



SAW Components

SAW Duplexer

LTE Band 13

Series/type:

B7677

Ordering code:

B39781B7677A710

Date:

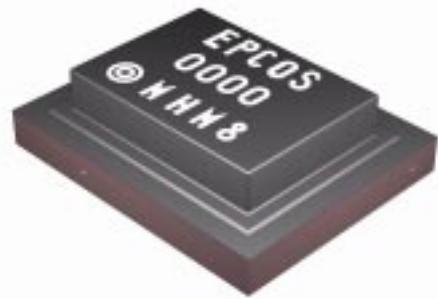
March 21, 2011

Version:

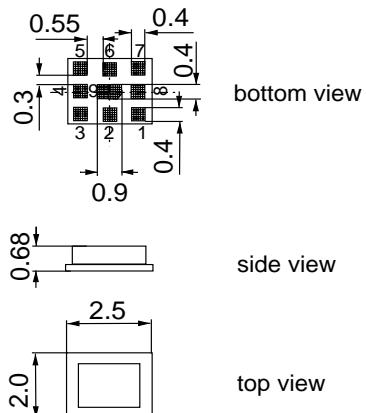
2.1

Application

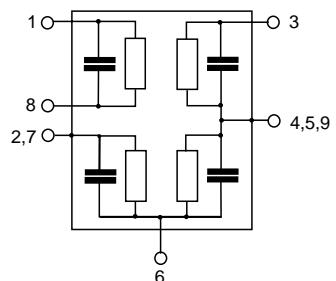
- Low-loss SAW duplexer for mobile telephone W-CDMA Band 13 systems
- Low insertion attenuation
- High isolation
- Usable passband 10 MHz
- Single-ended to balanced transformation in Antenna-Rx path
- Impedance transformation 50 Ω to 100 Ω in Antenna-Rx path
- Very small size and low height


Features

- Package size 2.5 * 2.0 * 0.68 mm³
- RoHS compatible
- Approximate weight 0.013g
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- MSL 3


Pin configuration

- 3 Tx input
- 1, 8 Rx output (balanced)
- 6 Antenna
- 2, 4, 5, 7, 9 To be grounded



**SAW Components****B7677****SAW Duplexer****782.0 / 751.0 MHz****Data sheet****Characteristics**

Temperature range for specification:

 $T = -30^{\circ}\text{C}$ to $+85^{\circ}\text{C}$

TX terminating impedance:

 $Z_{\text{Tx}} = 50 \Omega$

ANT terminating impedance:

 $Z_{\text{Ant}} = 50 \Omega \parallel 15 \text{ nH}$

RX terminating impedance:

 $Z_{\text{Rx}} = 100 \Omega$ (balanced)

Characteristics Tx-Antenna		min.	typ. @ 25 °C	max.	
Center frequency	f_c		782.0		MHz
Maximum insertion attenuation	α				
777.0 ... 787.0	MHz		1.8	2.2 ¹⁾	dB
777.0 ... 787.0	MHz		1.8	2.5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
777.0 ... 787.0	MHz		0.5	1.2	dB
Error Vector Magnitude @ 25° C					
@ f_{Carrier} 779.4 ... 784.6	MHz EVM ²⁾		1.5	2.1	%
Error Vector Magnitude					
@ f_{Carrier} 779.4 ... 784.6	MHz EVM		1.5	3.5	%
Input VSWR (Tx port)					
777.0 ... 787.0	MHz		1.3	2.0	
Output VSWR (Ant Port)					
777.0 ... 787.0	MHz		1.5	2.0	

¹⁾ In [0 °C; +85 °C] temperature range²⁾ Error Vector Magnitude (EVM) based on definition in 3GPP TS 25.141

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 $Z_{\text{Tx}} = 50 \Omega$

ANT terminating impedance:

 $Z_{\text{Ant}} = 50 \Omega \parallel 15 \text{ nH}$

RX terminating impedance:

