

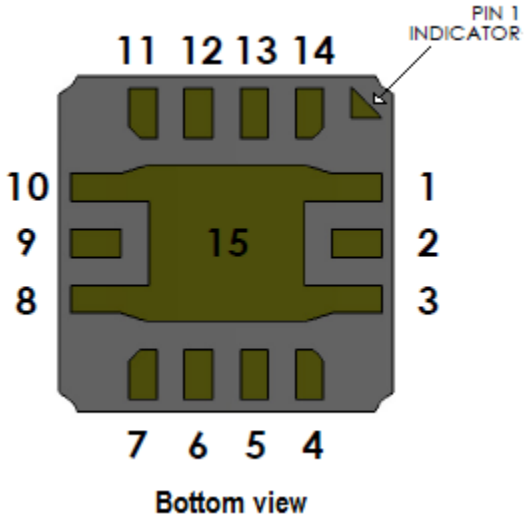
Recommended Board Layout Assembly

Top RF layer is 0.010” thick Rogers RO4350



© 2013 TriQuint

Pin Layout



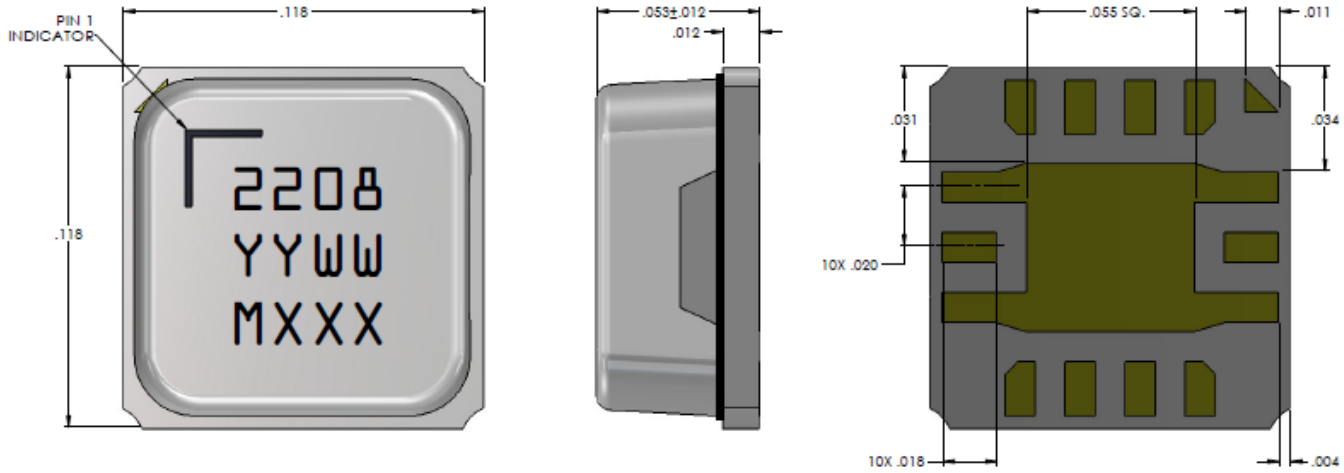
Pin Description

Pin	Symbol	Description
1, 3, 8, 10	GND	Pins 1,3,8 and 10 are connected to 15 (backside paddle) inside package.
2	RF IN/OUT	Input or Output, matched to 50 ohms
4 – 7, 11 - 14	N/C	No internal connection; must be grounded or left open on PCB
9	RF OUT	Output or Input, matched to 50 ohms
15	GND	On PCB, multiple vias should be employed under Pin 15 to minimize inductance and thermal resistance; see page 7 for suggested mounting configuration.

© 2013 TriQuint

Mechanical Information

All dimensions are in inches. Unless specified otherwise, tolerances: ± 0.005 in.



Marking: Part number – TGL2208
Year/week code – YYWW
Batch ID – MXXX

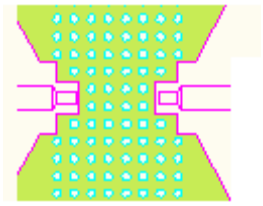
Package Materials:

Base	Aluminum Nitride (AIN)
Lid	Liquid Crystal Polymer (LCP)

Contact Pin Plating:

Electroless Gold (Au)	0.5 – 1.5 µm
over	
Electroless Nickel (Ni)	2.0 µm min.

