



# PE4125

## High Linearity MOSFET Quad Mixer For GSM800 & Cellular BTS

### Features

- Integrated, Single Ended RF & LO Interfaces
- High linearity:  
IIP3 > +30 dBm, 820 – 920 MHz (+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

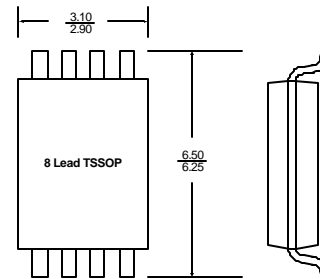
### Product Description

The PE4125 is a high linearity, passive MOSFET Quad Mixer for GSM800 & Cellular 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 PE4125 is optimized for frequency down conversion using high-side LO injection for GSM800 & Cellular Base Station applications.

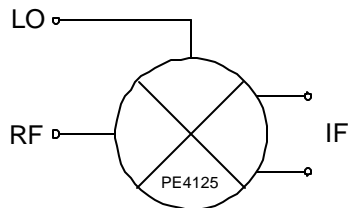
The PE4125 is manufactured in Peregrine's patented Ultra Thin Silicon (UTSI) CMOS process, offering the performance of GaAs with the economy and integration of conventional CMOS.

### Package Drawings

8 lead TSSOP



### Functional Schematic Diagram



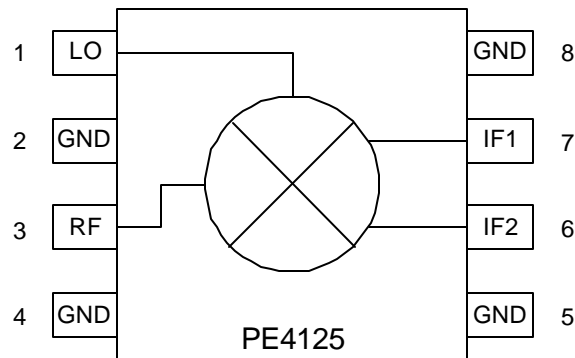
### Electrical Specifications @ +25° C

Parameter	Minimum	Typical	Maximum	Units
Frequency Range:				
LO	890		990	MHz
RF	820		920	MHz
IF	50	70	90	MHz
Conversion Loss		8		dB
Isolation:				
LO-RF		38		dB
LO-IF		38		dB
RF-IF		-		dB
VSWR:				
LO		1.5:1	2:1	dB
RF		1.6:1	2:1	dB
IF		1.7:1	2:1	dB
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	IF1	IF differential output
7	IF2	IF differential output
8	GND	Ground connection for Mixer. Traces should be physically short and connect immediately to ground plane for best performance.

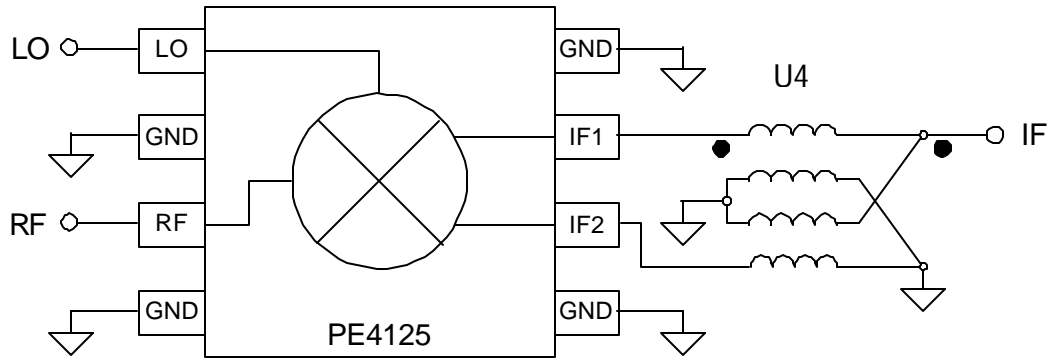
## Absolute Maximum Ratings

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

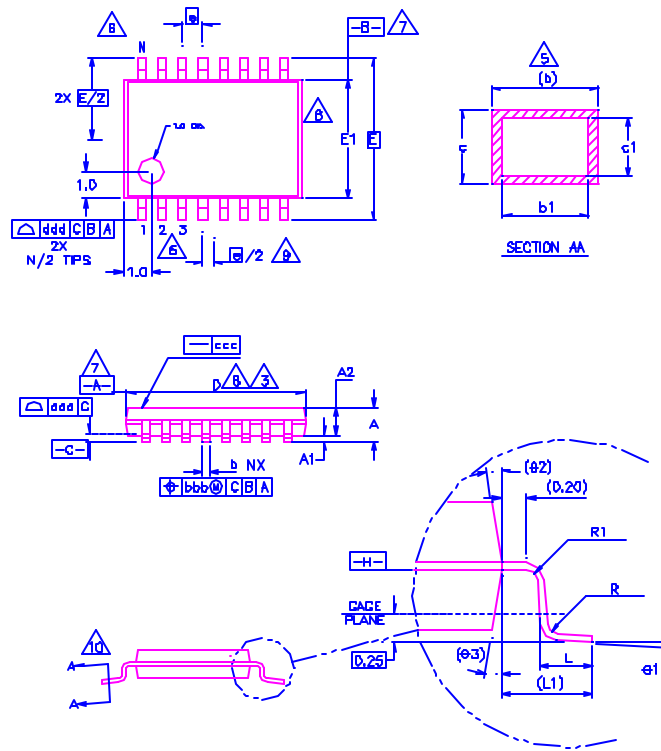


U4 M/A-Com E-Series RF 4:1 Transformer 2.0 – 1000 MHz ETK4-2T



## 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		
<i>Note</i>	1.2		
<i>Issue</i>	A		



Ordering information

Order Code	Part Marking	Description	Package	Shipping Method
4125-21	4125	Screened to Commercial Flow	8 pin TSSOP	100pcs./Tube
4125-22	4125	Screened to Commercial Flow	8 pin TSSOP	2000pcs./T&R
4125-00	PE4125-EK		Evaluation Board	1/Box



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please refer to our website at  
[www.peregrine-semi.com](http://www.peregrine-semi.com)

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### Product Specification

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