



SAW Components

SAW Duplexer for Femtocell

Band 7 (3G/LTE)

Series/type:	B7943
Ordering code:	B39262B7943P810
Date:	November 7, 2014
Version:	2.1

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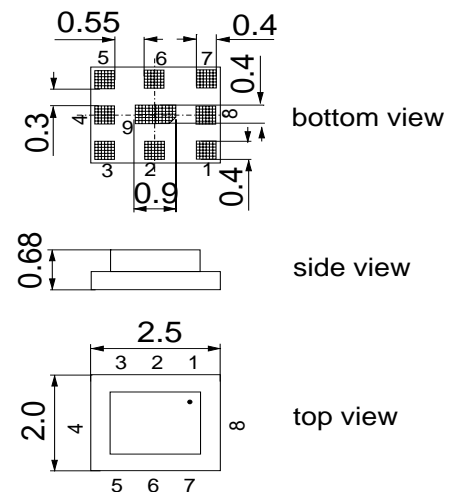
Data Sheet

Application

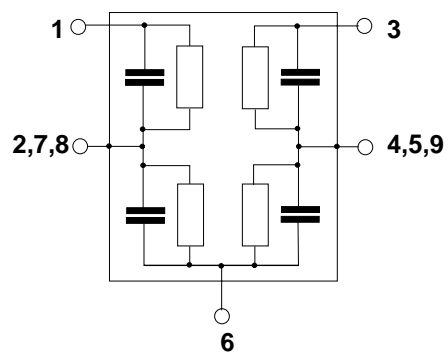
- Low-loss SAW duplexer for 3G/LTE femtocell systems (Band 7)
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 70 MHz
- High power durability
- Rx = Uplink = 2500-2570 MHz
- Tx = Downlink = 2620-2690 MHz


Features

- Package size 2.5 * 2.0 * 0.68 mm³
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Moisture Sensitivity Level 3


Pin configuration

- 3 RX output
- 1 TX input
- 6 Antenna
- 2, 4, 5, 7, 8, 9 To be grounded



Data Sheet

Characteristics

Temperature range for specification:	T = -10 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 3.3 nH
RX terminating impedance:	Z _{RX} = 50 Ω
TX terminating impedance:	Z _{TX} = 50 Ω

Characteristics ANT - RX		min.	typ. @ 25 °C	max.	
Center frequency	f _C		2535.0		MHz
Maximum insertion attenuation	α _{max}				
2500.0 ... 2570.0 MHz		-	2.6	4.0	dB
2507.0 ... 2565.0 MHz		-	2.6	3.2	dB
Amplitude ripple (p-p)	Δα				
2500.0 ... 2570.0 MHz		-	0.8	2.5	dB
2507.0 ... 2565.0 MHz		-	0.8	1.5	dB
Error Vector Magnitude	EVM ¹⁾				
@f _{carrier} 2502.4 ... 2567.6 MHz		-	1.9	3.0	%
Input VSWR (ANT port)					
2500.0 ... 2570.0 MHz		-	1.6	2.0	
Output VSWR (RX port)					
2500.0 ... 2570.0 MHz		-	1.8	2.0	
Attenuation	α				
120.0 ... 2400.0 MHz		40	43	-	dB
791.0 ... 960.0 MHz		45	70	-	dB
2110.0 ... 2170.0 MHz		43	46	-	dB
2400.0 ... 2450.0 MHz		30	38	-	dB
2450.0 ... 2470.0 MHz		15	27	-	dB
2470.0 ... 2480.0 MHz		7	18	-	dB
2480.0 ... 2500.0 MHz		1	3	-	dB
2620.0 ... 2690.0 MHz		50	53	-	dB
5000.0 ... 5140.0 MHz		35	40	-	dB

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

Data Sheet

Characteristics

Temperature range for specification:	T = -10 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 3.3 nH
RX terminating impedance:	Z _{RX} = 50 Ω
TX terminating impedance:	Z _{TX} = 50 Ω

