

SAW Components

Data Sheet B4235







.98

- Low-loss RF filter for mobile telephone GSM 900/1800 system , receive path
- Usable passband: Filter 1 (GSM900): 35 MHz Filter 2 (GSM1800): 75 MHz
- Unbalanced to balanced operation of both filters
- Impedance transformation from 50 Ω to 150 Ω for both filters
- Suitable for GPRS class 1 to 12
- Ceramic package for Surface Mounted Technology (SMT)
- RoHS compliant

SAW Components

Data Sheet

Features

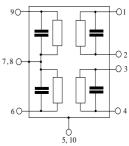
Terminals

Ni, gold-plated

Pin configuration

1, 2 Output, balanced [Filter 1] 3, 4 Output, balanced [Filter 2] 6 Input [Filter 2] 7,8 Case ground 9 Input [Filter 1] 5, 10 Case ground

Dimensions in mm, approx. weight 27 mg



Туре	Ordering code	Marking and Package according to	Packing according to
B4235	B39182-B4235-H910	C61157-A7-A142	F61074-V8174-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operable temperature range	Т	- 40 / + 85	°C	
Storage temperature range	T _{stg}	– 40 / +85	°C	
DC voltage	V _{DC}	5	V	
ESD voltage	V_{ESD}^*	50	V	Machine Model, 10 pulses
Input power at				
Tx bands:				
GSM850, GSM900	$P_{\rm IN}$	15	dBm	peak power of GSM signal,
GSM1800, GSM1900				duty cycle 4:8

* - acc. to JESD22-A115A (Machine Model), 10 negative & 10 positive pulses



0,8

bottom view

side view



July 14, 2005



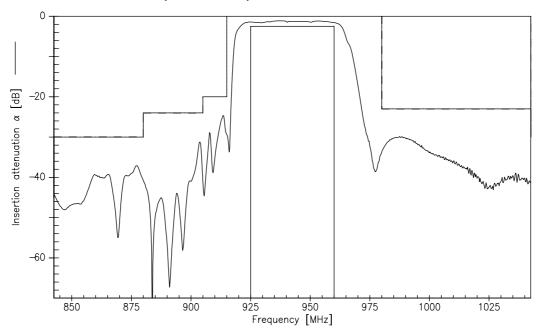
Low-Loss Dual Band Filter for Mobile Communication942,Data SheetImage: T = +25 ± 2 °CCharacteristics Filter 1 (GSM900)Operating temperature range: $Z_S = 50 \Omega$ (unbalanced)Operating temperature range: T = +25 ± 2 °CTerminating source impedance: $Z_S = 50 \Omega$ (unbalanced)Terminating load impedance: $Z_L = 150 \Omega$ (balanced) 68 nHCenter frequency f_c Maximum insertion attenuation 925,0 960,0 MHz— $925,0$ 960,0 MHz—Input VSWR925,0 960,0 MHz $925,0$ 960,0 MHz—Output amplitude balance ($ S_{31}/S_{21} $) $925,0$ 960,0 MHzOutput phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) $925,0$ 960,0 MHzOutput thase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) $925,0$ 960,0 MHzOutput thase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) $925,0$ 960,0 MHzOutput thase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) $925,0$ 960,0 MHz	,5/1842,5 max. — 2,2	MHz
Operating temperature range: Terminating source impedance: $T = +25 \pm 2$ °C $Z_{\rm S} = 50 \ \Omega$ (unbalanced) Terminating load impedance:Terminating load impedance: $Z_{\rm L} = 150 \ \Omega$ (balanced) 68 nHCenter frequency $f_{\rm c}$ —925,0 $Maximum$ insertion attenuation $925,0$ $\alpha_{\rm max}$ $925,0$ —Maximum insertion attenuation $925,0$ $\alpha_{\rm max}$ $925,0$ —Maximum insertion attenuation $925,0$ $\alpha_{\rm max}$ $925,0$ —Maximum insertion attenuation 		MHz
Terminating source impedance: $Z_{\rm S} = 50 \Omega$ (unbalanced)Terminating load impedance: $Z_{\rm L} = 150 \Omega$ (balanced) 68 nHCenter frequency $f_{\rm C}$ $-$ 942,5Maximum insertion attenuation 925,0 960,0 MHz $\alpha_{\rm max}$ $ -$ Amplitude ripple (p-p) 925,0 960,0 MHz $\Delta \alpha$ $ -$ Number of the second sec		MHz
Center frequency f_c — 942,5 Maximum insertion attenuation α_{max} — 1,8 925,0 960,0 MHz — 1,8 Amplitude ripple (p-p) $\Delta \alpha$ — 0,6 Input VSWR 925,0 960,0 MHz — 0,6 Input VSWR 925,0 960,0 MHz — 1,9 Output VSWR 925,0 960,0 MHz — 1,9 Output vSwR 925,0 960,0 MHz — 1,9 Output amplitude balance ($ S_{31}/S_{21} $) 925,0 960,0 MHz -2,0 — Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) 925,0 960,0 MHz -10,0 —		MHz
Maximum insertion attenuation α_{max} - 1,8 Maximum insertion attenuation $925,0 \dots 960,0 \text{ MHz}$ - 1,8 Amplitude ripple (p-p) $\Delta \alpha$ - 0,6 Input VSWR 925,0 \dots 960,0 MHz - 0,6 Input VSWR 925,0 \dots 960,0 MHz - 1,9 Output VSWR 925,0 \dots 960,0 MHz - 1,9 Output amplitude balance ($ S_{31}/S_{21} $) 925,0 \dots 960,0 MHz - - 925,0 \dots 960,0 MHz - - - - Output amplitude balance ($ S_{31}/S_{21} $) 925,0 \dots 960,0 MHz - - 925,0 \dots 960,0 MHz - - - -		MHz
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2,2	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		dB
925,0 960,0 MHz — 1,9 Output VSWR 925,0 960,0 MHz — 1,9 Output amplitude balance ($ S_{31}/S_{21} $) 925,0 960,0 MHz - 1,9 Output amplitude balance ($ S_{31}/S_{21} $) 925,0 960,0 MHz -2,0 — Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) 925,0 960,0 MHz -10,0 —	1,2	dB
Output VSWR 925,0 960,0 MHz - 1,9 Output amplitude balance ($ S_{31}/S_{21} $) 925,0 960,0 MHz -2,0 - Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$) 925,0 960,0 MHz -10,0 -		
925,0 960,0 MHz — 1,9 Output amplitude balance ($ S_{31}/S_{21} $) 925,0 960,0 MHz -2,0 — Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^{\circ}$) 925,0 960,0 MHz -10,0 —	2,1	
925,0 960,0 MHz -2,0 Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^{\circ}$) 925,0 960,0 MHz -10,0	2,1	
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^{\circ}$) 925,0 960,0 MHz -10,0 —		
925,0 960,0 MHz -10,0 —	2,0	dB
Absolute attenuation data	10,0	degre
abs		
10,0 480,0 MHz 45,0 53,0	—	dB
480,0 880,0 MHz 30,0 38,0	—	dB
880,0 905,0 MHz 24,0 27,0	_	dB
905,0 915,0 MHz 20,0 25,0	—	dB
980,0 1050,0 MHz 23,0 30,0	—	dB
1050,03500,0 MHz 30,0 34,0	—	dB
3500,04500,0MHz22,026,04500,06000,0MHz15,017,0	_	dB dB



