



# SAW Components

## SAW Duplexer

LTE Band 13

<b>Series/type:</b>	<b>B8572</b>
<b>Ordering code:</b>	<b>B39781B8572P810</b>
<b>Date:</b>	<b>June 19, 2013</b>
<b>Version:</b>	<b>2.4</b>

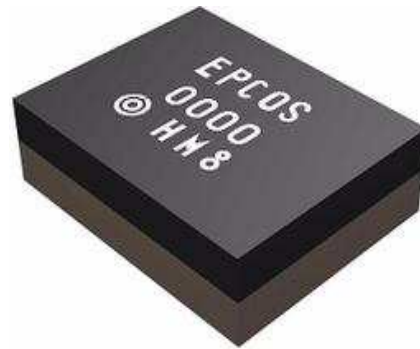
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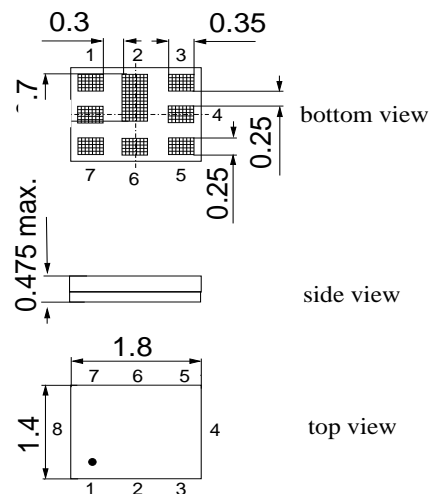
**Datasheet**

**Application**

- Low-loss SAW duplexer for mobile telephone LTE Band 13 systems
- Low insertion attenuation
- High isolation
- Usable passband 10 MHz
- Single-ended to balanced transformation in Antenna-Rx path
- Impedance transformation 50 Ω to 100 Ω in Antenna-Rx path
- Very small size and low height


**Features**

- Package size 1.8 \* 1.4 mm<sup>2</sup>
- Package height: maximum 0.475 mm
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 3**


**Pin configuration**

- 3 Tx input
- 1, 8 Rx output (balanced)
- 6 Antenna
- 2, 4, 5, 7 To be grounded

**Datasheet**

**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub> = 50 Ω
ANT terminating impedance:	Z <sub>Ant</sub> = 50 Ω    15 nH
RX terminating impedance:	Z <sub>Rx</sub> = 100 Ω (balanced)

Characteristics Tx-Antenna		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>c</sub>		782.0		MHz
<b>Maximum insertion attenuation</b>	α				
	777.0 ... 787.0 MHz	-	1.8	2.5	dB
<b>Amplitude ripple (p-p)</b>	Δα				
	777.0 ... 787.0 MHz	-	0.7	1.5	dB
<b>Error Vector Magnitude @ 25°C</b>					
	@ f <sub>Carrier</sub> 779.4 ... 784.6 MHz EVM <sup>1)</sup>	-	3.4	4.0	%
<b>Error Vector Magnitude</b>					
	@ f <sub>Carrier</sub> 779.4 ... 784.6 MHz EVM <sup>1)</sup>	-	3.4	4.5	%
<b>Input VSWR (Tx port)</b>					
	777.0 ... 787.0 MHz	-	1.3	2.0	
<b>Output VSWR (Ant Port)</b>					
	777.0 ... 787.0 MHz	-	1.5	2.0	
<b>Harmonic Level CW tone @ 782 MHz<sup>2)</sup></b>					
	Second Harmonic at 1564 MHz	-	-55	-38 <sup>3)</sup>	dBm

1) Error Vector Magnitude (EVM) based on definition in 3GPP TS 25.141

2) Power level +28 dBm at Tx port

3) Guaranteed by design (no 100% testing in production)

**Datasheet**

**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub> = 50 Ω
ANT terminating impedance:	Z <sub>Ant</sub> = 50 Ω    15 nH
RX terminating impedance:	Z <sub>Rx</sub> = 100 Ω (balanced)

