EPCOS

SAW Components

Data Sheet B4140

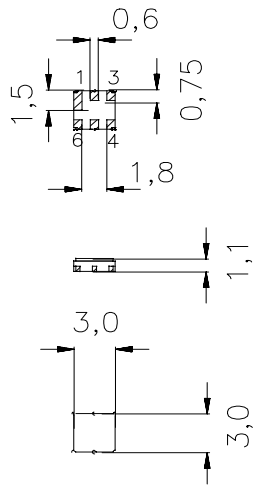
Ceramic package **DCC6D**

Features

- Low-loss RF filter for mobile telephone EGSM systems, transmit path
- Low amplitude ripple
- Usable passband 35 MHz
- Balanced to unbalanced Operation
- Impedance transformation from 200 Ω to 50 Ω
- Ceramic package for **S**urface **M**ounted **T**echnology (**SMT**)

Terminals

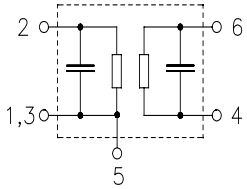
- Ni, gold-plated



Dimensions in mm, approx. weight 0,037 g

Pin configuration

4, 6	Input, balanced
5	To be grounded
2	Output, unbalanced
1, 3	Output ground
1, 3, 5	Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B4140	B39901-B4140-U510	C61157-A7-A68	F61074-V8089-Z000

Electrostatic **S**ensitive **D**evice (**ESD**)

Maximum ratings

Operable temperature range	T	– 25/ + 80	˚C	
Storage temperature range	T_{stg}	– 40 / + 85	˚C	
DC voltage	V_{DC}	0	V	
Input power max.				source impedance 50 Ω, load impedance 200 Ω, peak power of GSM signal,
880 ... 915 MHz	P_{IN}	8,5	dBm	duty cycle 2 : 8
		10,0	dBm	duty cycle 1: 8

Characteristics

Operating temperature range: T = 25+-2 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω || 56 nH
(L simulated with Q factor 20)

			min.	typ.	max.	
Center frequency	f_C		—	897,5	—	MHz
Maximum insertion attenuation	α_{max}					
880,0 ... 915,0 MHz			—	2,8	3,4	dB
Amplitude ripple (p-p)	$\Delta\alpha$					
880,0 ... 915,0 MHz			—	1,2	1,5	dB
Input VSWR						
880,0 ... 915,0 MHz			—	1,7	2,0	
Output VSWR						
880,0 ... 915,0 MHz			—	1,6	2,0	
Attenuation	α					
0,0 ... 600,0 MHz			60	77	—	dB
600,0 ... 800,0 MHz			50	72	—	dB
800,0 ... 860,0 MHz			40	44	—	dB
925,0 ... 935,0 MHz			9	14	—	dB
935,0 ... 960,0 MHz			25	27	—	dB
960,0 ...1000,0 MHz			25	40	—	dB
1000,0 ...1050,0 MHz			40	64	—	dB
1050,0 ...1500,0 MHz			55	68	—	dB
1500,0 ...2000,0 MHz			50	70	—	dB
2000,0 ...3000,0 MHz			30	44	—	dB
3000,0 ...5000,0 MHz			18	29	—	dB
5000,0 ...6000,0 MHz			10	28	—	dB
Symmetry in band (referenced to the matched operating condition)						
$\lvert S_{31}\rvert/\lvert S_{21}\rvert$ 880,0 ... 915,0 MHz			-1,0	0	1,0	dB
$\arg(S_{31}/S_{21})$ 880,0 ... 915,0 MHz			170	180	190	°

