



PE4123

High Linearity MOSFET Quad Mixer For PCS & 3G BTS

Features

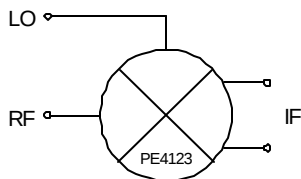
- Integrated, Single Ended RF & LO Interfaces
- High linearity:
IIP3 >+30 dBm, 1.8 – 2.0 GHz (+17 dBm LO)
- Low conversion loss: 8 dB (+17 dBm LO)
- High Isolation: Typical LO-IF at 38 dB
Typical LO-RF at 38 dB
- Designed for High-Side LO Injection

Product Description

The PE4123 is a high linearity, passive MOSFET Quad Mixer for PCS & 3G Base Station Receivers and exhibits high dynamic range performance over an LO drive range of 14 dBm to 20 dBm. This mixer integrates passive matching networks to provide single ended interfaces for the RF and LO ports, eliminating the need for external RF baluns or matching networks. The PE4123 is optimized for frequency down conversion using high-side LO injection for PCS & 3G Base Station applications.

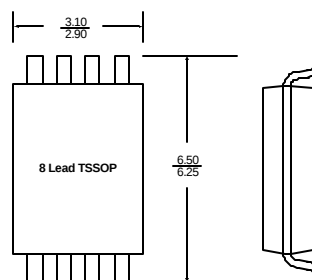
The PE4123 is manufactured in Peregrine's patented Ultra Thin Silicon (UTSi) CMOS process, offering the performance of GaAs with the economy and integration of conventional CMOS.

Functional Schematic Diagram



Package Drawings

8 lead TSSOP



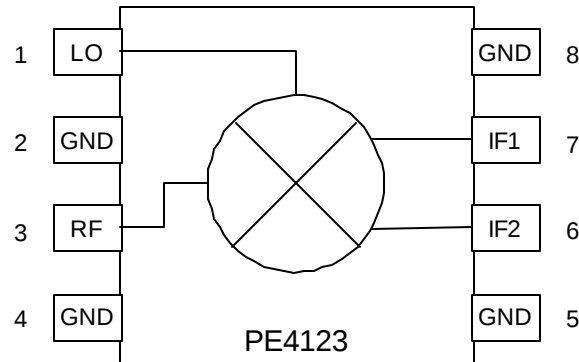
Electrical Specifications @ +25° C

Parameter	Minimum	Typical	Maximum	Units
Frequency Range:				
LO	2050		2250	MHz
RF	1800		2000	MHz
IF	230	250	270	MHz
Conversion Loss		8		dB
Isolation:				
LO-RF		38		dB
LO-IF		38		dB
RF-IF		-		dB
VSWR:				
LO		1.5:1	2:1	
RF		1.6:1	2:1	
IF		1.7:1	2:1	
Input IP3		30		dBm
Input 1 dB Compression		20		dBm

Test conditions unless otherwise noted: LO input drive = 17 dBm



Pin Configuration



Pin Descriptions

Pin #	Pin Name	Description
1	LO	LO input
2	GND	Ground connection for Mixer. Traces should be physically short and connect immediately to ground plane for best performance.
3	RF	RF Input
4	GND	Ground connection for Mixer. Traces should be physically short and connect immediately to ground plane for best performance.
5	GND	Ground connection for Mixer. Traces should be physically short and connect immediately to ground plane for best performance.
6	IF2	IF differential output
7	IF1	IF differential output
8	GND	Ground connection for Mixer. Traces should be physically short and connect immediately to ground plane for best performance.