Characteristics Tx-Antenna				min.	typ. @ 25 °C	max.	
<b>Absolute attenuation</b> α							
10.0	...	716.0	MHz	35	45	-	dB
716.0	...	728.0	MHz	40	47	-	dB
728.0	...	746.0	MHz	45	50	-	dB
746.0	...	756.0	MHz	50	65	-	dB
758.0	...	767.5	MHz	35	48	-	dB
767.5	...	768.0	MHz	30	48	-	dB
768.0	...	769.0	MHz	12	42	-	dB
769.0	...	770.0	MHz	6	37	-	dB
770.0	...	771.0	MHz	3	20	-	dB
771.0	...	772.0	MHz	2.5	11	-	dB
808.0	...	869.0	MHz	28	40	-	dB
869.0	...	894.0	MHz	35	42	-	dB
1554.0	...	1565.0	MHz	35	50	-	dB
1565.0	...	1607.0	MHz	45	51	-	dB
1805.0	...	2170.0	MHz	35	48	-	dB
2331.0	...	2361.0	MHz	35	45	-	dB
2400.0	...	2484.0	MHz	40	50	-	dB
3108.0	...	3148.0	MHz	30	40	-	dB
3885.0	...	3935.0	MHz	20	30	-	dB
4662.0	...	4722.0	MHz	10	17	-	dB
5160.0	...	5845.0	MHz	10	18	-	dB

**Datasheet**

**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub> = 50 Ω
ANT terminating impedance:	Z <sub>Ant</sub> = 50 Ω    15 nH
RX terminating impedance:	Z <sub>Rx</sub> = 100 Ω (balanced)

Characteristics Antenna-Rx		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>c</sub>		751.0		MHz
<b>Maximum insertion attenuation</b>	α				
746.0 ... 756.0 MHz		-	1.8	2.5	dB
<b>Amplitude ripple (p-p)</b>	Δα				
746.0... 756.0 MHz		-	0.5	1.3	dB
<b>Input VSWR (Ant port)</b>					
746.0 ... 756.0 MHz		-	1.6	2.0	
<b>Output VSWR (Rx Port)</b>					
746.0 ... 756.0 MHz		-	1.5	2.0	
<b>Common mode rejection ratio</b>					
746.0 ... 756.0 MHz		25	32	-	dB
<b>Absolute attenuation</b>	α				
10.0 ... 650.0 MHz		50	66	-	dB
650.0 ... 730.0 MHz		35	42	-	dB
730.0 ... 736.0 MHz		26	41	-	dB
769.0 ... 775.0 MHz		5	22	-	dB
777.0 ... 787.0 MHz		55	60	-	dB
793.0 ... 805.0 MHz		45	54	-	dB
805.0 ... 1100.0 MHz		45	49	-	dB
1100.0 ... 2000.0 MHz		45	54	-	dB
2000.0 ... 3500.0 MHz		40	51	-	dB
3500.0 ... 6000.0 MHz		35	47	-	dB

**Datasheet**

**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub> = 50 Ω
ANT terminating impedance:	Z <sub>Ant</sub> = 50 Ω    15 nH
RX terminating impedance:	Z <sub>Rx</sub> = 100 Ω (balanced)

Characteristics Tx-Rx				min.	typ. @ 25 °C	max.	
<b>Attenuation</b>							
			α				
	746.5 ... 749.0		MHz	55	60	-	dB
	749.0 ... 752.0		MHz	55	62	-	dB
	752.0 ... 755.5		MHz	55	66	-	dB
	777.0 ... 787.0		MHz	58	63	-	dB
	1552.0 ... 1574.0		MHz	30	70	-	dB
	2328.0 ... 2361.0		MHz	30	65	-	dB
	3104.0 ... 3148.0		MHz	30	60	-	dB
<b>Common mode attenuation</b>							
			α				
	777.0 ... 787.0		MHz	58	65	-	dB