Characteristics

Operating temperature range: T = +20 to +40 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω || 56 nH
(L simulated with Q factor 20)

			min.	typ.	max.	
Center frequency		f_C	—	897,5	—	MHz
Maximum insertion attenuation		α_{max}				
	880,0 ... 915,0 MHz		—	2,9	3,6	dB
Amplitude ripple (p-p)		$\Delta\alpha$				
	880,0 ... 915,0 MHz		—	1,3	1,7	dB
Input VSWR						
	880,0 ... 915,0 MHz		—	1,7	2,0	
Output VSWR						
	880,0 ... 915,0 MHz		—	1,6	2,0	
Attenuation		α				
	0,0 ... 600,0 MHz		60	77	—	dB
	600,0 ... 800,0 MHz		50	72	—	dB
	800,0 ... 860,0 MHz		40	44	—	dB
	925,0 ... 935,0 MHz		9	13	—	dB
	935,0 ... 960,0 MHz		25	27	—	dB
	960,0 ...1000,0 MHz		25	40	—	dB
	1000,0 ...1050,0 MHz		40	64	—	dB
	1050,0 ...1500,0 MHz		55	68	—	dB
	1500,0 ...2000,0 MHz		50	70	—	dB
	2000,0 ...3000,0 MHz		30	44	—	dB
	3000,0 ...5000,0 MHz		18	29	—	dB
	5000,0 ...6000,0 MHz		10	28	—	dB
Symmetry in band (referenced to the matched operating condition)						
$\lvert S_{31}\rvert/\lvert S_{21}\rvert$	880,0 ... 915,0 MHz		-1,0	0	1,0	dB
$\arg(S_{31}/S_{21})$	880,0 ... 915,0 MHz		170	180	190	°

Characteristics

Operating temperature range: T = +10 to +60 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω || 56 nH
(L simulated with Q factor 20)

		min.	typ.	max.	
Center frequency	f_C	—	897,5	—	MHz
Maximum insertion attenuation	α_{max}				
880,0 ... 915,0 MHz		—	2,9	3,8	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
880,0 ... 915,0 MHz		—	1,3	1,9	dB
Input VSWR					
880,0 ... 915,0 MHz		—	1,7	2,0	
Output VSWR					
880,0 ... 915,0 MHz		—	1,6	2,0	
Attenuation	α				
0,0 ... 600,0 MHz		60	77	—	dB
600,0 ... 800,0 MHz		50	72	—	dB
800,0 ... 860,0 MHz		40	44	—	dB
925,0 ... 935,0 MHz		8	12	—	dB
935,0 ... 960,0 MHz		24	27	—	dB
960,0 ...1000,0 MHz		25	40	—	dB
1000,0 ...1050,0 MHz		40	64	—	dB
1050,0 ...1500,0 MHz		55	68	—	dB
1500,0 ...2000,0 MHz		50	70	—	dB
2000,0 ...3000,0 MHz		30	44	—	dB
3000,0 ...5000,0 MHz		18	29	—	dB
5000,0 ...6000,0 MHz		10	28	—	dB
Symmetry in band (referenced to the matched operating condition)					
$\lvert S_{31}\rvert/\lvert S_{21}\rvert$ 880,0 ... 915,0 MHz		-1,0	0	1,0	dB
$\arg(S_{31}/S_{21})$ 880,0 ... 915,0 MHz		170	180	190	°

Characteristics

Operating temperature range: T = -10 to +80 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω || 56 nH
(L simulated with Q factor 20)