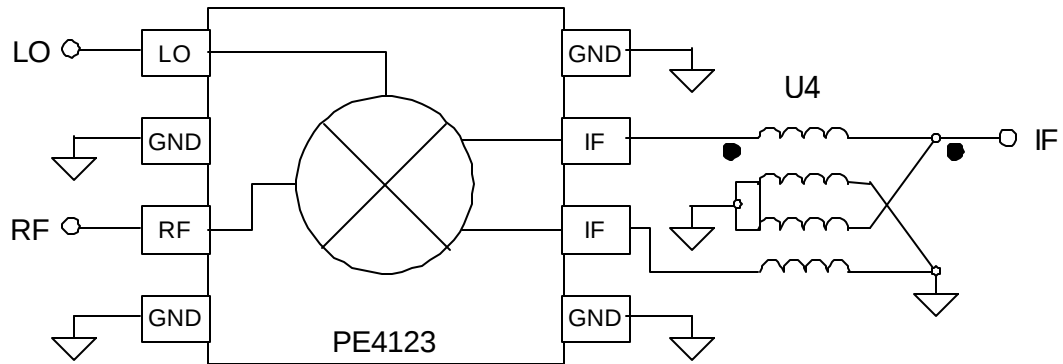
Absolute Maximum Ratings

Symbol	Parameter/Conditions	Min	Max	Units
T_{ST}	Storage temperature range	-65	150	°C
T_{OP}	Operating temperature range	-40	85	°C
P_{LO}	LO input power		20	dBm
P_{RF}	RF input power		20	dBm
ESD	ESD Sensitive Device		100	V

When handling this UTSi device, observe the same precautions that you would use with other ESD-sensitive devices.

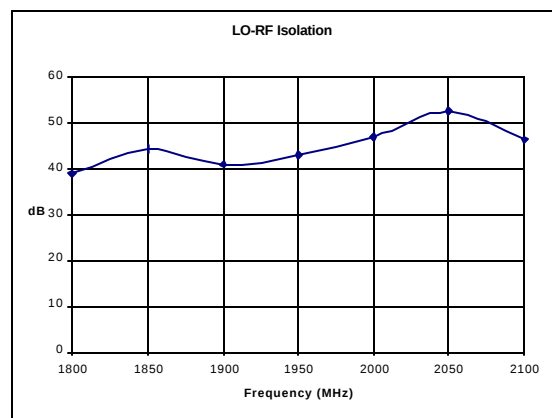
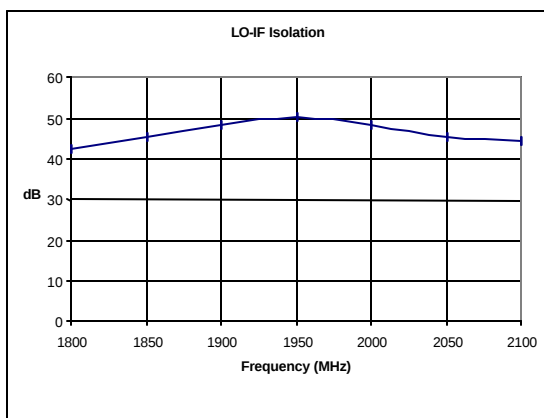
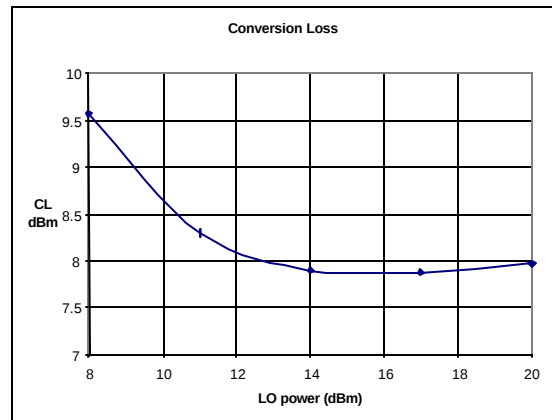
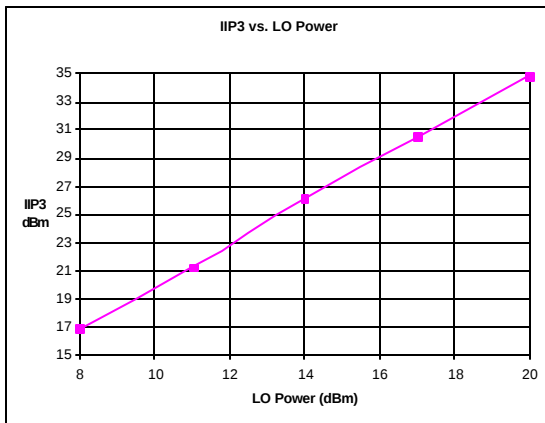