**Maximum Ratings**

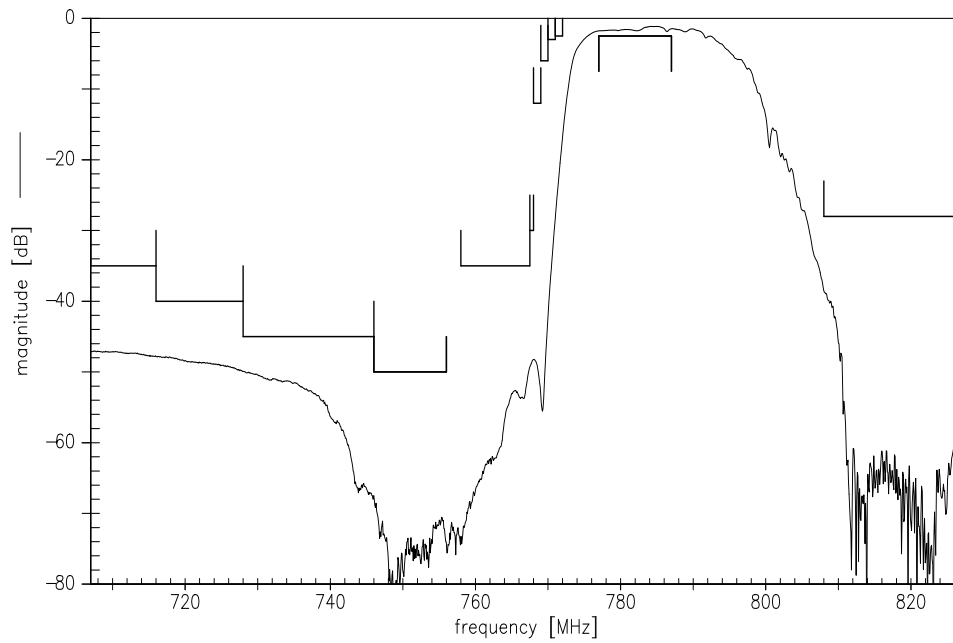
Storage temperature range	T <sub>stg</sub>	-40/+125	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	100 <sup>1)</sup>	V	M model
	V <sub>ESD</sub>	325 <sup>2)</sup>	V	HB model
	V <sub>ESD</sub>	500 <sup>3)</sup>	V	CD model
Input power at Tx Port				
	777.0 ... 787.0 MHz	P <sub>in</sub>	29	} continuous wave 50 °C, 5000h
elsewhere	P <sub>in</sub>	10		

<sup>1)</sup> According to JESD22- A115A (Machine model)

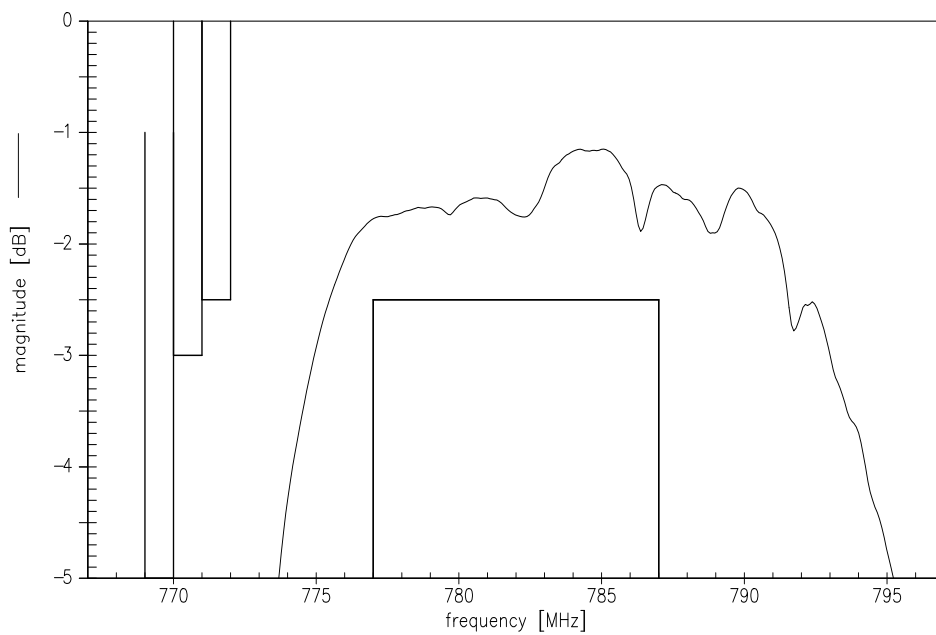
<sup>2)</sup> According to JESD22-A114E (Human Body model)

<sup>3)</sup> According to JESD22-C101 (Charged Device model)