Characteristics TX - ANT		min.	typ. @ 25 °C	max.	
Center frequency	f _C		2655.0		MHz
Maximum insertion attenuation 2620.0 ... 2690.0 MHz	α _{max}	-	1.9	2.5	dB
Amplitude ripple (p-p) 2620.0 ... 2690.0 MHz	Δα	-	0.7	1.5	dB
Error Vector Magnitude @f _{carrier} 2622.4 ... 2687.6 MHz	EVM ¹⁾	-	0.9	2.0	%
Input VSWR (TX port) 2620.0 ... 2690.0 MHz		-	1.5	2.1	
Output VSWR (ANT port) 2620.0 ... 2690.0 MHz		-	1.7	2.0	
Attenuation	α				
10.0 ... 2400.0 MHz		30	35	-	dB
832.0 ... 915.0 MHz		40	46	-	dB
1574.0 ... 1576.0 MHz		35	37	-	dB
1920.0 ... 1980.0 MHz		30	35	-	dB
2400.0 ... 2500.0 MHz		40	46	-	dB
2500.0 ... 2570.0 MHz		42	45	-	dB
2775.0 ... 5240.0 MHz		30	41	-	dB
5240.0 ... 5380.0 MHz		35	40	-	dB

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

Data Sheet

Characteristics

Temperature range for specification:	T = -10 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 3.3 nH
RX terminating impedance:	Z _{RX} = 50 Ω
TX terminating impedance:	Z _{TX} = 50 Ω

Characteristics RX-TX				min.	typ. @ 25 °C	max.	
Attenuation							
			α				
	2500.0 ... 2570.0	MHz		48	50	-	dB
	2620.0 ... 2690.0	MHz		48	52	-	dB

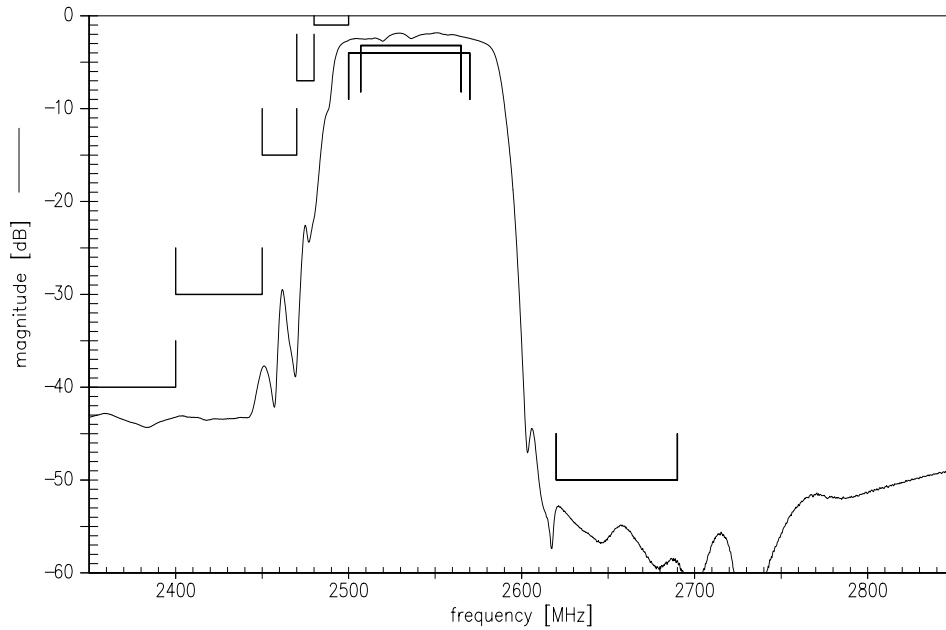
Maximum Ratings

Storage temperature range	T _{stg}	-40/+85	°C	machine model, 1 pulse source and load impedance 50 Ω LTE 5 MHz downlink } average power T = 55°C, 50.000 h
DC voltage	V _{DC}	0	V	
ESD voltage	V _{ESD}	50 ¹⁾	V	
Input power at pin 1				
	2620.0 ... 2690.0 MHz	P _{in}	28	dBm
	elsewhere	P _{in}	10	dBm