 $Z_{\text{Rx}} = 100 \Omega \text{ (balanced)}$ **Characteristics Tx-Antenna**

			min.	typ. @ 25 °C	max.
Absolute attenuation			α		
10.0	...	716.0	MHz	30	40
716.0	...	728.0	MHz	40	45
728.0	...	746.0	MHz	30	48
746.0	...	756.0	MHz	45	60
758.0	...	766.0	MHz	30	35
766.0	...	768.0	MHz	27	35
768.0	...	769.0	MHz	12	30
769.0	...	770.0	MHz	6	30
770.0	...	771.0	MHz	3	22
771.0	...	772.0	MHz	2.5	9
800.0	...	808.0	MHz	15	28
808.0	...	869.0	MHz	30	43
869.0	...	894.0	MHz	30	43
1554.0	...	1565.0	MHz	30	48
1565.0	...	1607.0	MHz	45	50
1805.0	...	2170.0	MHz	30	47
2331.0	...	2361.0	MHz	30	42
2400.0	...	2484.0	MHz	35	46
3108.0	...	3148.0	MHz	30	34

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TX terminating impedance:	$Z_{\text{Tx}} = 50 \Omega$
ANT terminating impedance:	$Z_{\text{Ant}} = 50 \Omega \parallel 15 \text{ nH}$
RX terminating impedance:	$Z_{\text{Rx}} = 100 \Omega$ (balanced)

Characteristics	Antenna-Rx	min.	typ. @ 25 °C	max.	
Center frequency	f_c		751.0		MHz
Maximum insertion attenuation	α				
746.0 ... 756.0	MHz		1.9	2.5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
746.0 ... 756.0	MHz		0.3	1.0	dB
Input VSWR (Ant port)					
746.0 ... 756.0	MHz		1.6	2.0	
Output VSWR (Rx Port)					
746.0 ... 756.0	MHz		1.6	2.0	
Common mode rejection ratio					
746.0 ... 756.0	MHz	25	28		dB
Absolute attenuation	α				
10.0 ... 650.0	MHz	50	70		dB
650.0 ... 730.0	MHz	35	40		dB
730.0 ... 736.0	MHz	26	42		dB
769.0 ... 775.0	MHz	15	36		dB
777.0 ... 787.0	MHz	50	59		dB
793.0 ... 805.0	MHz	45	60		dB
805.0 ... 2000.0	MHz	45	57		dB
2000.0 ... 3500.0	MHz	40	47		dB
3500.0 ... 6000.0	MHz	23	27		dB

Please read *cautions and warnings and important notes* at the end of this document.

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TX terminating impedance:

 $Z_{\text{Tx}} = 50 \text{ } \Omega$

ANT terminating impedance:

 $Z_{\text{Ant}} = 50 \text{ } \Omega \parallel 15 \text{ nH}$

RX terminating impedance:

 $Z_{\text{Rx}} = 100 \text{ } \Omega \text{ (balanced)}$ **Characteristics Tx-Rx****Attenuation**

			α	min.	typ. @ 25 °C	max.	
746.5	...	749.0	MHz	50	61		dB
749.0	...	755.5	MHz	55	64		dB
777.0	...	781.0	MHz	60	68		dB
781.0	...	787.0	MHz	58	61		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

Common mode attenuation

		α		
777.0	...	781.0	MHz	60
781.0	...	787.0	MHz	57

Maximum Ratings

Storage temperature range	T_{stg}	-40/+85	$^{\circ}\text{C}$	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100 ¹⁾	V	machine model, 1 pulses
Input power at Tx Port				
779.5 ... 784.5.0 MHz	P_{in}	28	dBm	} LTE uplink signal elsewhere
	P_{in}	10	dBm	

¹⁾ According to JESD22-A115A (machine model), 1 negative and 1 positive pulses.