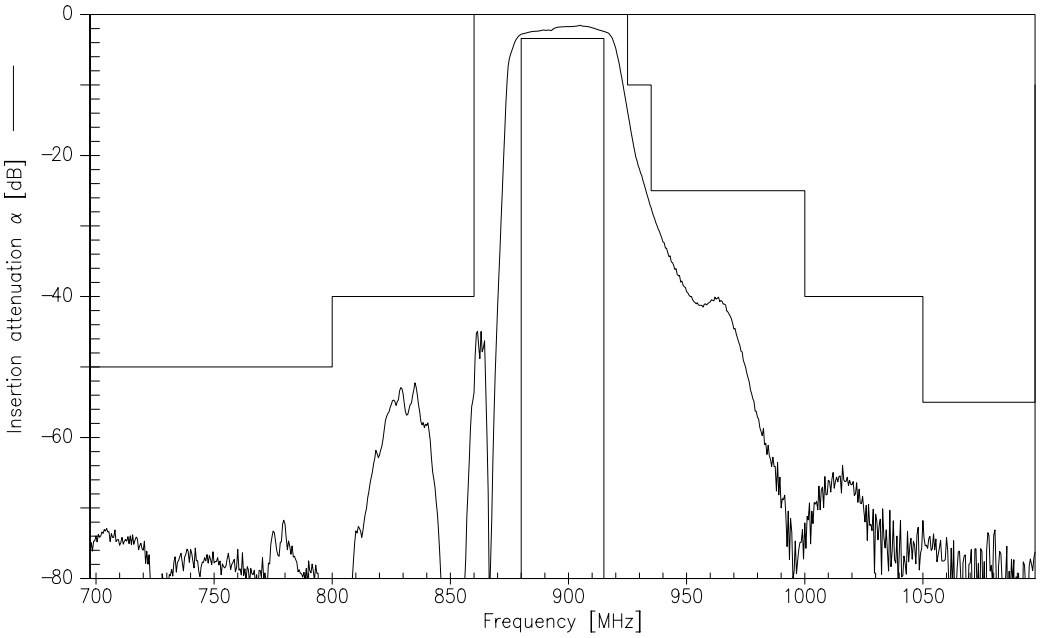
			min.	typ.	max.	
Center frequency		f_C	—	897,5	—	MHz
Maximum insertion attenuation		α_{max}				
	880,0 ... 915,0 MHz		—	3,2	4,2	dB
Amplitude ripple (p-p)		$\Delta\alpha$				
	880,0 ... 915,0 MHz		—	1,6	2,3	dB
Input VSWR						
	880,0 ... 915,0 MHz		—	1,7	2,2	
Output VSWR						
	880,0 ... 915,0 MHz		—	1,6	2,2	
Attenuation		α				
	0,0 ... 600,0 MHz		60	77	—	dB
	600,0 ... 800,0 MHz		50	72	—	dB
	800,0 ... 860,0 MHz		35	44	—	dB
	925,0 ... 935,0 MHz		7	11	—	dB
	935,0 ... 960,0 MHz		23	26	—	dB
	960,0 ...1000,0 MHz		25	40	—	dB
	1000,0 ...1050,0 MHz		40	64	—	dB
	1050,0 ...1500,0 MHz		55	68	—	dB
	1500,0 ...2000,0 MHz		50	70	—	dB
	2000,0 ...3000,0 MHz		30	44	—	dB
	3000,0 ...5000,0 MHz		18	29	—	dB
	5000,0 ...6000,0 MHz		10	28	—	dB
Symmetry in band (referenced to the matched operating condition)						
$\lvert S_{31}\rvert/\lvert S_{21}\rvert$	880,0 ... 915,0 MHz		-1,0	0	1,0	dB
$\arg(S_{31}/S_{21})$	880,0 ... 915,0 MHz		170	180	190	°

