



SMA5101

MMIC

Mixer, IIP3=15dBm, Gc=-0.5dB@450MHz, MCPH6

ON Semiconductor®

<http://onsemi.com>

Features

- Wide band : up to Ku band
- Low distortion : IIP3=20dBm (@ICC > 11mA)
- SMT, Ultra small package : 2.0x2.1x0.85mm
- High conversion gain : -0.5dB (@450MHz)
- Low voltage available : 1.2V and above
- Halogen free compliance

Specifications

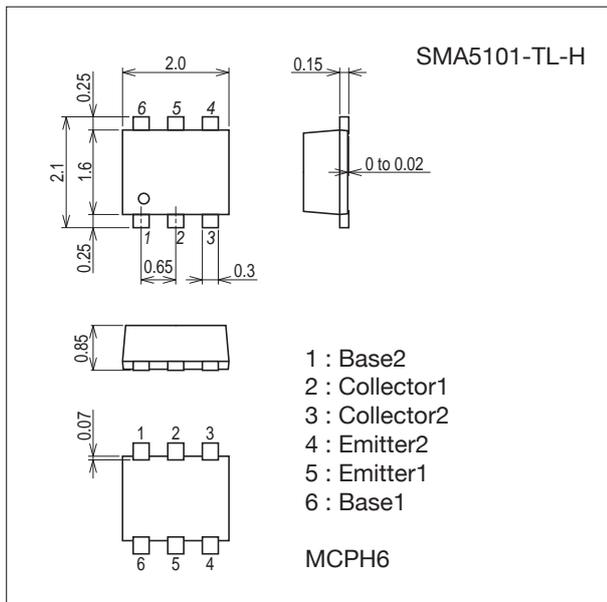
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		8	V
Collector-to-Emitter Voltage	VCEO		6	V
Emitter-to-Base Voltage	VEBO		2	V
Collector Current	ICC		50	mA
Max Power Dissipation	PC		280	mW
Operating Temperature	Topr		-40 to +85	°C
Storage Temperature	Tstg		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

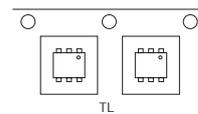
unit : mm (typ)
7022A-020



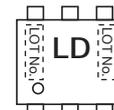
Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

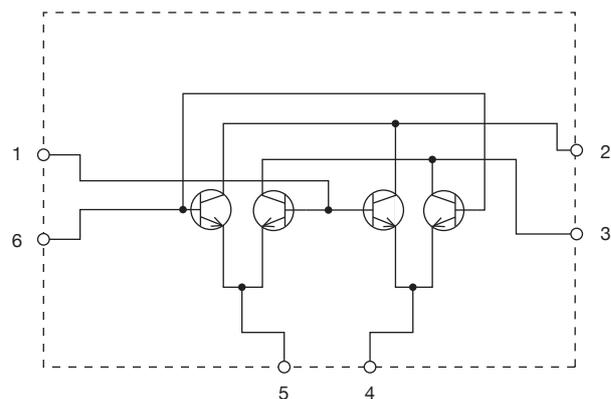
Packing Type : TL



Marking



Equivalent Circuit



IT15506

SMA5101

Recommended Operating Condition at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	VC1E1		1.2	3	6	V
	VC2E1		1.2	3	6	V
	VC1E2		1.2	3	6	V
	VC2E2		1.2	3	6	V