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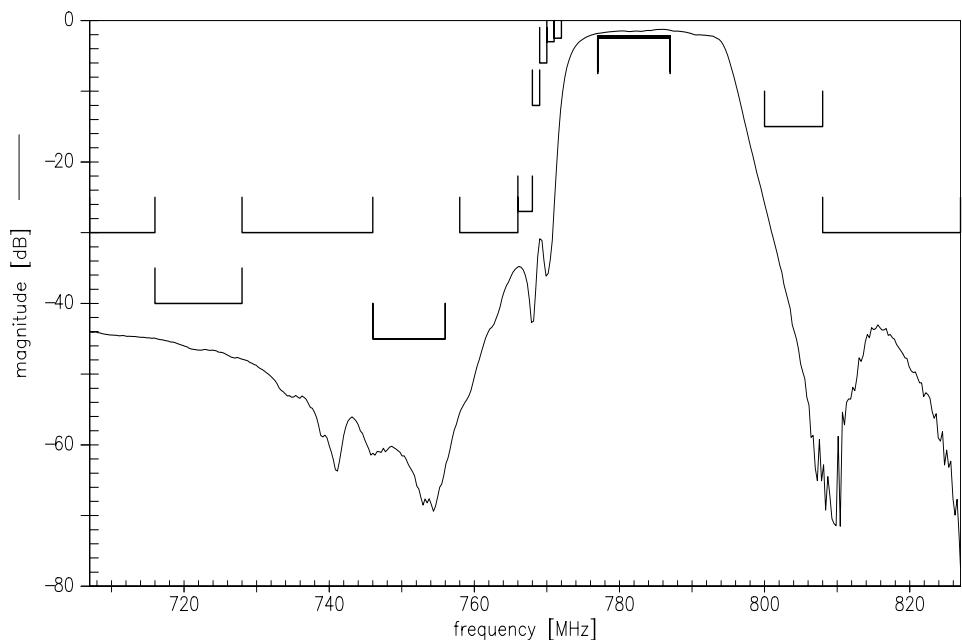
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782.0 / 751.0 MHz