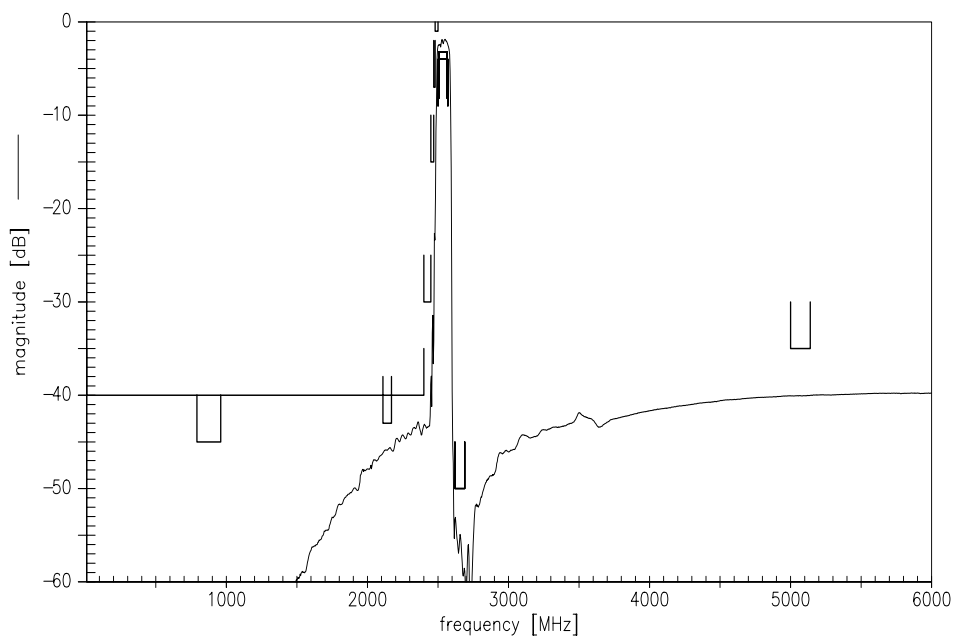
¹⁾ According to JESD22-A115A (machine model), 1 negative and 1 positive pulses.