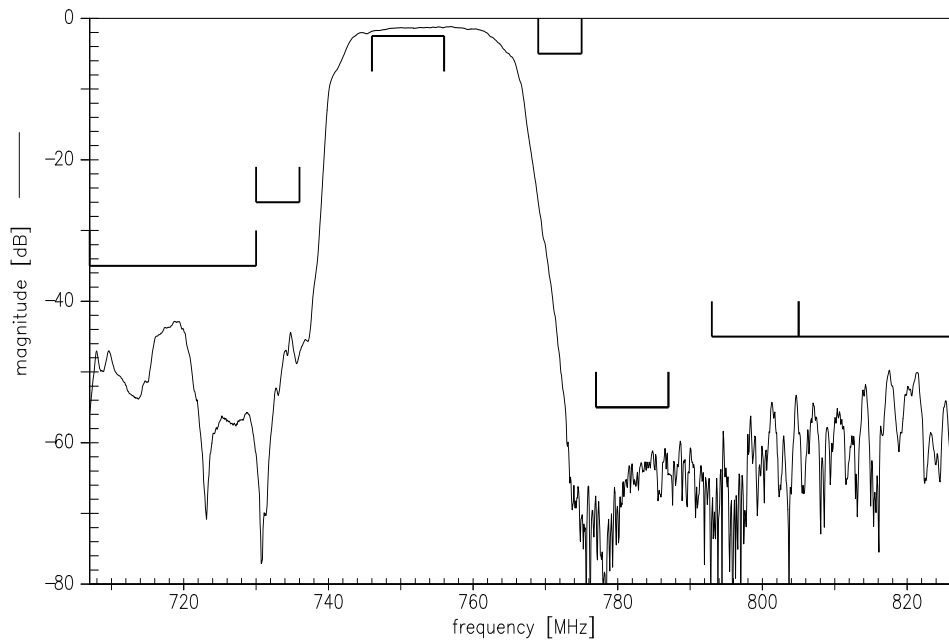
Frequency Response TX-ANT



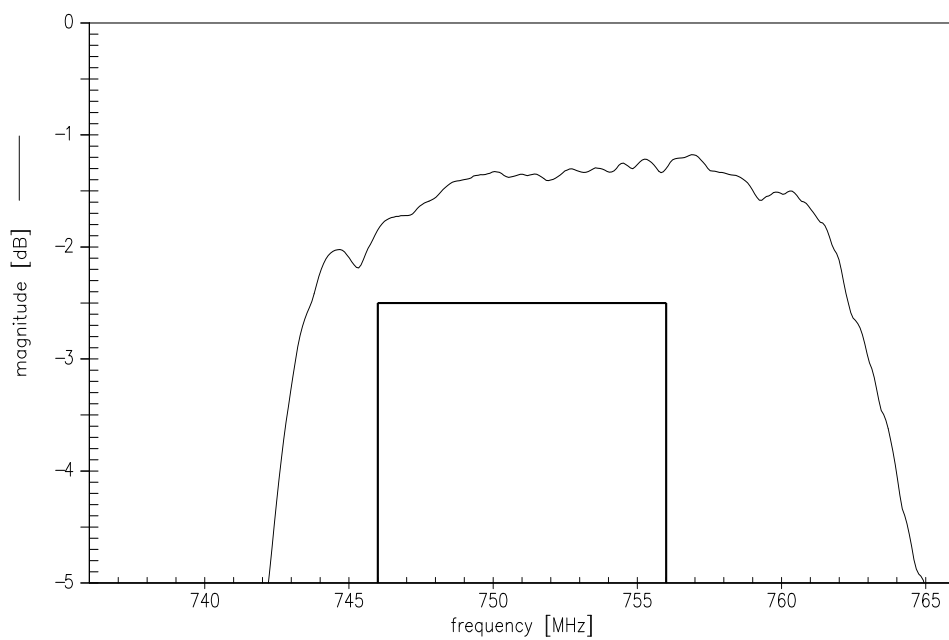
Frequency Response TX-ANT



Frequency Response ANT-RX

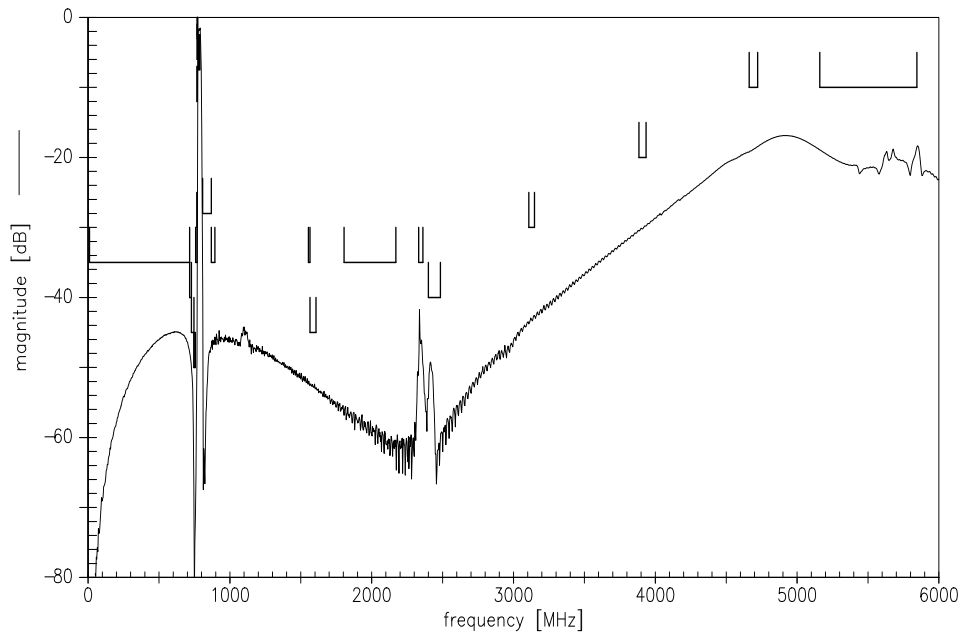