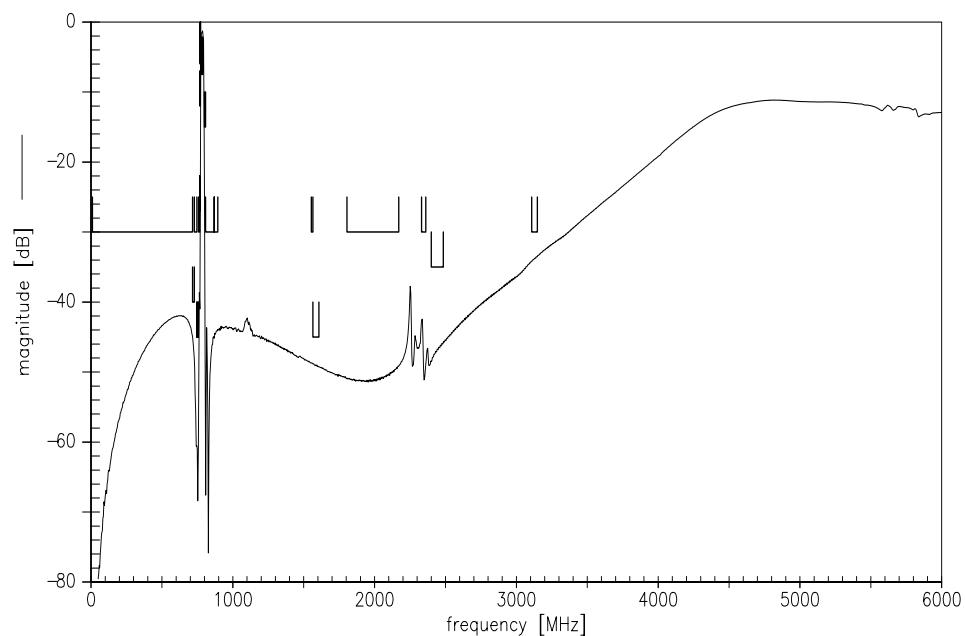
Data sheet



Frequency Response TX-ANT



Frequency Response TX-ANT



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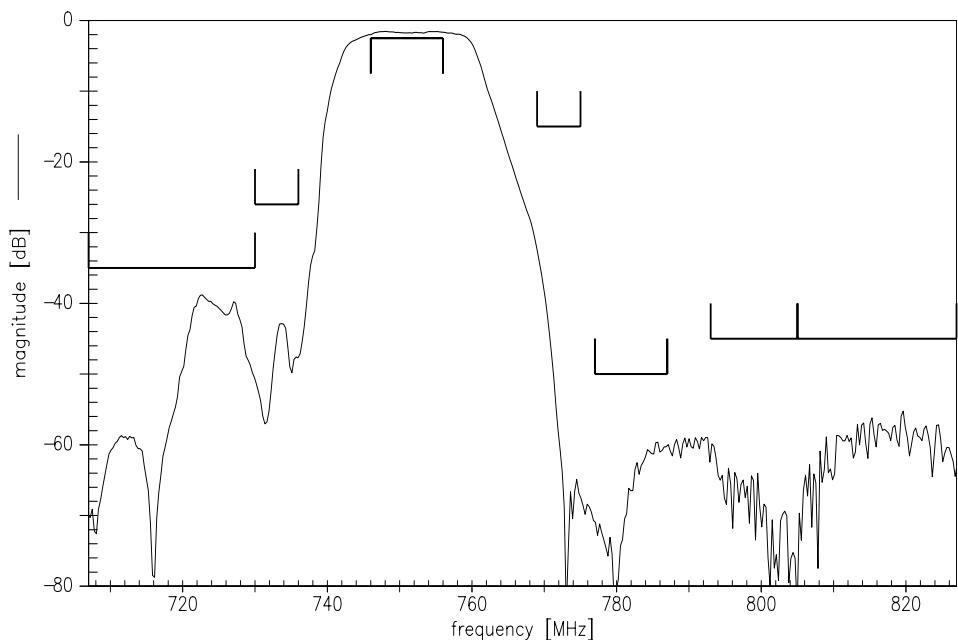
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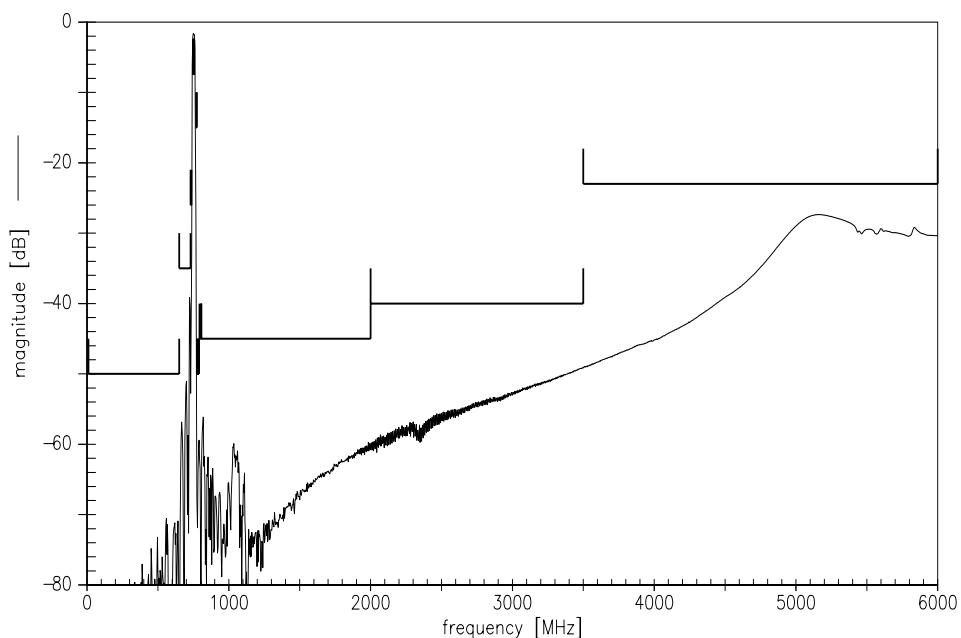
Data sheet