Frequency Response ANT-RX

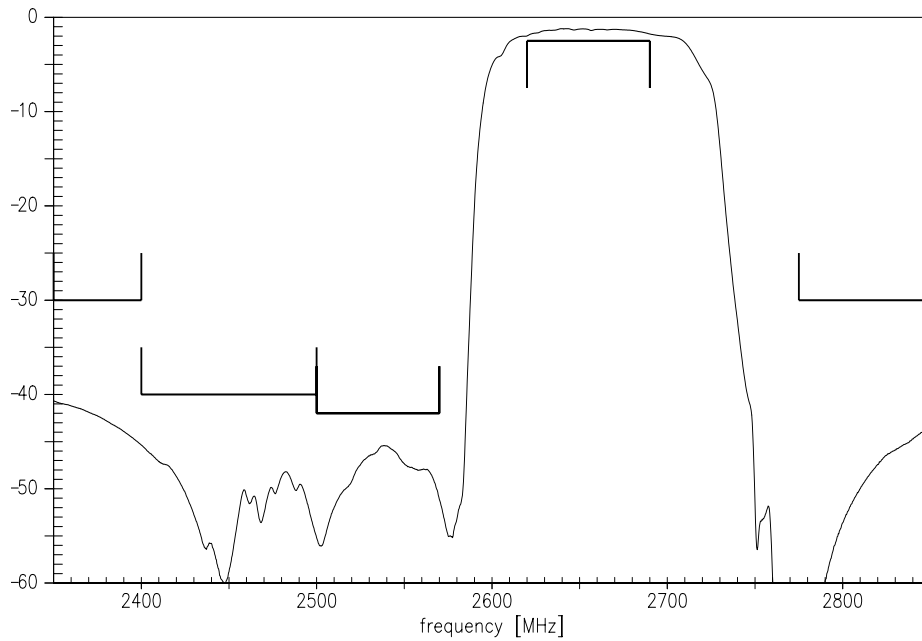


Frequency Response ANT-RX

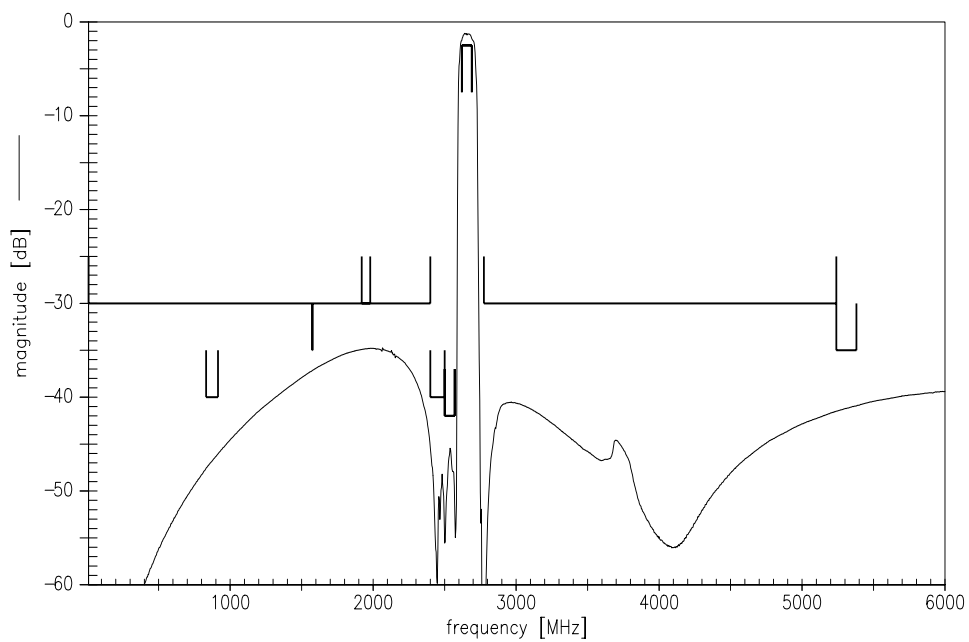




Frequency Response TX-ANT

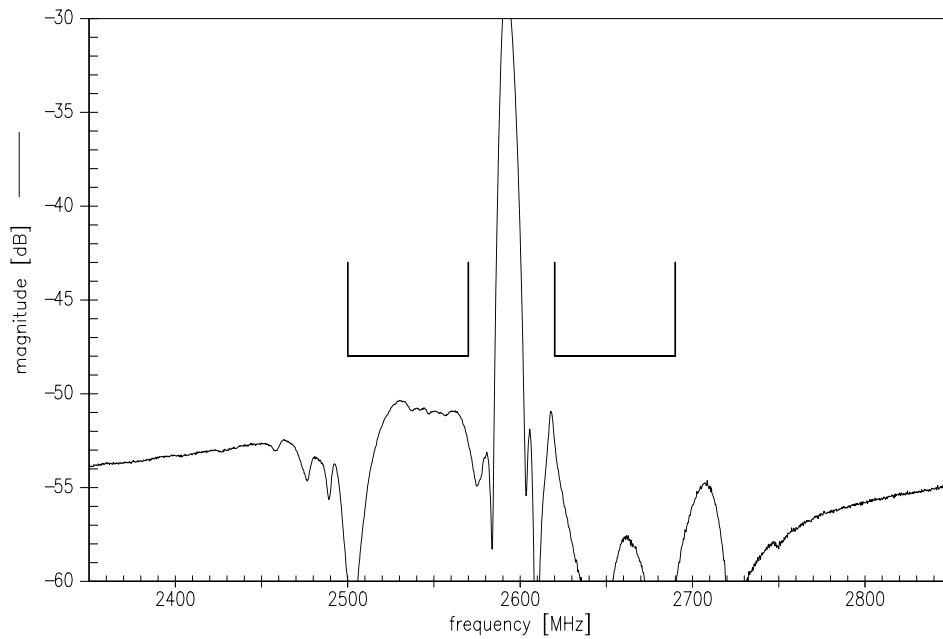


Frequency Response TX-ANT

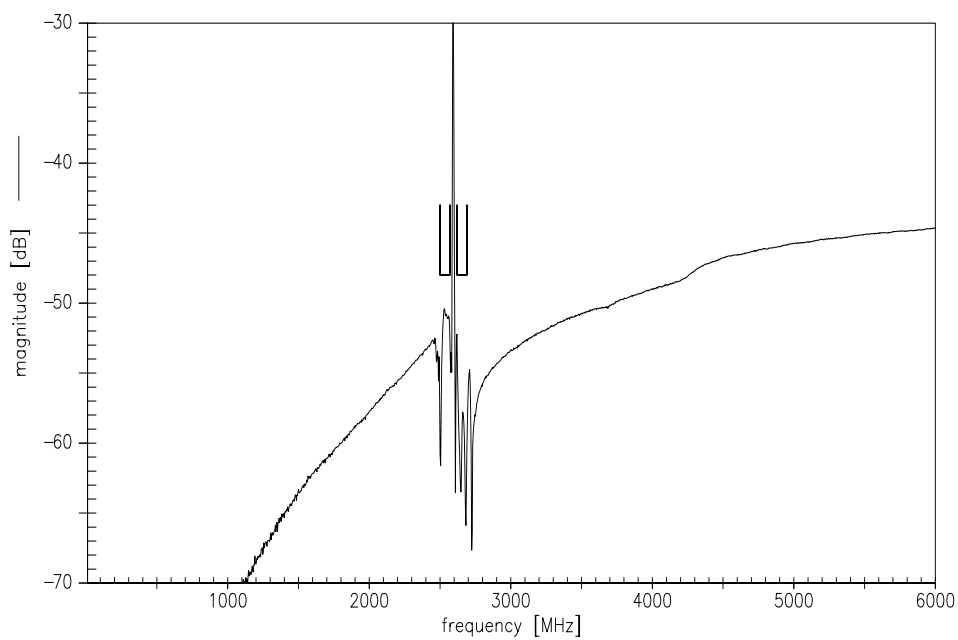




Frequency Response RX-TX