Electrical Characteristics at Ta=25°C

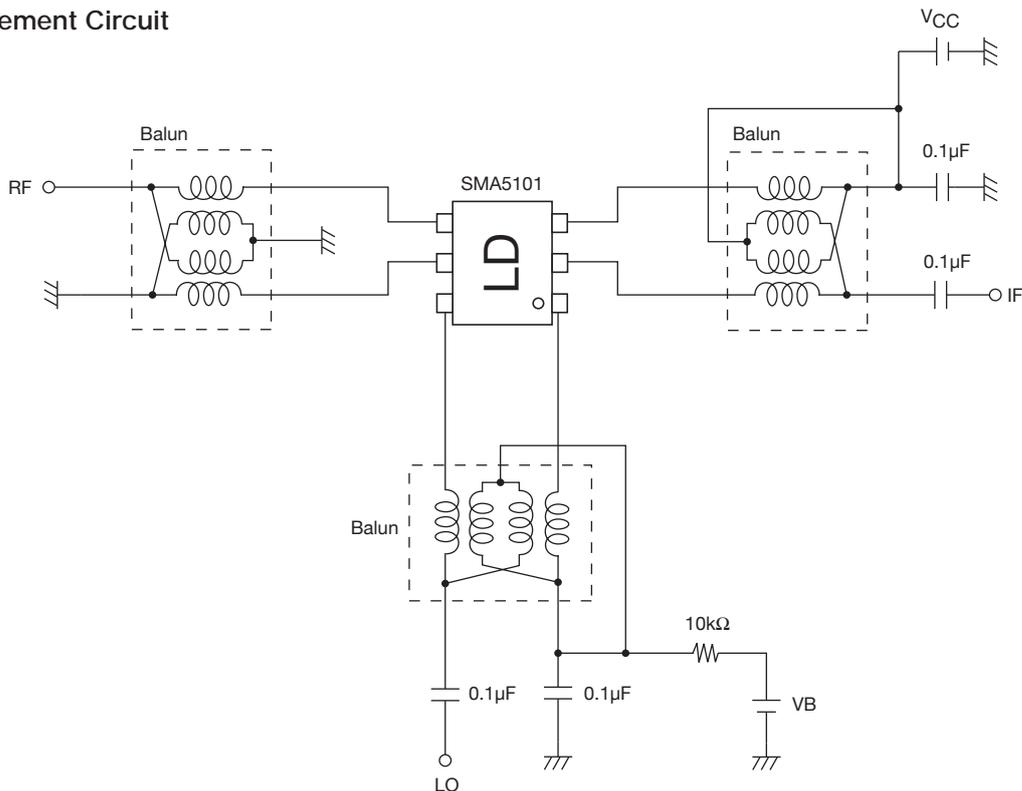
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	IC1B1O	VC1B1=5V			1	μA
	IC2B1O	VC2B1=5V			1	μA
	IC1B2O	VC1B2=5V			1	μA
	IC2B2O	VC2B2=5V			1	μA
Emitter Cutoff Current	IE1B1O	VE1B1=1V			1	μA
	IE2B1O	VE2B1=1V			1	μA
	IE1B2O	VE1B2=1V			1	μA
	IE2B2O	VE2B2=1V			1	μA
DC Current Gain	hFE1	VC1E1=1V, IC1E1=3mA	20		120	
	hFE2	VC2E1=1V, IC2E1=3mA	20		120	
	hFE3	VC1E2=1V, IC1E2=3mA	20		120	
	hFE4	VC2E2=1V, IC2E2=3mA	20		120	
Conversion Gain *1	Gc	VCC=5V, ICC=6mA, f(RF)=450MHz, f(LO)=500MHz, P(RF)=-15dBm, P(LO)=-6dBm		-0.5		dB
Input Intercept Point *1	IIP3	VCC=5V, ICC=6mA, f(RF1)=450MHz, f(RF2)=451MHz, f(LO)=500MHz, P(RF1)=P(RF2)=-15dBm, P(LO)=-6dBm		15		dBm

*1 : On evaluation board

Ordering Information

Device	Package	Shipping	memo
SMA5101-TL-H	MCPH6	3,000pcs./reel	Pb Free and Halogen Free