PCB Mounting Pattern



The pad pattern shown above has been developed and tested for optimized assembly at TriQuint. The PCB land pattern has been developed to accommodate lead and package tolerances. Since surface mount processes vary from company to company, careful process development is recommended.

Ground / thermal vias are critical for the proper performance of this device. Vias should use a 0.008 in. diameter drill, and they are solid filled, copper plated shut.

© 2013 TriQuint

Product Compliance Information

ESD Sensitivity Ratings

Caution! ESD-Sensitive Device

ESD Rating: TBD
Value: TBD
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

MSL Rating

Level 3 at +260 °C convection reflow
The part is rated Moisture Sensitivity Level 3 at 260°C per JEDEC standard IPC/JEDEC J-STD-020.

ECCN

US Department of Commerce: EAR99

Solderability

Compatible with the latest version of J-STD-020, Lead free solder, 260°C

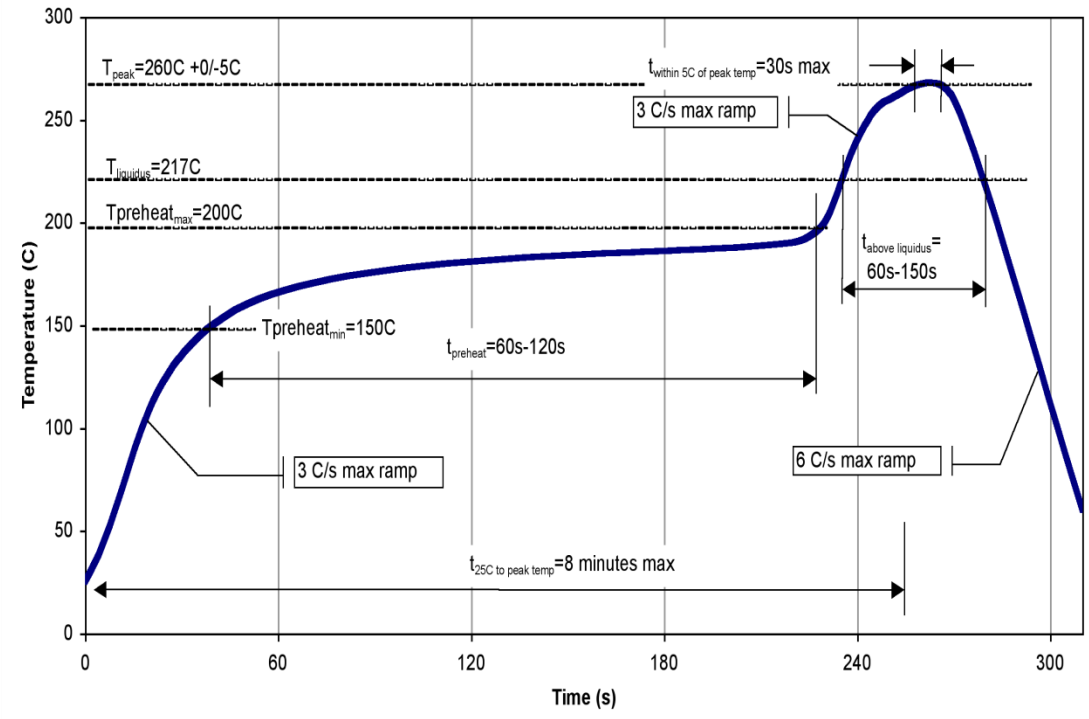
RoHs Compliance

This part is compliant with EU 2002/95/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

This product also has the following attributes:

- Lead Free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Recommended Soldering Temperature Profile



© 2013 TriQuint

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations, and information about TriQuint:

Web: www.triquint.com **Tel:** +1.972.994.8465
Email: info-sales@triquint.com **Fax:** +1.972.994.8504

For technical questions and application information: **Email:** info-products@triquint.com

Important Notice

The information contained herein is believed to be reliable. TriQuint makes no warranties regarding the information contained herein. TriQuint assumes no responsibility or liability whatsoever for any of the information contained herein. TriQuint assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for TriQuint products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.

TriQuint products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.

© 2013 TriQuint

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9