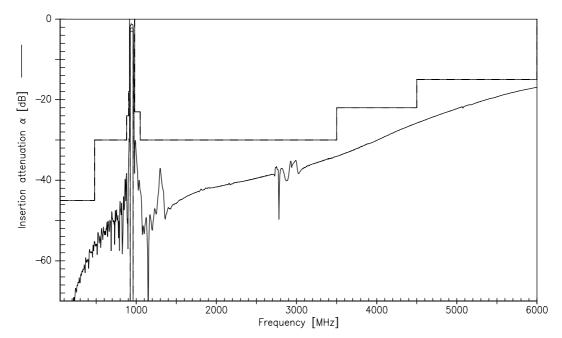
SAW Components					E	34235	
Low-Loss Dual Band Filter for Mobile Communication 942,5/						/1842,5 MHz	
Data Sheet	<u>_</u>						
Characteristics Filter 1 (GSM900)							
Operating temperature range: Terminating source impedance: Terminating load impedance:	Z_{S}	= 50 9	$\Omega +75^{\circ} C$ Ω (unbalar Ω (balance	nced) ed) 68 nH			
			min.	typ.	max.		
Center frequency		f _c		942,5		MHz	
Maximum insertion attenuation 925,0 96	60,0 MHz	α_{\max}	_	1,8	2,5	dB	
Amplitude ripple (p-p) 925,0 96	60,0 MHz	Δα	_	0,9	1,5	dB	
Input VSWR							
925,0 96 Output VSWR	60,0 MHz	-	_	1,9	2,1		
925,0 96	60,0 MHz			1,9	2,1		
Output amplitude balance (S ₃₁ /S ₂₁)	1						
925,0 96	60,0 MHz		-2,5		2,5	dB	
Output phase balance $(\phi(S_{31})-\phi(S_{21}))$)+180°)						
925,0 96	60,0 MHz		-12,0	_	12,0	degree	
Absolute attenuation		α_{abs}					
10,0 48	80,0 MHz		45,0	50,0		dB	
480,0 88		<u>.</u>	30,0	38,0	—	dB	
880,0 90	05,0 MHz	<u>.</u>	24,0	27,0	—	dB	
905,0 91	5,0 MHz	<u>:</u>	11,0	18,0	—	dB	
980,0105			23,0	30,0	—	dB	
1050,0350			30,0	34,0	—	dB	
3500,0450			22,0	26,0	—	dB	
4500,0600	0,0 MHz	<u>.</u>	15,0	17,0	—	dB	



