



SAW Components

SAW Rx 2in1 filter

Cellular + PCS / WCDMA band V + WCDMA band II

Series/type:	B9318
Ordering code:	B39202B9318G110
Date:	March 08, 2007
Version:	2.0



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881.5 / 1960.0 MHz

Data sheet



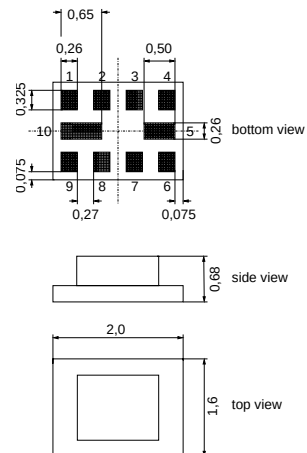
Application

- Low-loss RF filter for mobile telephone CDMA systems, receive path (Rx) of Cellular and PCS
- Also applicable for mobile phone WCDMA systems, receive path of Band V and BAND II
- Bandwidth
 - Filter 1 (Cellular): 25 MHz
 - Filter 2 (PCS): 60 MHz
- Impedance transformation from:
 - Filter 1 (Cellular): 50 Ω to 100 Ω
 - Filter 2 (PCS): 50 Ω to 100 Ω
- Unbalanced to balanced operation



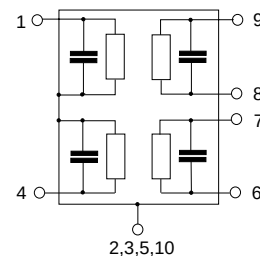
Features

- Package size 2.0 x 1.6 x 0.68 mm³
- Package code QCS10H
- RoHS compatible
- Approximate weight 0.008 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Electrostatic Sensitive Device (ESD)



Pin configuration

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





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Characteristics filter 1 (Cellular)

Temperature range for specification:

$T = -30\text{ °C to }+85\text{ °C}$

Terminating source impedance:

$Z_S = 50\ \Omega$ (unbalanced)

Terminating load impedance:

$Z_L = 100\ \Omega$ (balanced)

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	881.5	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$				
869.0 ... 894.0 MHz		—	1.7	2.4 ¹⁾	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869.0 ... 894.0 MHz		—	0.5	1.2	dB
Amplit. ripple over any 5MHz channel	$\Delta\alpha$				
869.0 ... 894.0 MHz		—	0.4	0.7	dB
Group delay over any 5MHz channel					
869.0 ... 894.0 MHz		—	15	40	ns
Input VSWR					
869.0 ... 894.0 MHz		—	1.6	2.0	
Output VSWR					
869.0 ... 894.0 MHz		—	1.7	2.0	
Output amplitude balance (S_{31} / S_{21})					
869.0 ... 894.0 MHz			-0.1/0.7	-1.0/1.0	dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)					
869.0 ... 894.0 MHz			-3/2	-5/+5	°
Attenuation	α				
0.0 ... 820.0 MHz		47	55	—	dB
820.0 ... 835.0 MHz		45	48	—	dB
835.0 ... 849.0 MHz		47	52	—	dB
914.0 ... 950.0 MHz		24	30	—	dB
950.0 ... 2000.0 MHz		45	52	—	dB
2000.0 ... 3000.0 MHz		40	47	—	dB
3000.0 ... 6000.0 MHz		40	45	—	dB