Frequency Response ANT-RX

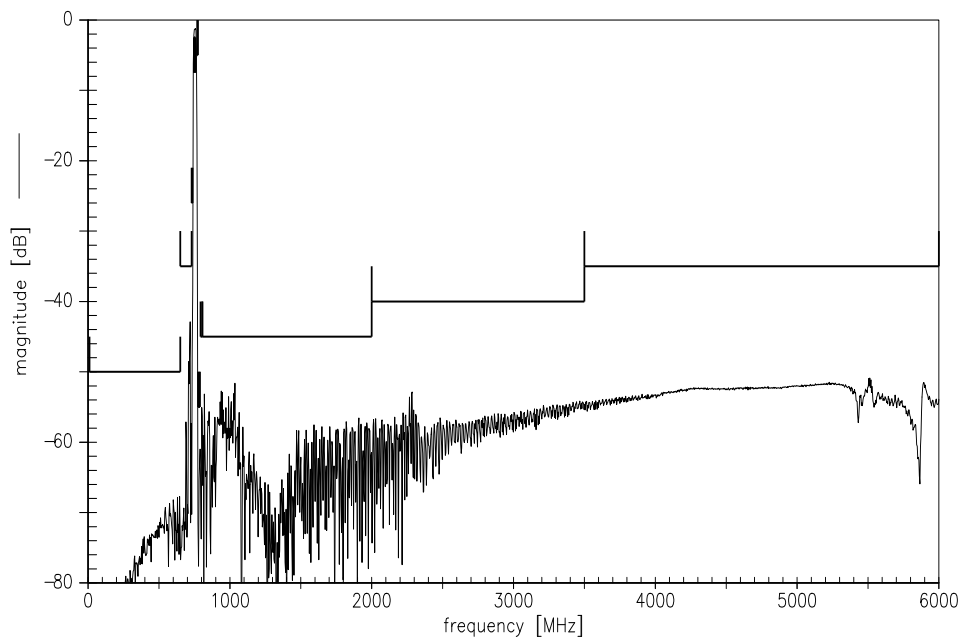




Frequency Response TX-ANT

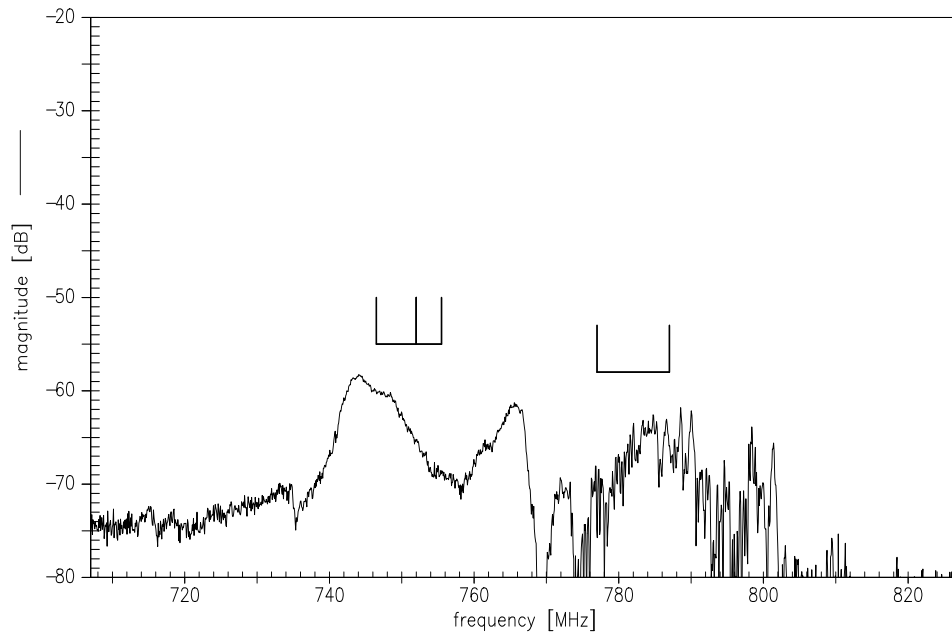


Frequency Response ANT-RX

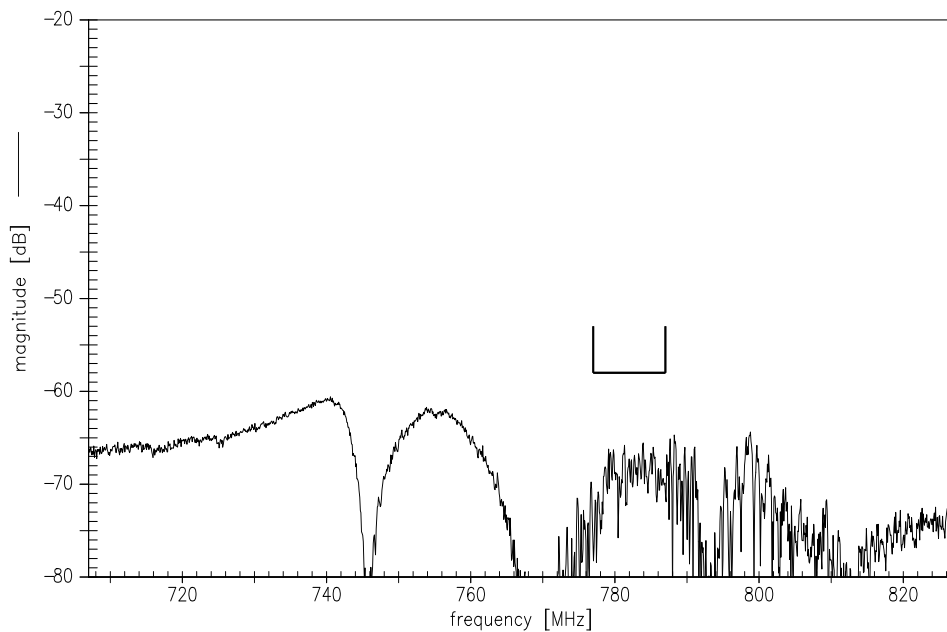