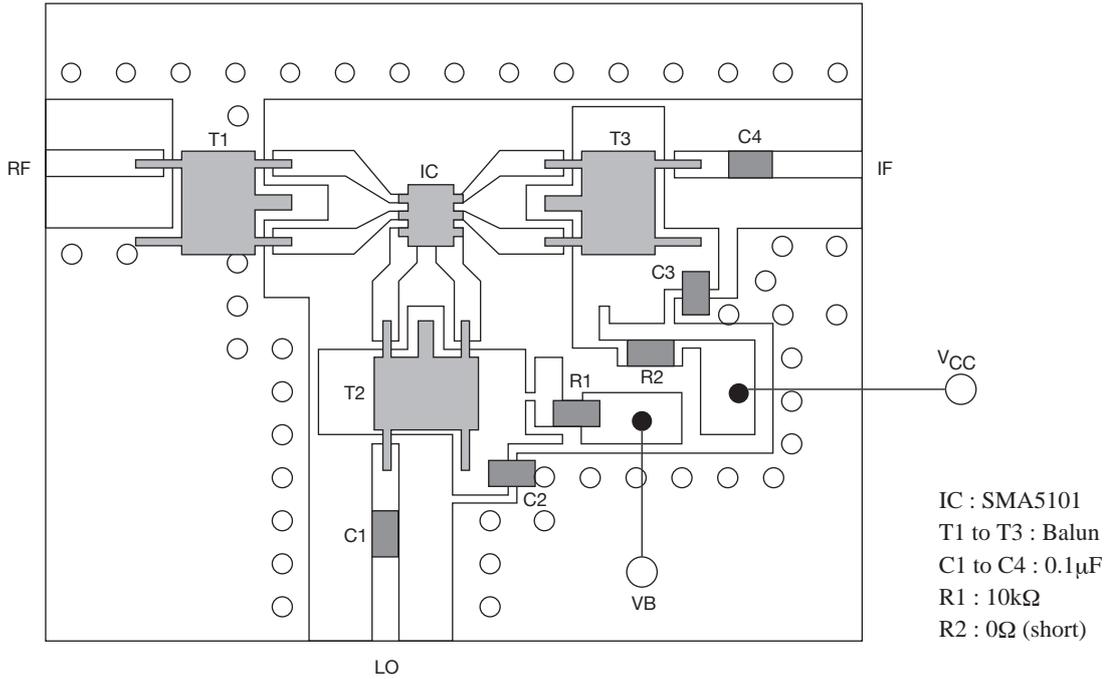
Measurement Circuit



IT15507

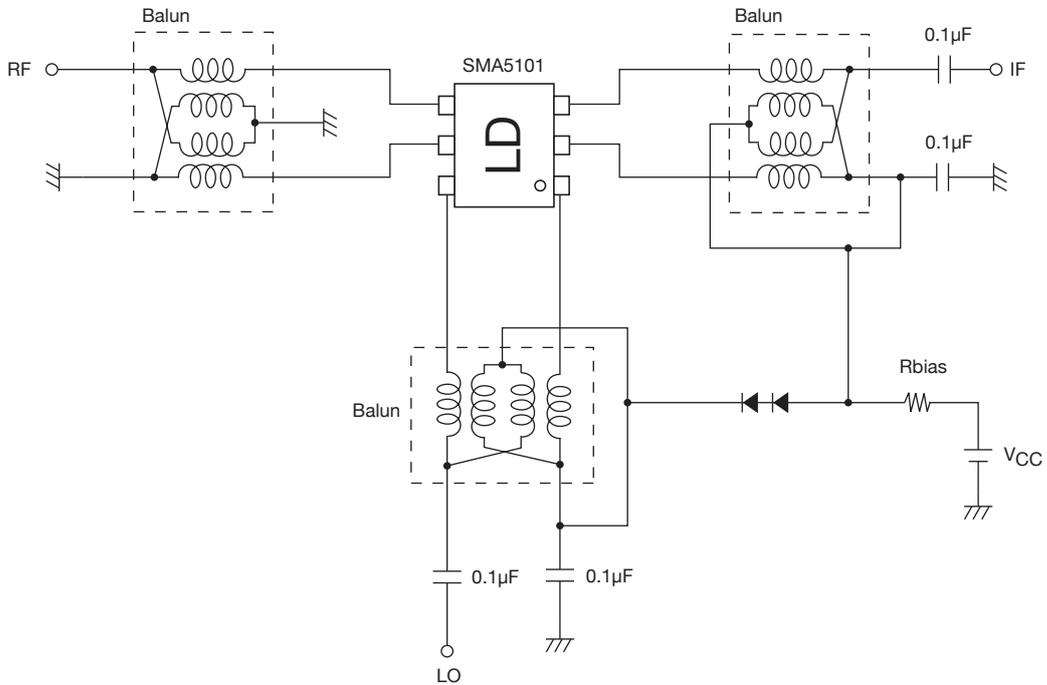
SMA5101

Evaluation Board



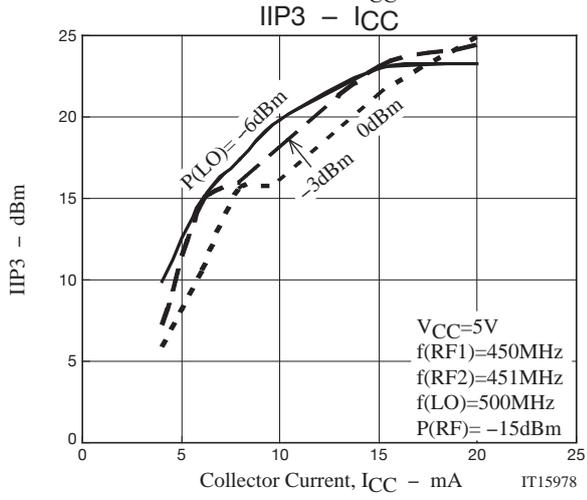
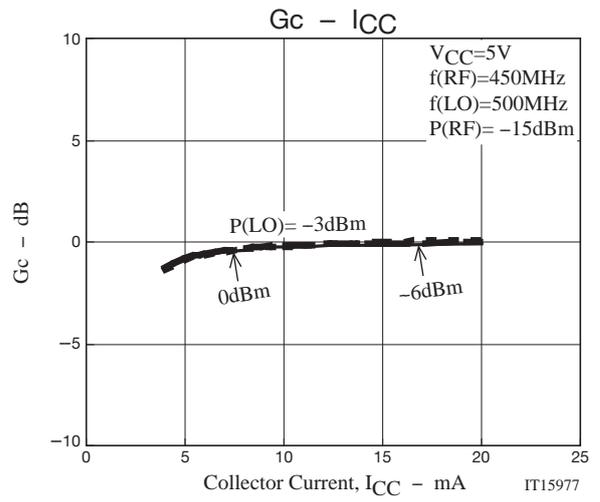
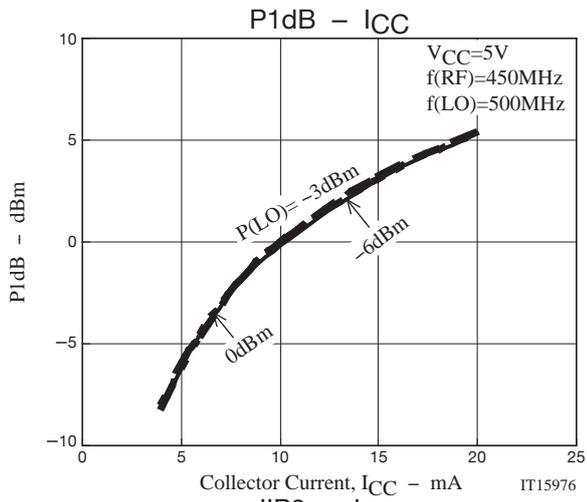
IT15508

Circuit Example (Self Bias)



IT15509

SMA5101



SMA5101

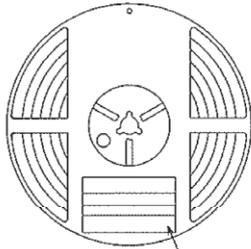
Embossed Taping Specification

SMA5101-TL-H

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
MCPH6	MCP4	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



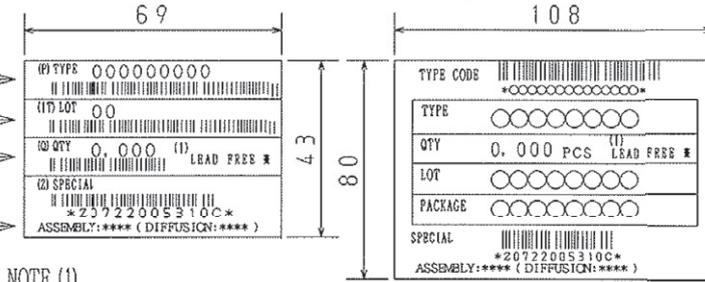
Type No.
LOT No.
Quantity
Origin

Reel label

Reel label, Inner box label
(unit :mm)

Outer box label

It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.