¹⁾ pcb loss of 0.1dB extracted



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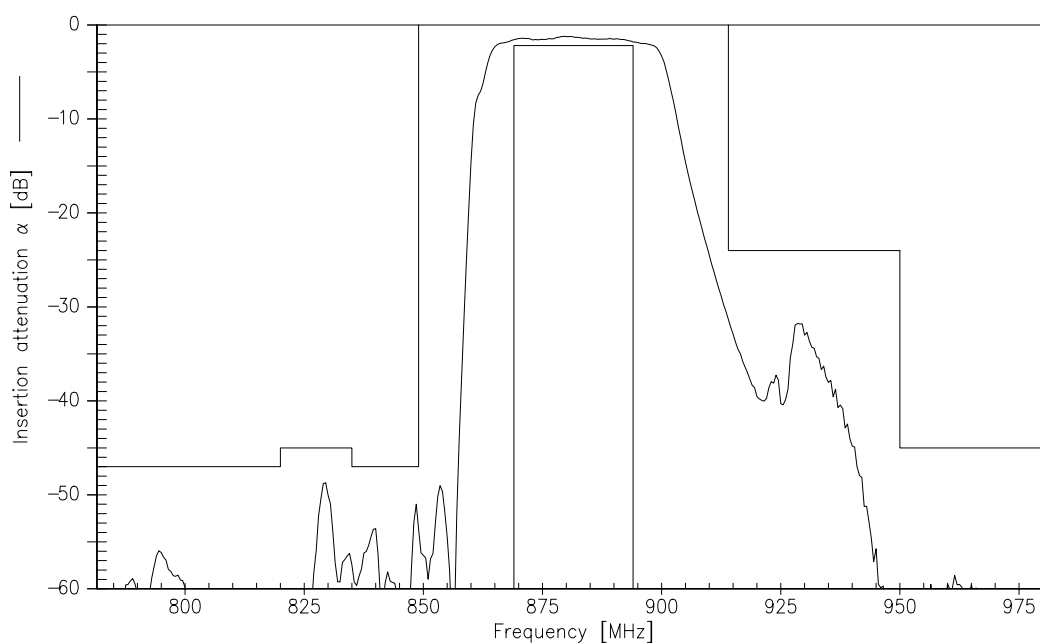
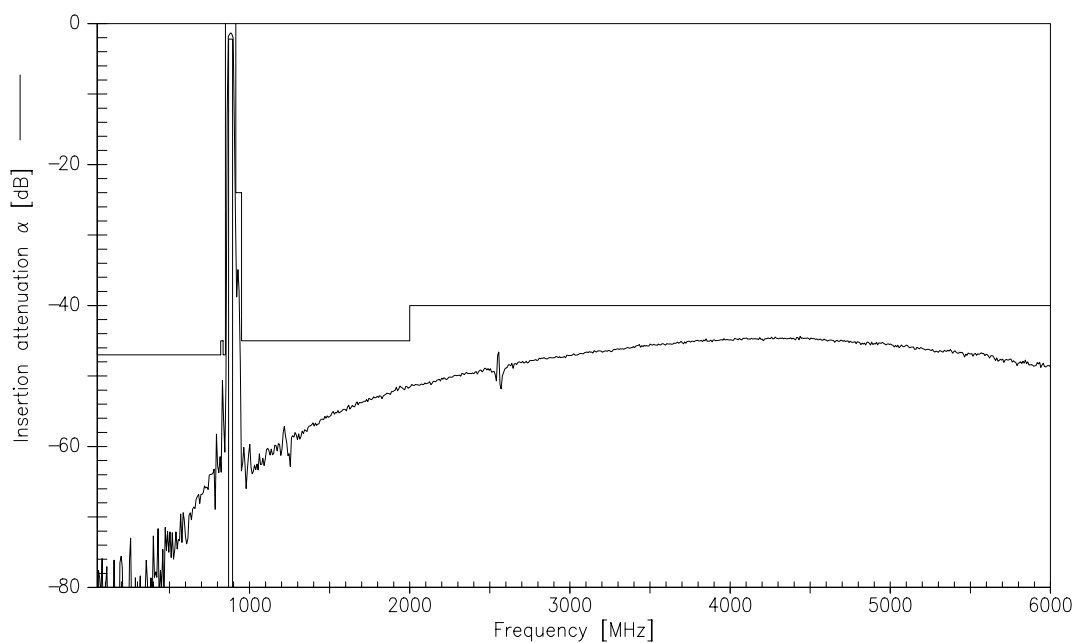
Data sheet



Maximum ratings

Operable temperature range	T	−30/+85	°C	machine model, 10 pulses continuous wave @ +55°C ambient
Storage temperature range	T _{stg}	−40/+85	°C	
DC voltage	V _{DC}	5	V	
ESD voltage	V _{ESD}	100 ¹⁾	V	
Input power at				
WCDMA band V	P _{IN}	10	dBm	
Tx band				

¹⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.