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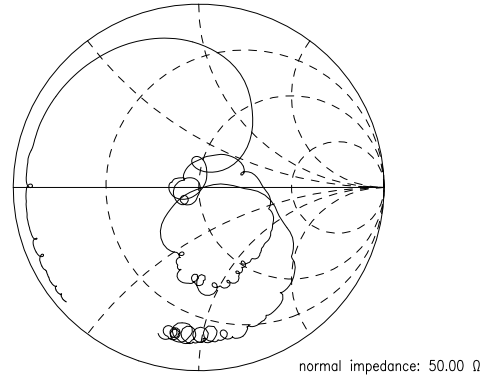
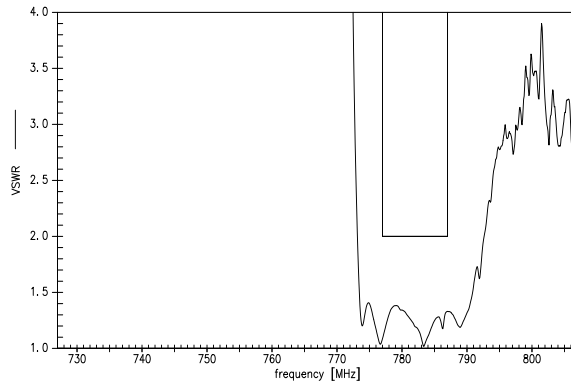
Frequency Response TX-RX : Differential mode isolation