Characteristics

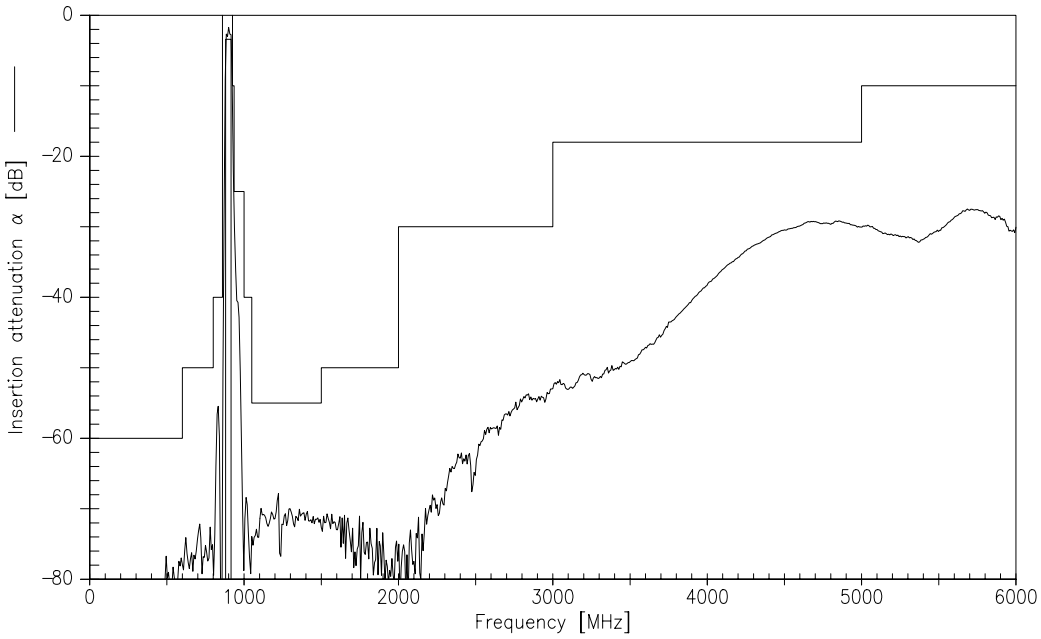
Operating temperature range: T = -25 to +70 °C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 200 Ω || 56 nH
(L simulated with Q factor 20)

			min.	typ.	max.	
Center frequency	f_C		—	897,5	—	MHz
Maximum insertion attenuation	α_{max}					
880,0 ... 915,0 MHz			—	3,4	4,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$					
880,0 ... 915,0 MHz			—	1,8	2,9	dB
Input VSWR						
880,0 ... 915,0 MHz			—	2,1	2,4	
Output VSWR						
880,0 ... 915,0 MHz			—	2,4	2,5	
Attenuation	α					
0,0 ... 600,0 MHz			60	77	—	dB
600,0 ... 800,0 MHz			50	72	—	dB
800,0 ... 860,0 MHz			35	44	—	dB
860,0 ... 870,0 MHz			10	36	—	dB
925,0 ... 935,0 MHz			7	11	—	dB
935,0 ... 960,0 MHz			23	26	—	dB
960,0 ...1000,0 MHz			25	40	—	dB
1000,0 ...1050,0 MHz			40	64	—	dB
1050,0 ...1500,0 MHz			55	68	—	dB
1500,0 ...2000,0 MHz			50	70	—	dB
2000,0 ...3000,0 MHz			30	44	—	dB
3000,0 ...5000,0 MHz			18	29	—	dB
5000,0 ...6000,0 MHz			10	28	—	dB
Symmetry in band (referenced to the matched operating condition)						
$\lvert S_{31}\rvert/\lvert S_{21}\rvert$ 880,0 ... 915,0 MHz			-1,0	0	1,0	dB
$\arg(S_{31}/S_{21})$ 880,0 ... 915,0 MHz			170	180	190	°

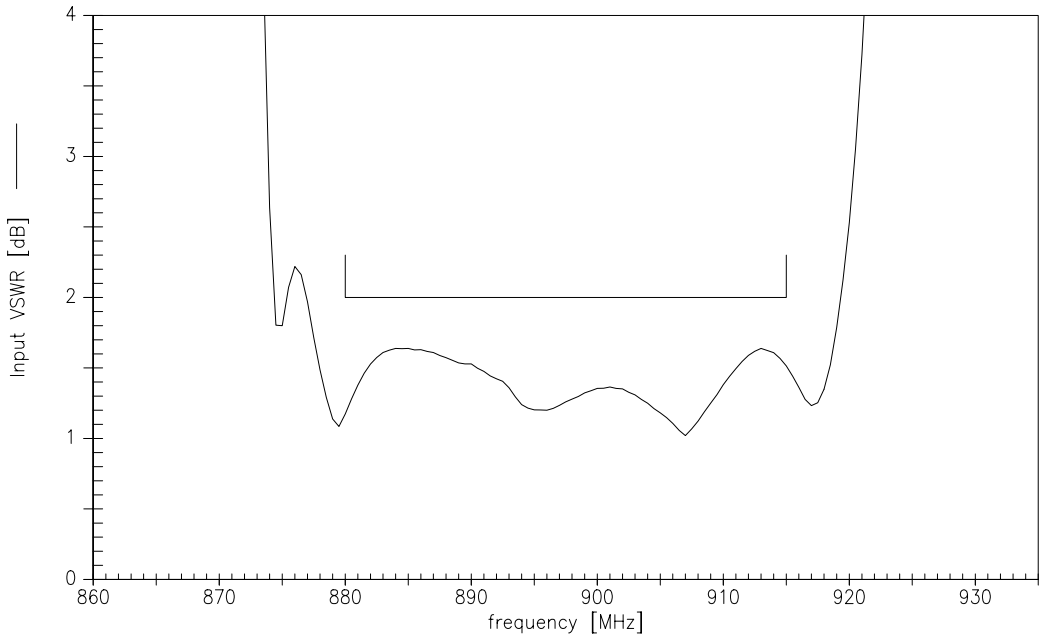
Transfer function (spec at 25 ˚C)