**Transfer function filter 1 (Cellular)****Transfer function filter 1 (Cellular) - wideband**



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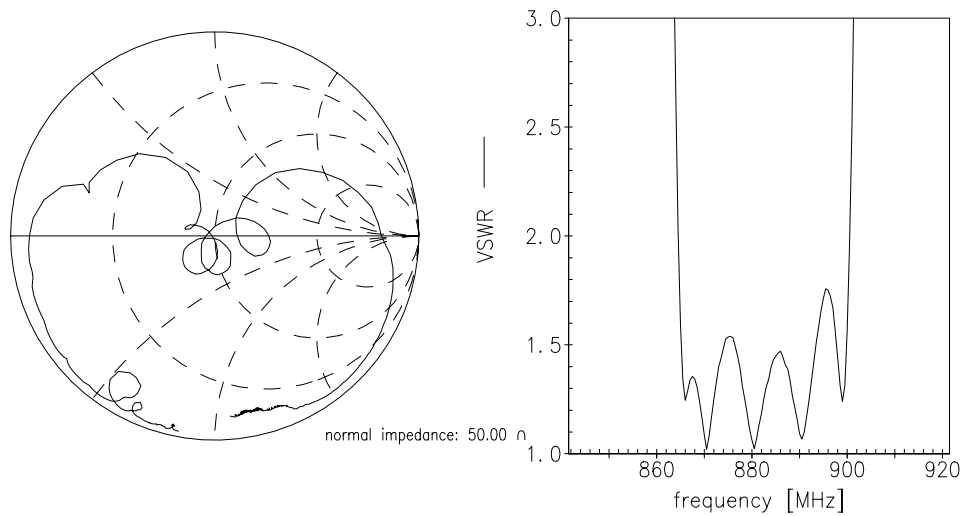
881.5 / 1960.0 MHz

Data sheet

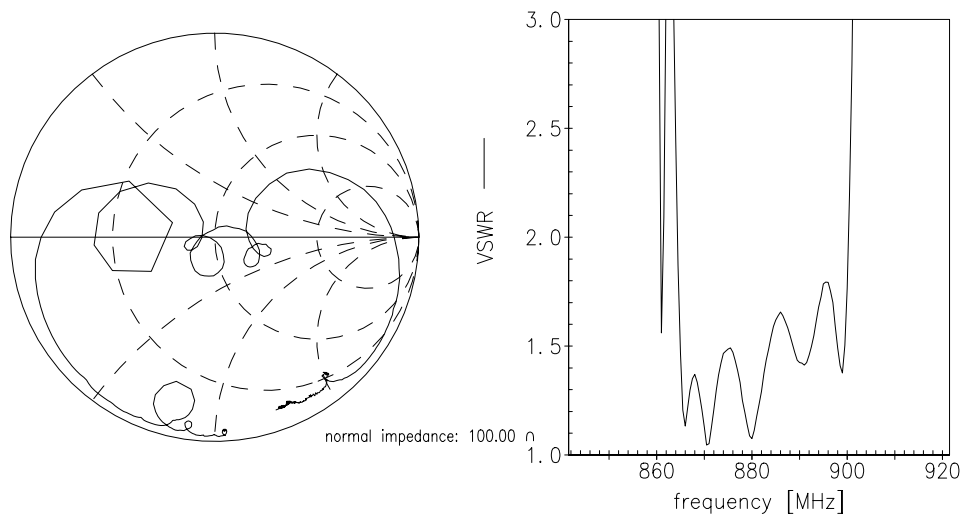


Smith charts filter 1 (Cellular)