Frequency Response ANT-RX



Frequency Response ANT-RX



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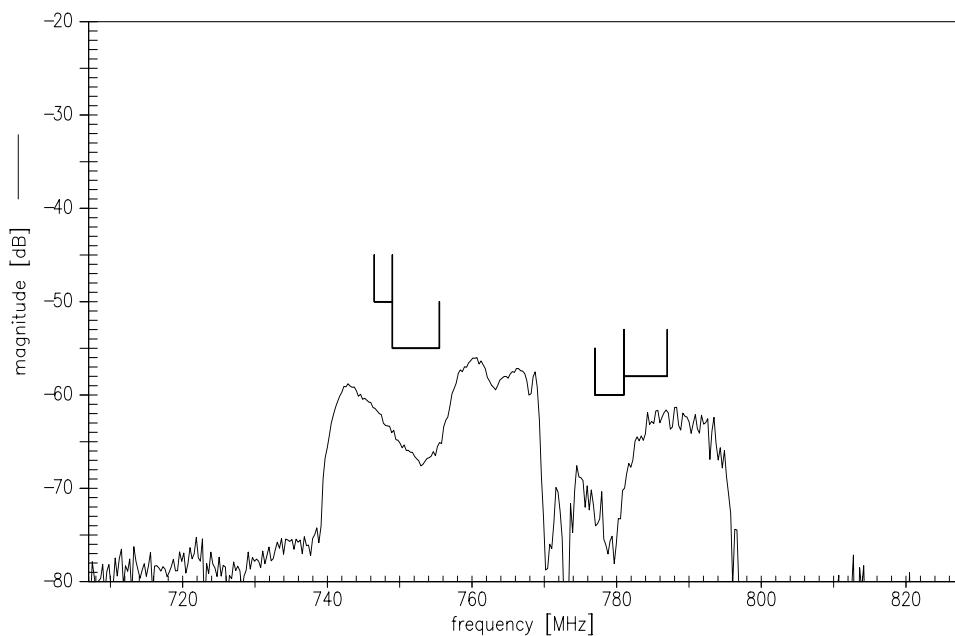
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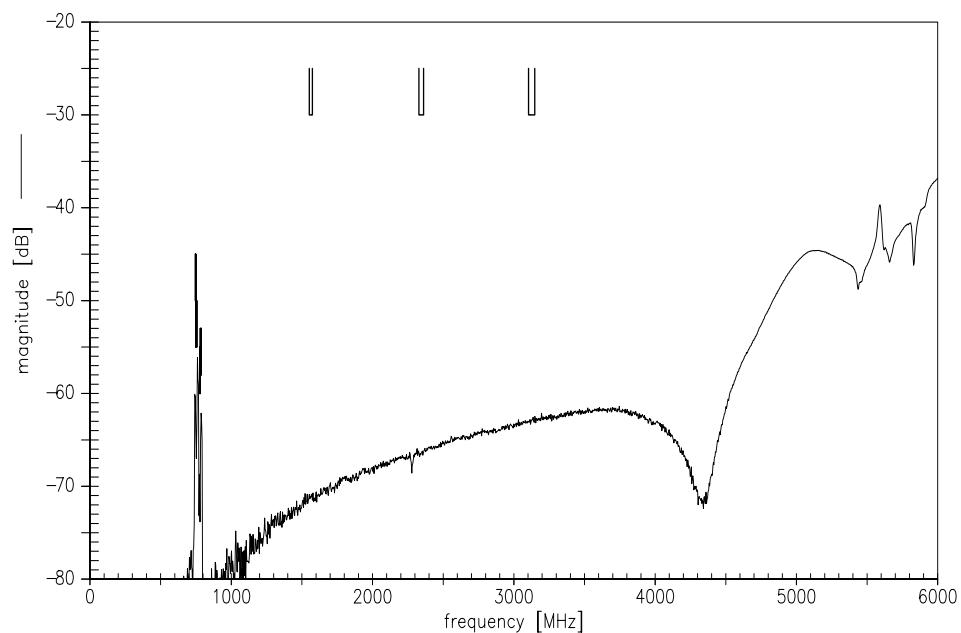
Data sheet