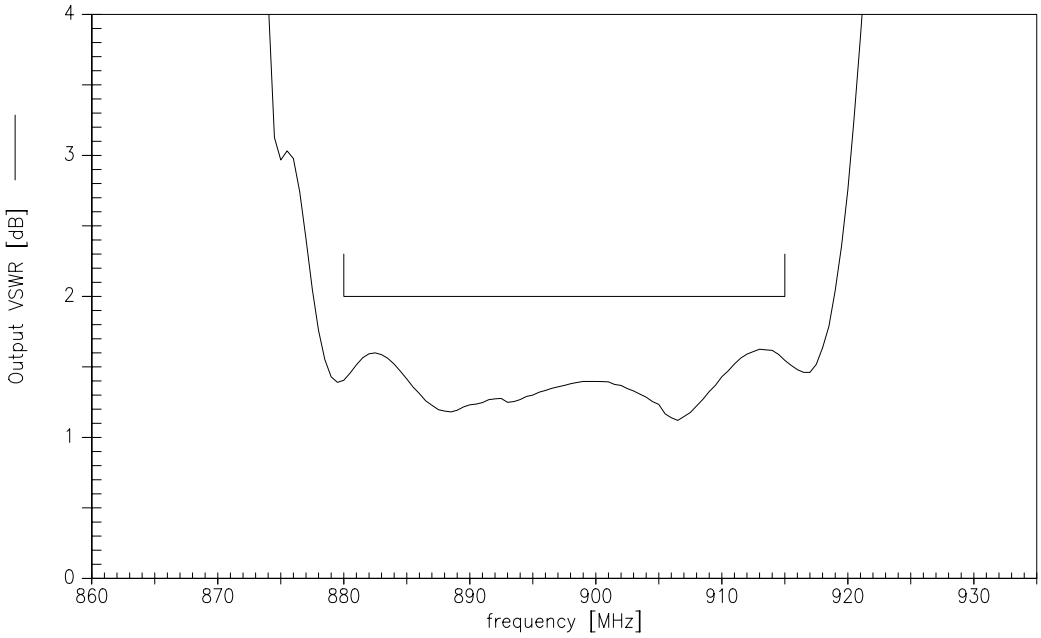
Transfer function (wideband)