S_{11} function



S_{22} function





SAW Components

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SAW Rx 2in1 filter

881.5 / 1960.0 MHz

Data sheet



Characteristics filter 1(PCS)

Temperature range for specification:

$T = -30\text{ °C to }+85\text{ °C}$

Terminating source impedance:

$Z_S = 50\ \Omega$ (unbalanced)

Terminating load impedance:

$Z_L = 100\ \Omega \parallel 13\text{ nH}$ (balanced)

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	1960.0	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$				
1930.6 ... 1989.4 MHz		—	1.8	2.6 ¹⁾	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1930.6 ... 1989.4 MHz		—	0.8	1.6 ²⁾	dB
Amplit. ripple over any 5MHz channel	$\Delta\alpha$				
1930.6 ... 1989.4 MHz		—	0.4	0.9 ³⁾	dB
Group delay over any 5MHz channel					
1930.6 ... 1989.4 MHz		—	23	30	ns
Input VSWR					
1930.6 ... 1989.4 MHz		—	1.5	2.1	
Output VSWR					
1930.6 ... 1989.4 MHz		—	1.5	2.1	
Output amplitude balance (S_{31} / S_{21})					
1930.6 ... 1989.4 MHz		-1.0	-0.5/0.3	1.0	dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)					
1930.6 ... 1989.4 MHz		-10	-4/4	10	°
Attenuation	α				
DC ... 1600.0 MHz		40	45	—	dB
1600.0 ... 1850.0 MHz		30	35	—	dB
1850.0 ... 1910.0 MHz		20	24	—	dB
2040.0 ... 2200.0 MHz		25	35	—	dB
2200.0 ... 2800.0 MHz		30	36	—	dB
2800.0 ... 3400.0 MHz		40	43	—	dB
3400.0 ... 6000.0 MHz		30	41	—	dB

¹⁾ Valid in temperature range -10 ... 80°C. Guaranteed for -30°C: 3.2 dB pcb loss of 0.2dB extracted.

²⁾ Valid in temperature range -10 ... 80°C. Guaranteed for -30°C: 2.2 dB

³⁾ Valid in temperature range -10 ... 80°C. Guaranteed for -30°C: 1.1 dB



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Maximum ratings

Operable temperature range	T	−30/+85	°C	machine model, 10 pulses
Storage temperature range	T _{stg}	−40/+85	°C	
DC voltage	V _{DC}	5	V	
ESD voltage	V _{ESD}	50 ¹⁾	V	
Input power at				continuous wave @ +55°C ambient
WCDMA band II	P _{IN}	10	dBm	
Tx band				