Frequency Response TX-RX

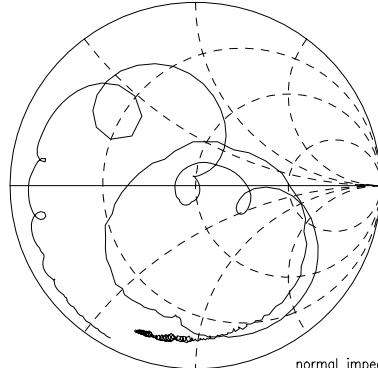
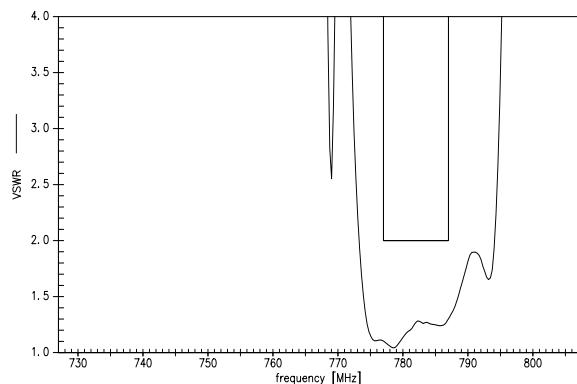


Frequency Response TX-RX

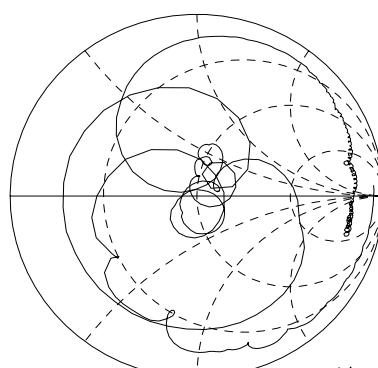
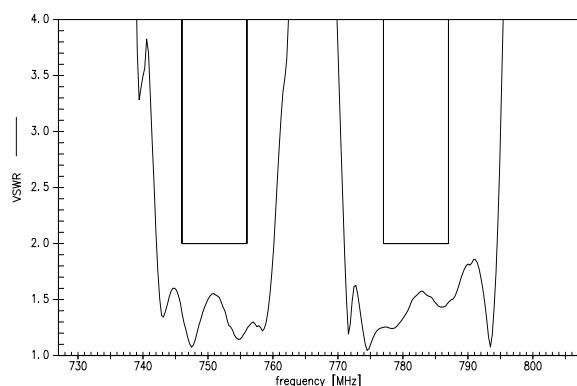


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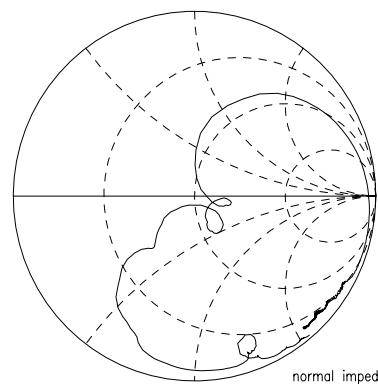
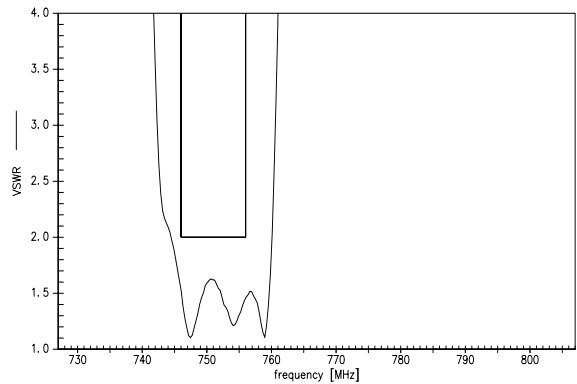
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S11 VSWR (TX)


normal impedance: 50.00Ω

S22 VSWR (ANT)


normal impedance: 50.00Ω

S33 VSWR (RX)


normal impedance: 100.00Ω

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Type	B7677
Ordering code	B39781B7677A710
Marking and package	C61157-A3-A61
Packaging	F611074-V8153-Z000
Date codes	L_1126
S-parameters	B7677_NB.S4P, B7677_WB.S4P
Soldering profile	S_6001
RoHS compatible	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."
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com .

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