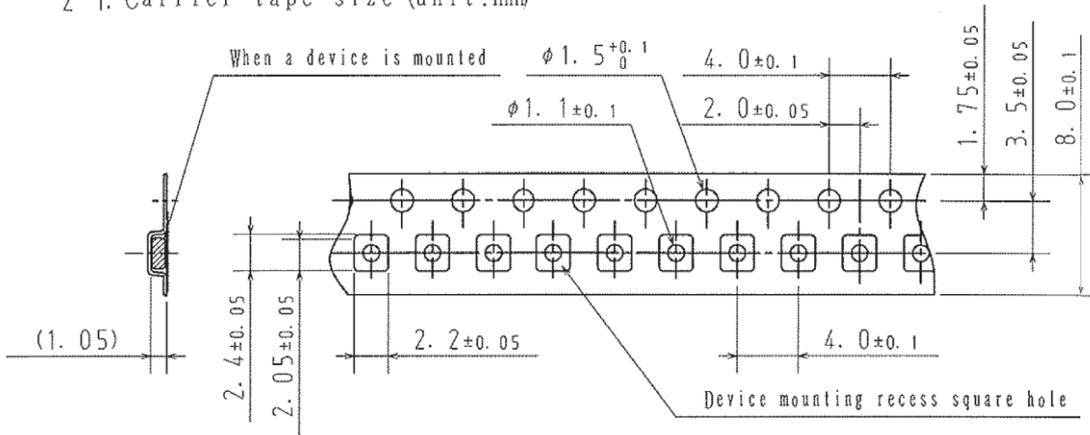
NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

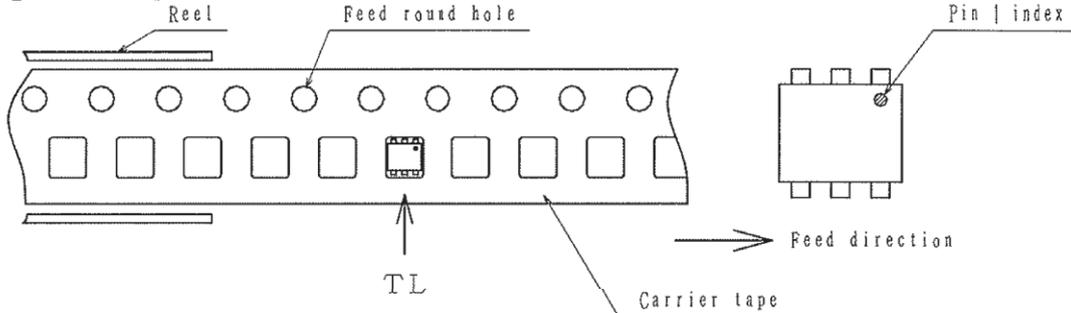
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