¹⁾ acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



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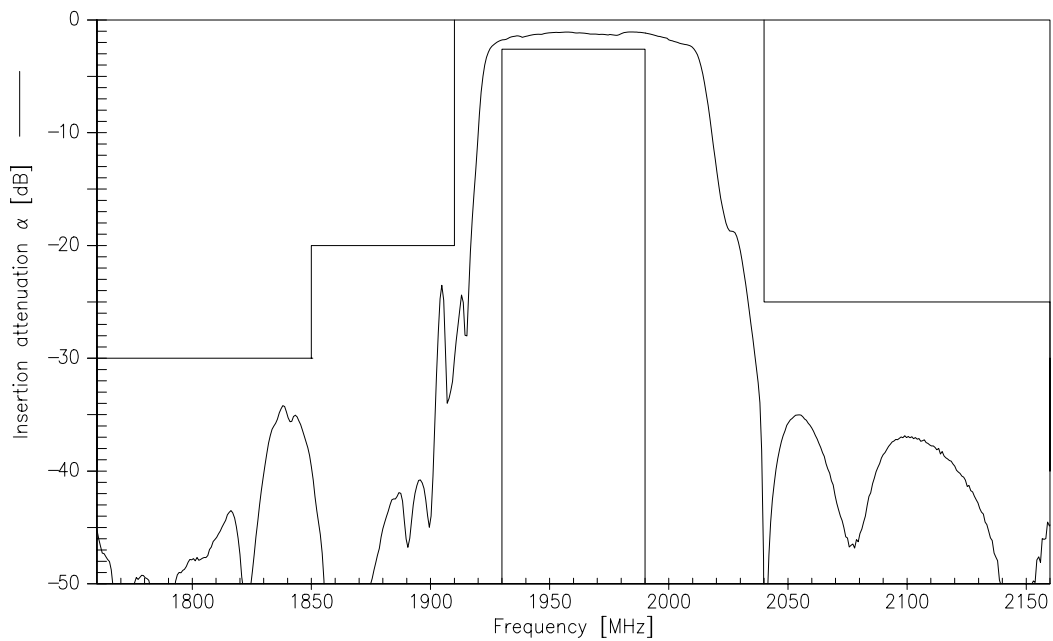
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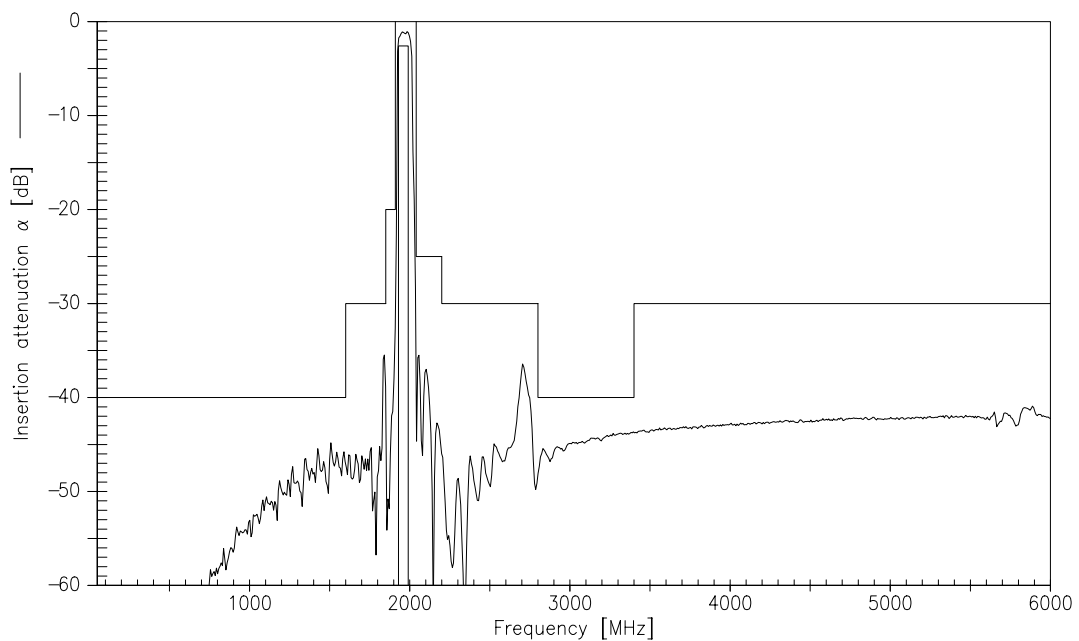
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Transfer function filter 2 (PCS)