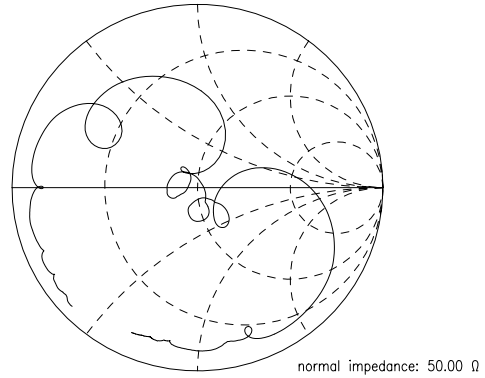
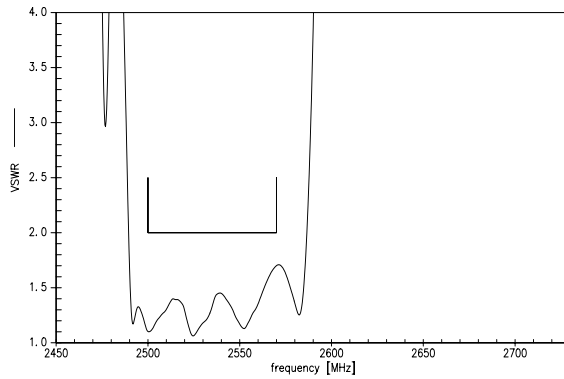
Frequency Response RX-TX



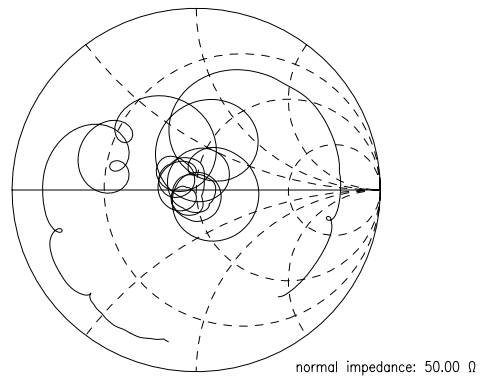
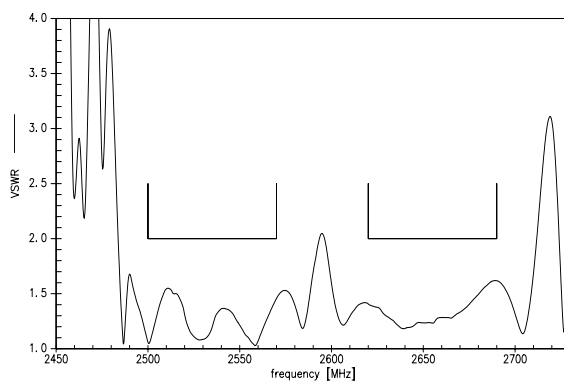
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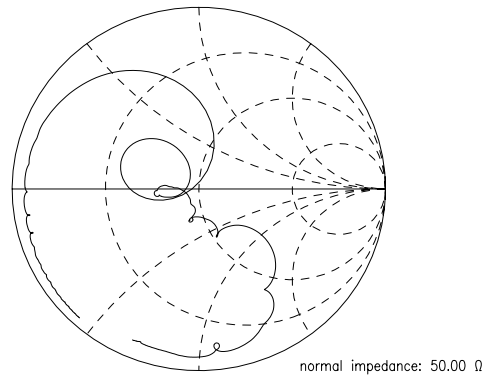
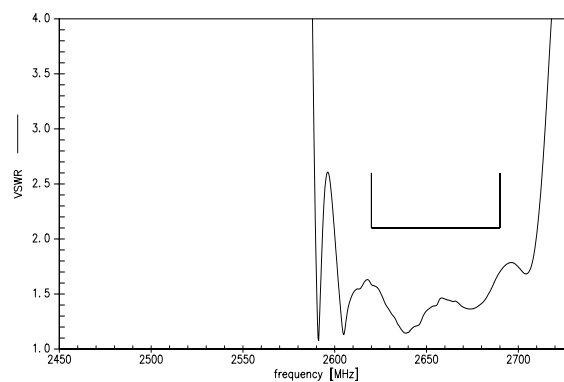
S11 VSWR (RX)