Typical Application Schematic

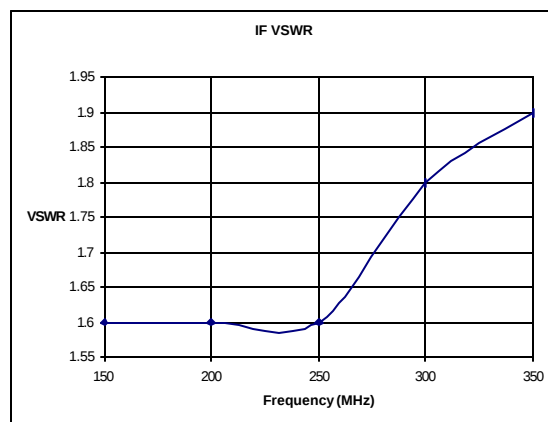
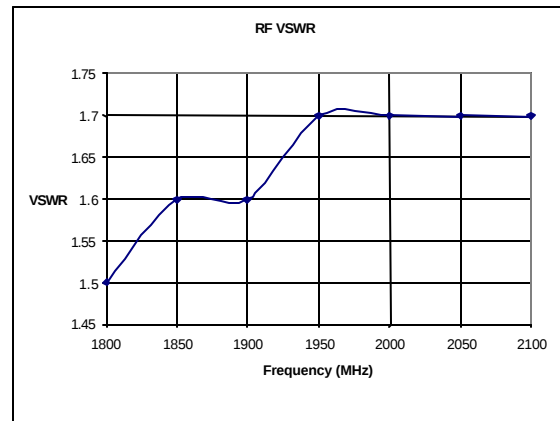
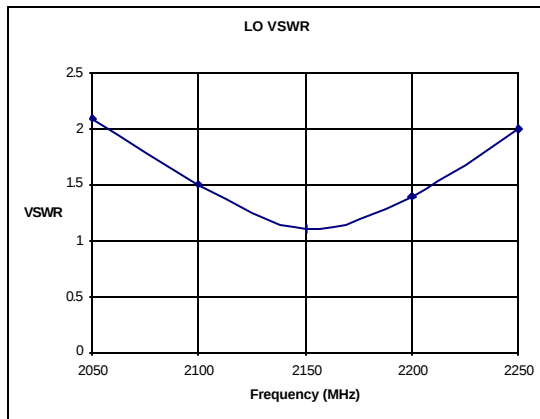


U4 M/A-Com E-Series RF 4:1 Transformer 2.0 – 1000 MHz ETK4-2T

Typical Performance Data @ +25C

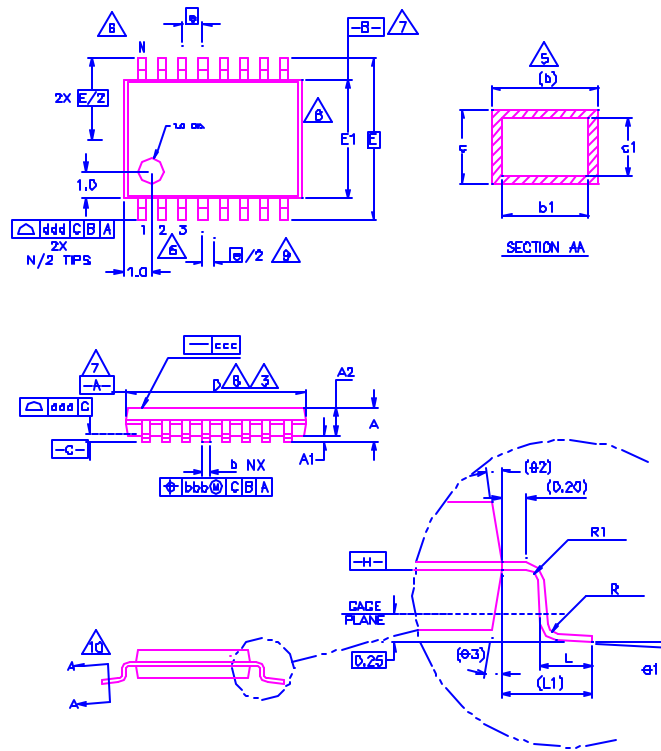


Typical Performance Data @ +25C



Package Drawing

Symbol	8-pin Variation		
	MIN	NOM	MAX
D	2.9	3	3.1
$E1$	4.3	4.4	4.5
E	6.4 BSC		
e	0.65 BSC		
N	8		
Note	1.2		
Issue	A		



Ordering information

Order Code	Part Marking	Description	Package	Shipping Method
4123-21	4123	Screened to Commercial Flow	8 pin TSSOP	100pcs./Tube
4123-22	4123	Screened to Commercial Flow	8 pin TSSOP	2000pcs./T&R
4123-00	PE4123-EK		Evaluation Board	1/Box



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For a list of representatives in your area,
please refer to our website at
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