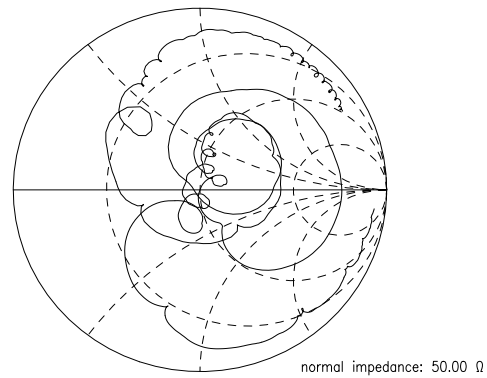
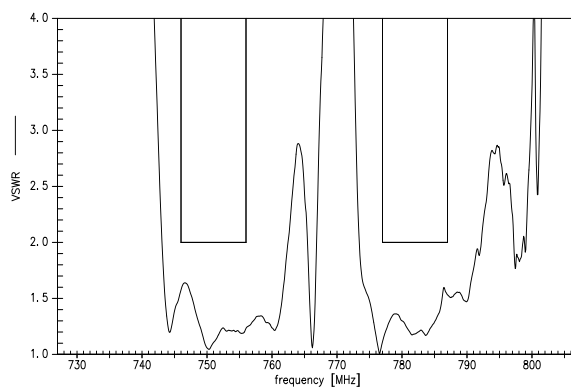
Frequency Response TX-RX : Common mode isolation



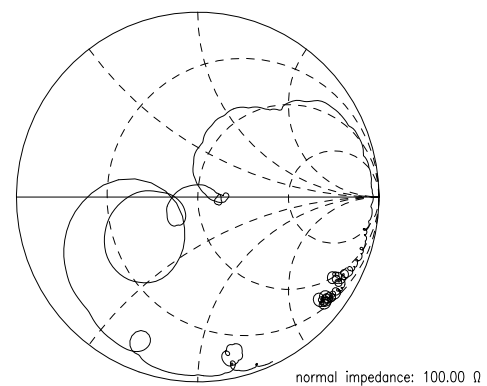
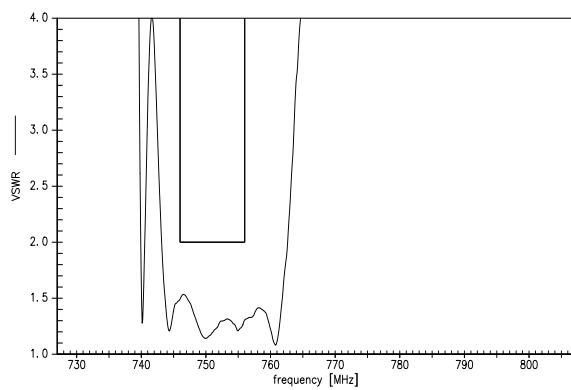
**S11 VSWR (TX)**