S22 VSWR (ANT)



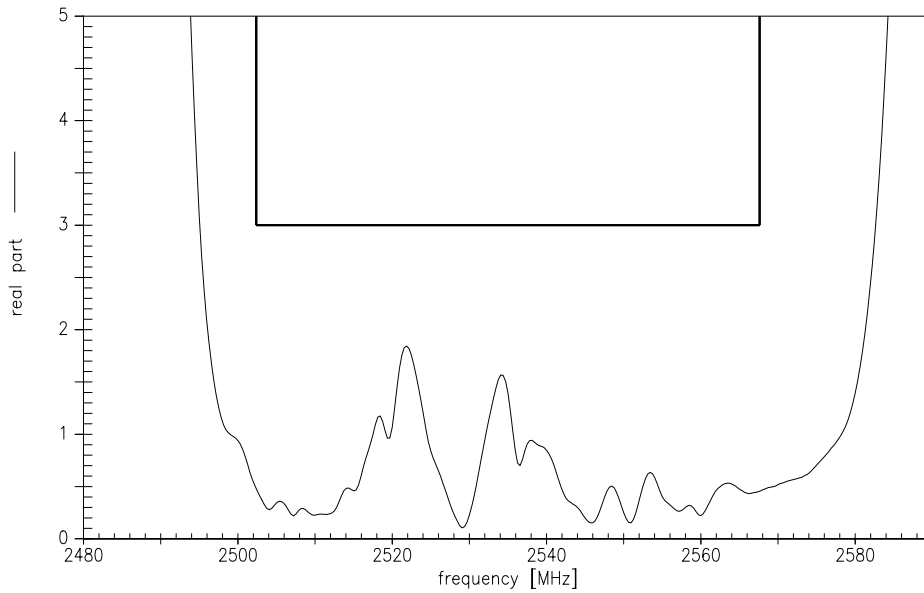
S33 VSWR (TX)



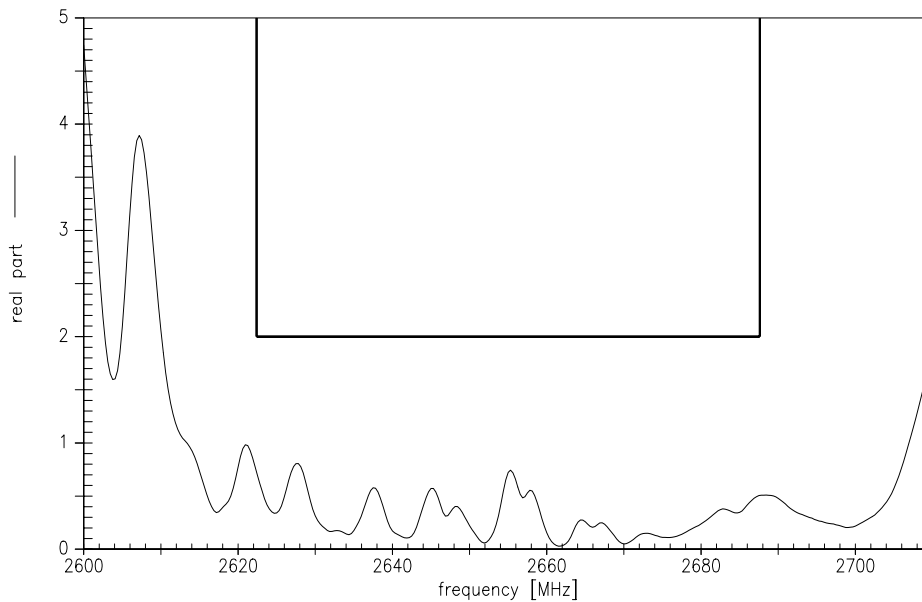
Data Sheet



EVM RX



EVM TX



Data Sheet



References

Type	B7943
Ordering code	B39262B7943P810
Marking and package	C61157-A7-A173
Packaging	F61074-V8153-Z000
Date codes	L_1126
S-parameters	B7943_NB.s3p, B7943_WB.s3p See file header for port/pin assignment table.
Soldering profile	S_6001
RoHS compatible	RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8 th , 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.
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