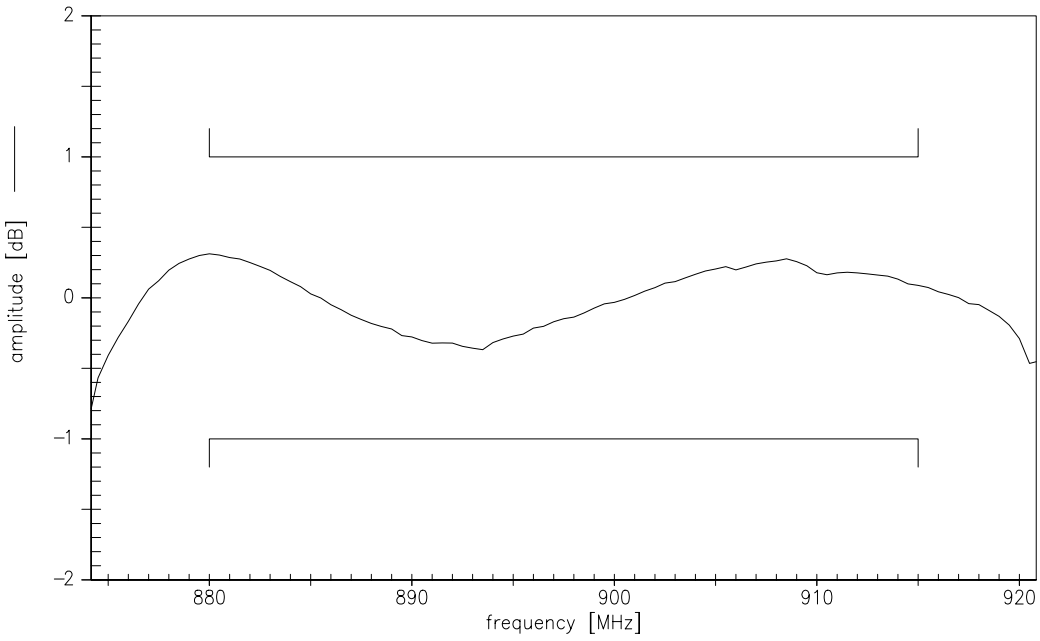
Input VSWR (spec at 25 ˚C)



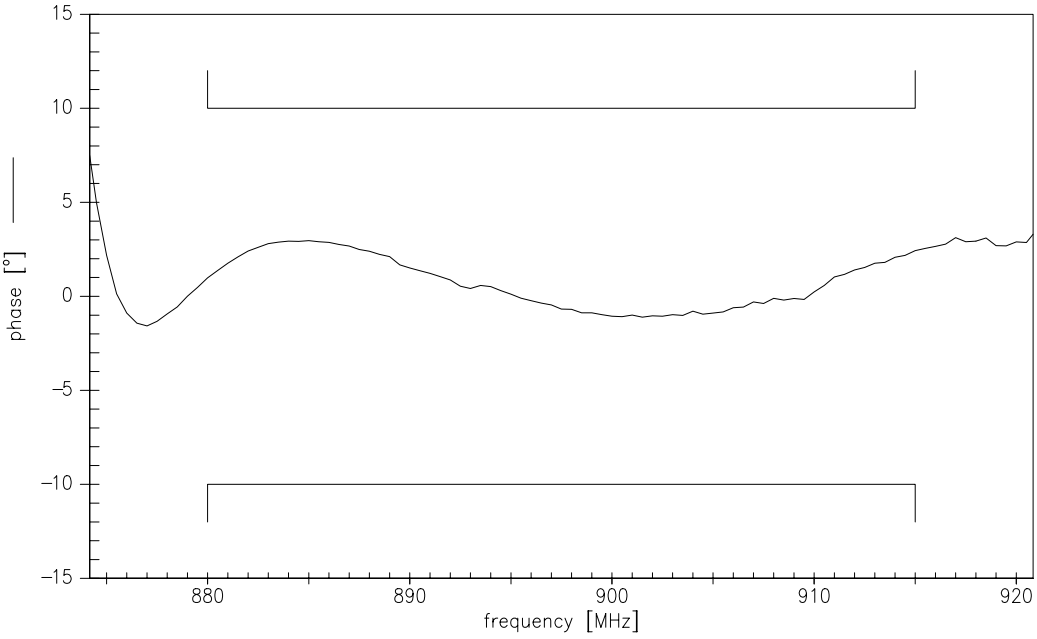
Output VSWR



Amplitude Symmetry $|S_{31}|/|S_{21}|$ (referenced to the matched operating condition)



Phase Symmetry $\arg(S_{31}/S_{21})$ - 180° (referenced to the matched operating condition)



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