**S22 VSWR (ANT)**

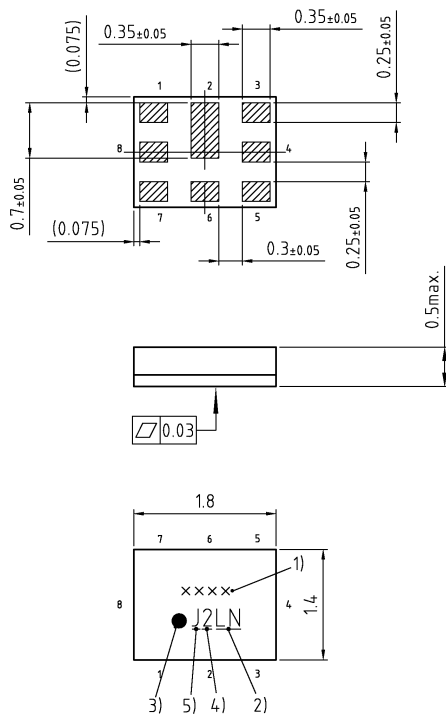


**S33 VSWR (RX)**



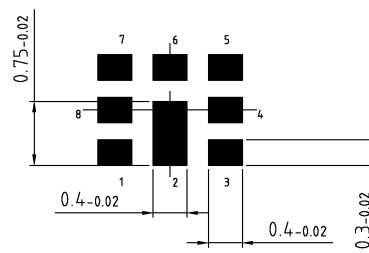
**Package drawings**

General tolerance : +/- 0.1 mm

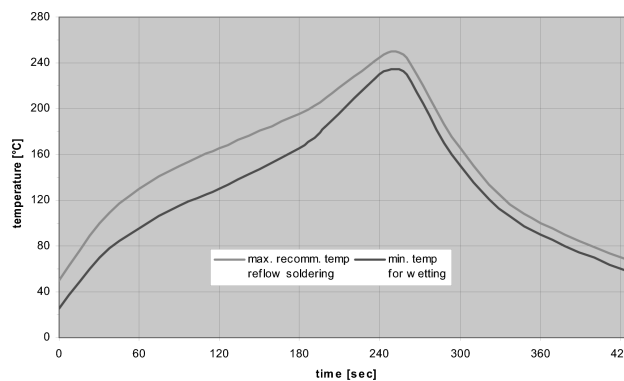


- 5) Indicating production site (" " =Muc, J=Sin)
- 4) Date code acc. to EPCOS (day)
- 3) Marking for pad number 1
- 2) Date code acc. to EN60062 (year, month)
- 1) Position for type designation

**Recommended terminal landing area**



**Recommended Soldering profile**



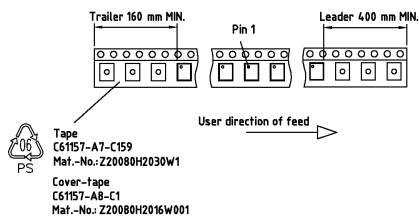
for Convection and Infrared Soldering - Lead-free

Datasheet



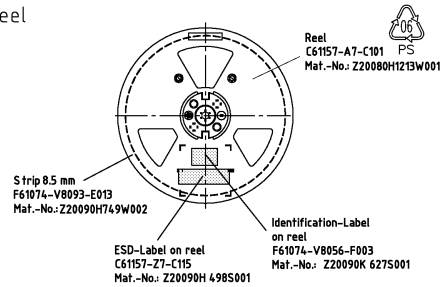
Packaging - Tape and Reel

1. Tape

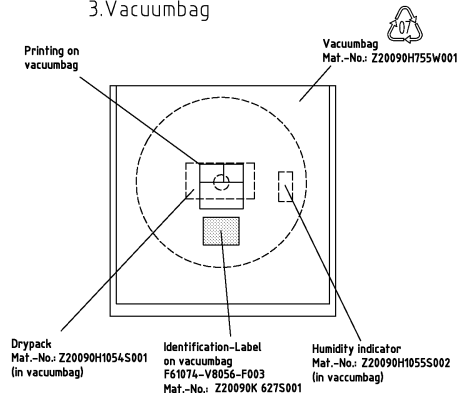


Quantity components for 13" reel : 15k pcs.

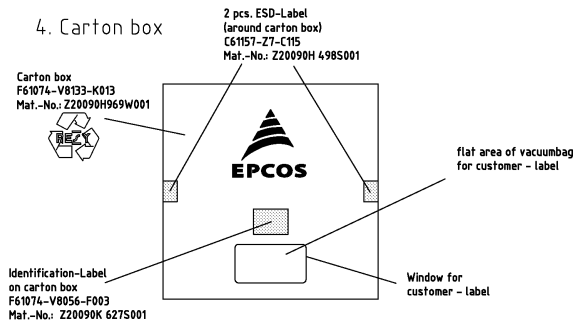
2. Reel



3. Vacuum bag



4. Carton box



<b>SAW Components</b>	<b>B8572</b>
<b>SAW Duplexer</b>	<b>782.0 / 751.0 MHz</b>

Datasheet



References

<b>Type</b>	B8572
<b>Ordering code</b> 15K pcs - 13" reel	B39781B8572P810
<b>Marking and package</b>	C61157-A8-A57
<b>Packaging</b>	F61074-V8259-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B8572_NB.S4P, B8572_WB.S4P see file header for port/pin assignment table
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	Defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
<b>Matching coils</b>	See Inductor pdf-catalog <a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a> and Data Library for circuit simulation <a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a>

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