Transfer function filter 2 (PCS) - wideband



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



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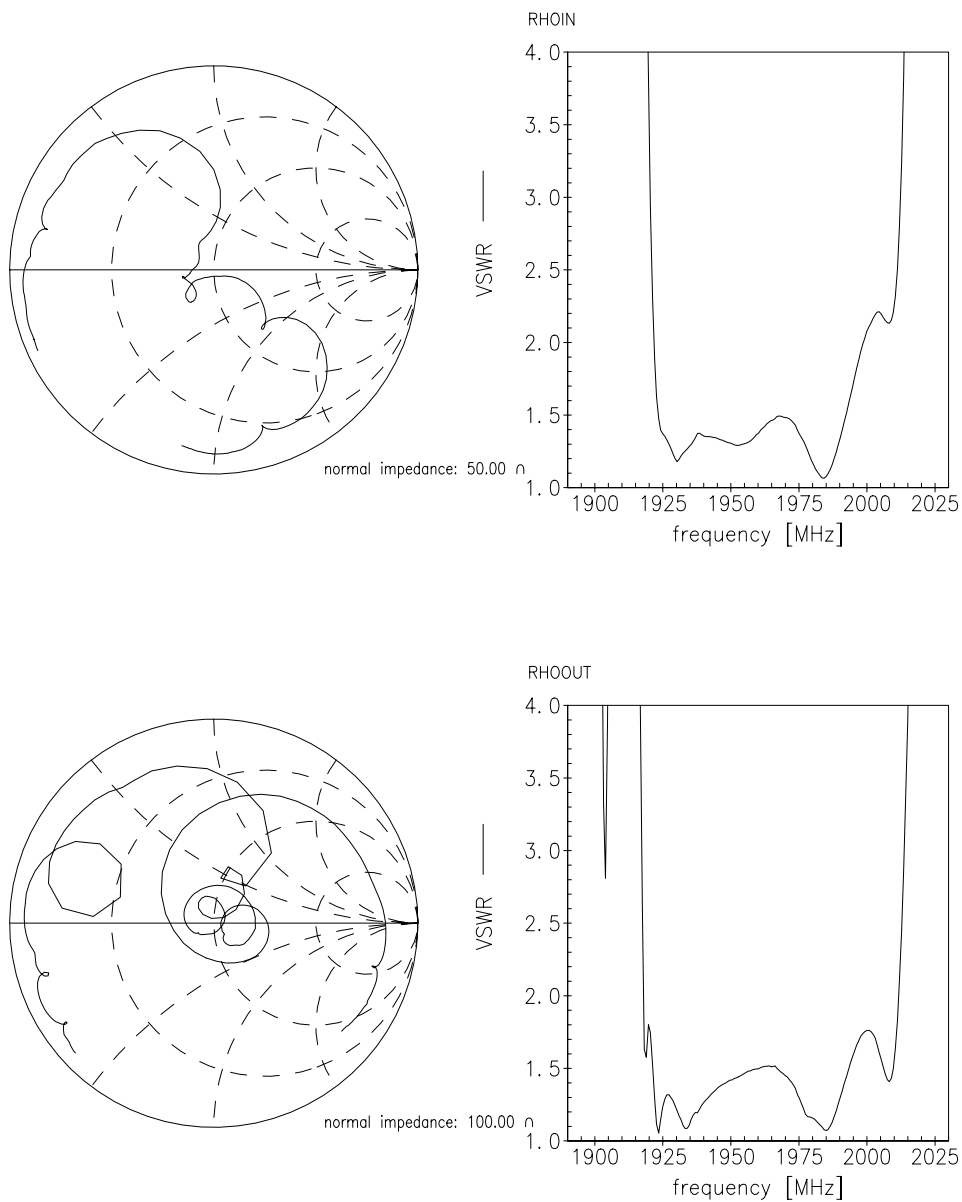
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Smith charts filter 2 (PCS)

S_{11} function



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**References**

Type	B9318
Ordering code	B39202B9318G110
Marking and package	C61157-A7-A141
Packaging	F61074-V8152-Z000
Date codes	L_1126
S-parameters	Cellular: B9318_LB_NB.s3p, B9318_LB_WB.s3p PCS: B9318_UB_NB.s3p, B9318_UB_WB.s3p
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."

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

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