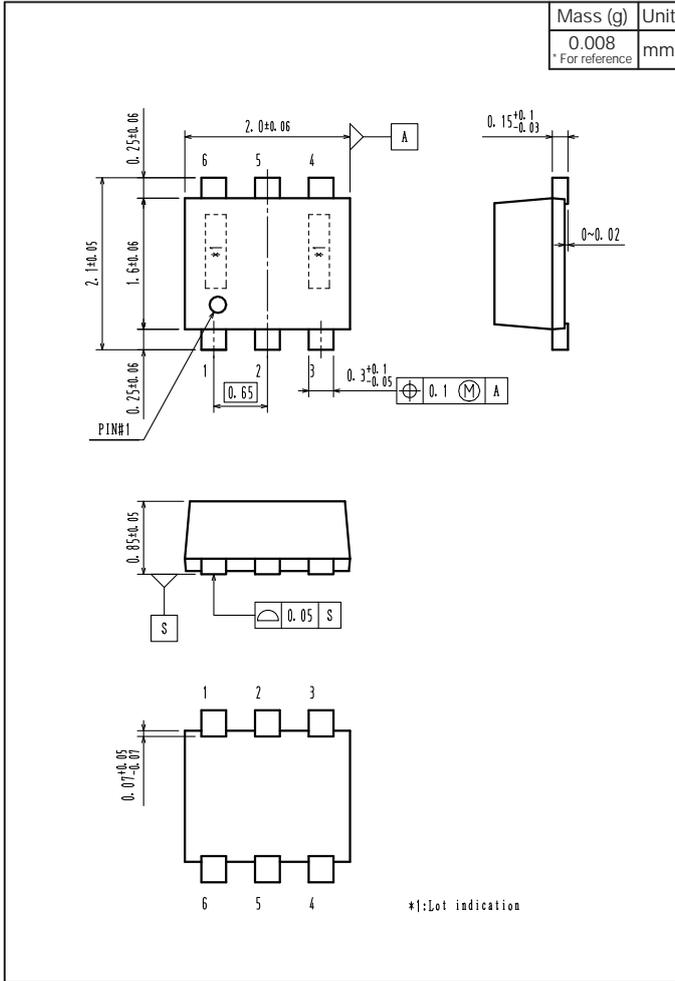
2-2. Device placement direction



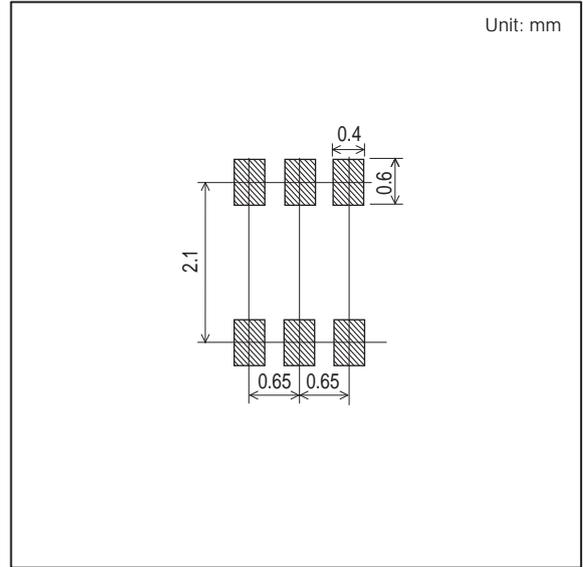
Those with pin | index on the feed hole side.....TL

SMA5101

Outline Drawing SMA5101-TL-H



Land Pattern Example



ON Semiconductor and the ON logo are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [RF Mixer](#) category:

Click to view products by [ON Semiconductor](#) manufacturer:

Other Similar products are found below :

[HMC337-SX](#) [mamx-009646-23dbm1](#) [HMC339-SX](#) [CHR3664-QEG](#) [HMC8192-SX](#) [MIQ24MS-2](#) [HMC220BMS8GETR](#) [M85C](#) [HMC554A-SX](#) [HMC8192LG](#) [HMC521A-SX](#) [HMC521ACHIPS](#) [CMD258C4](#) [CMD258](#) [LT5511EFE](#) [MAMX-011023-SMB](#) [HMC399MS8TR](#) [HMC333TR](#) [HMC214MS8TR](#) [HMC175MS8TR](#) [HMC1043LC3TR](#) [MAMXSS0012TR-3000](#) [109728-HMC129LC4](#) [CSM1-13](#) [SA612AD/01.112](#) [HMC785LP4ETR](#) [LT5579IUH#PBF](#) [HMC773ALC3BTR](#) [HMC329ALC3B](#) [MY63H](#) [AD8343ARUZ-REEL7](#) [AD608AR](#) [AD608ARZ](#) [AD831APZ](#) [AD831APZ-REEL7](#) [AD8342ACPZ-REEL7](#) [AD8343ARUZ](#) [AD8344ACPZ-REEL7](#) [ADL5350ACPZ-R7](#) [ADL5363ACPZ-R7](#) [ADL5365ACPZ-R7](#) [ADL5802ACPZ-R7](#) [HMC1056LP4BE](#) [HMC1057-SX](#) [HMC1063LP3E](#) [HMC1093-SX](#) [HMC1106-SX](#) [HMC129](#) [HMC143](#) [HMC400MS8ETR](#)