Transfer function of filter 1 (Narrow Band)



Transfer function of filter 1 (Wide Band)



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Jote Chaot		ation 942,5/1842,5 MHz					
Data Sheet		=N					
Characteristics Filte	er 2(GSM1800)						
Operating temperatur Terminating source ir Terminating load imp	mpedance:	Z_{S}	= +25 ± = 50 Ω = 150 Ω	2 (unbalar	nced) ed) 12.0 n	Н	
				min.	typ.	max.	
Center frequency			f _c	_	1842,5	_	MHz
Maximum insertion	attenuation 1805,01880,0	MHz	α_{max}	_	2,4	2,7	dB
Amplitude ripple (p-	p) 1805,01880,0	MHz	Δα	_	1,2	1,5	dB
Input VSWR	4005.0 4000.0	N 41 1-			2.4		
Output VSWR	1805,0 1880,0	MHz		—	2,4	2,6	
	1805,01880,0	MHz		_	2,2	2,4	
Output amplitude ba	alance (S ₃₁ /S ₂₁) 1805,01880,0	MHz		-1,5	_	1,5	dB
Output phase balan	ce (φ(S ₃₁)–φ(S ₂₁)+180 1805,01880,0			-10,0	_	10,0	degree
Absolute attenuatio	n		α_{abs}				
	10,01000,0	MHz		40,0	50,0	—	dB
	1000,01705,0	MHz		26,0	28,0	—	dB
	1705,01785,0	MHz		13,0	17,0	—	dB
	1920,01980,0	MHz		15,0	24,0	—	dB
	1980,02030,0			24,0	28,0	—	dB
	2030,05000,0	MHz		30,0 25,0	34,0 30,0	_	dB



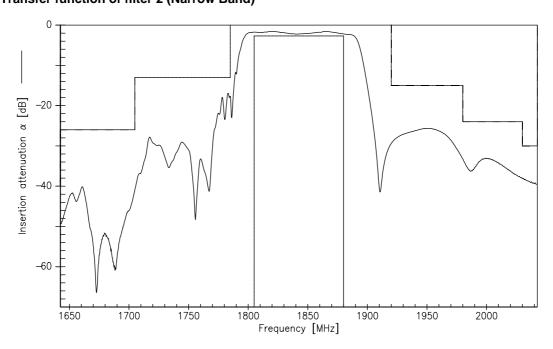
SAW Components						B4235
Low-Loss Dual Band Filter for Mobi	94	942,5/1842,5 MHz				
Data Sheet	SM					
Characteristics Filter 2 (GSM1800)						
Operating temperature range:	т	= -20 to	o +75° C			
Terminating source impedance:			Ω (unbalar	nced)		
Terminating load impedance:				ed) 12.0 n	н	
			min.	typ.	max.	
Center frequency		f _c	_	1842,5		MHz
Maximum insertion attenuation		α_{max}				
1805,01880,0	MHz		—	2,4	2,7	dB
Amplitude ripple (p-p)	N 41 1-	Δα		4.5	4.0	
1805,01880,0	MHz		_	1,5	1,8	dB
nput VSWR						
1805,01880,0	MHz		_	2,4	2,6	
Output VSWR						
1805,01880,0	MHz		—	2,2	2,4	
Output amplitude balance (S_{31}/S_{21})			1 5		4 5	dD
1805,01880,0	MHz		-1,5	_	1,5	dB
Output phase balance $(\phi(S_{31})-\phi(S_{21})+18)$	30°)					
1805,01880,0			-10,0	_	10,0	degree
Absolute attenuation		$lpha_{abs}$				
10,01000,0			40,0	50,0	—	dB
1000,01705,0			26,0	28,0	—	dB
1705,01785,0 1920,01980,0			10,0 15,0	17,0 24,0		dB dB
1920,01980,0			15,0 24,0	24,0		dВ
2030,05000,0			24,0 30,0	34,0	_	dB
5000,06000,0			25,0	30,0		dB



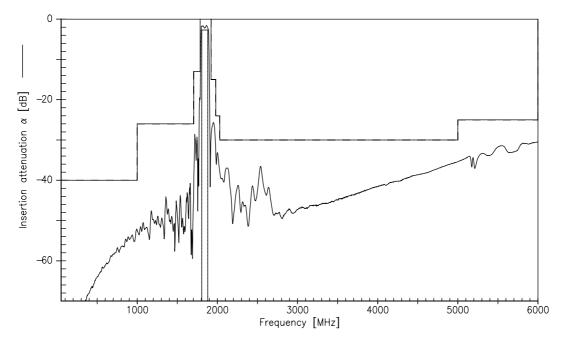
Data Sheet

SMD

Transfer function of filter 2 (Narrow Band)



Transfer function of filter 2 (Wide Band)



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SAW Components		B4235
Low-Loss Dual Band F	ilter for Mobile Communication	942,5/1842,5 MHz
Data Sheet	SMD	

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