SONY

3P10T Antenna Switch for GSM/UMTS Dual Mode Phones

CXM3543AER

Description

The CXM3543AER is 3P10T anntena switch for quad bands GSM and quad bands UMTS dual mode.
This IC has a decoder circuit which supports CMOS control.
Sony JPHEMT GaAs process is utilized for low insertion loss and high linearity.
(Applications: Quad bands GSM and quad bands UMTS dual mode phones)

Features

- ◆ Low insertion loss
- ◆ Low voltage drive: 2.5 to 3.3V
- ◆ Supports CMOS control
- ◆ High ESD resistance
- ◆ Eliminates Output DC Blocking Capacitors to RF ports
- ◆ Small package: VQFN-34P (3.8mm × 4.4mm × 0.85mm Max.)
- ◆ Lead-Free and RoHS Compliant

Package

VQFN-34P (3.8mm × 4.4mm × 0.85mm Max.)

Structure

GaAs Junction Gate pHEMT (JPHEMT) MMIC Switch, CMOS Decoder

This IC is ESD sensitive device. Special handling precautions are required.

Absolute Maximum Ratings

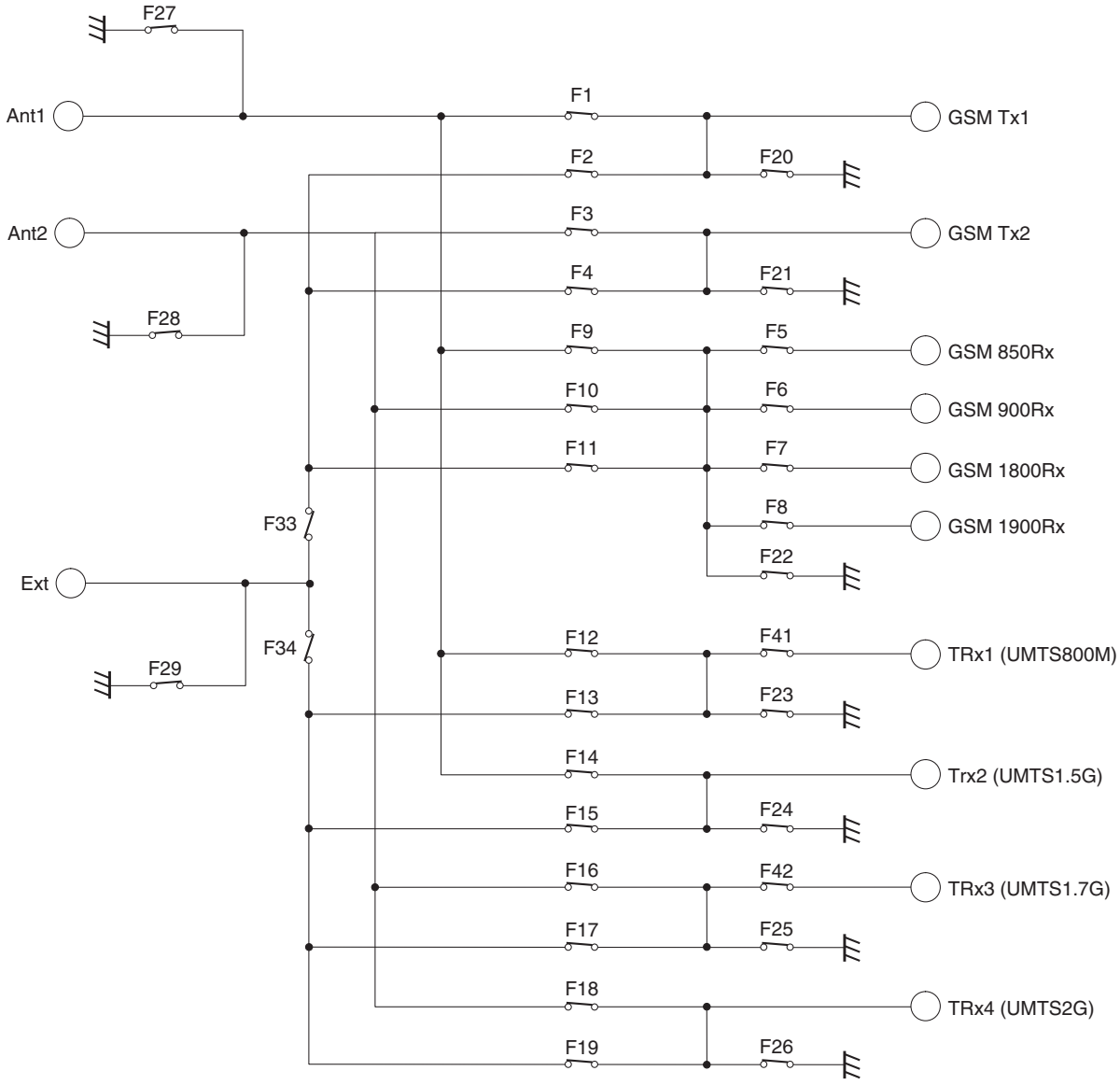
◆ Supply voltage	V_{DD}	3.6	V	(Ta = 25℃)
◆ Control voltage	Vctl	3.6	V	(Ta = 25℃)
◆ Maximum input	[GSM Tx1]	36	dBm	(Duty cycle = 12.5%) (Ta = 25℃)
◆	[GSM Tx2]	34	dBm	(Duty cycle = 12.5%) (Ta = 25℃)
◆	[UMTS800M/1.5G/1.7G/2G]	32	dBm	(Ta = 25℃)
◆	[GSM850/900/1800/1900 Rx]	13	dBm	(Ta = 25℃)
◆ Operating temperature	Topr	–30 to +90	℃	
◆ Storage temperature	Tstg	–65 to +150	℃	

DC Bias Conditions

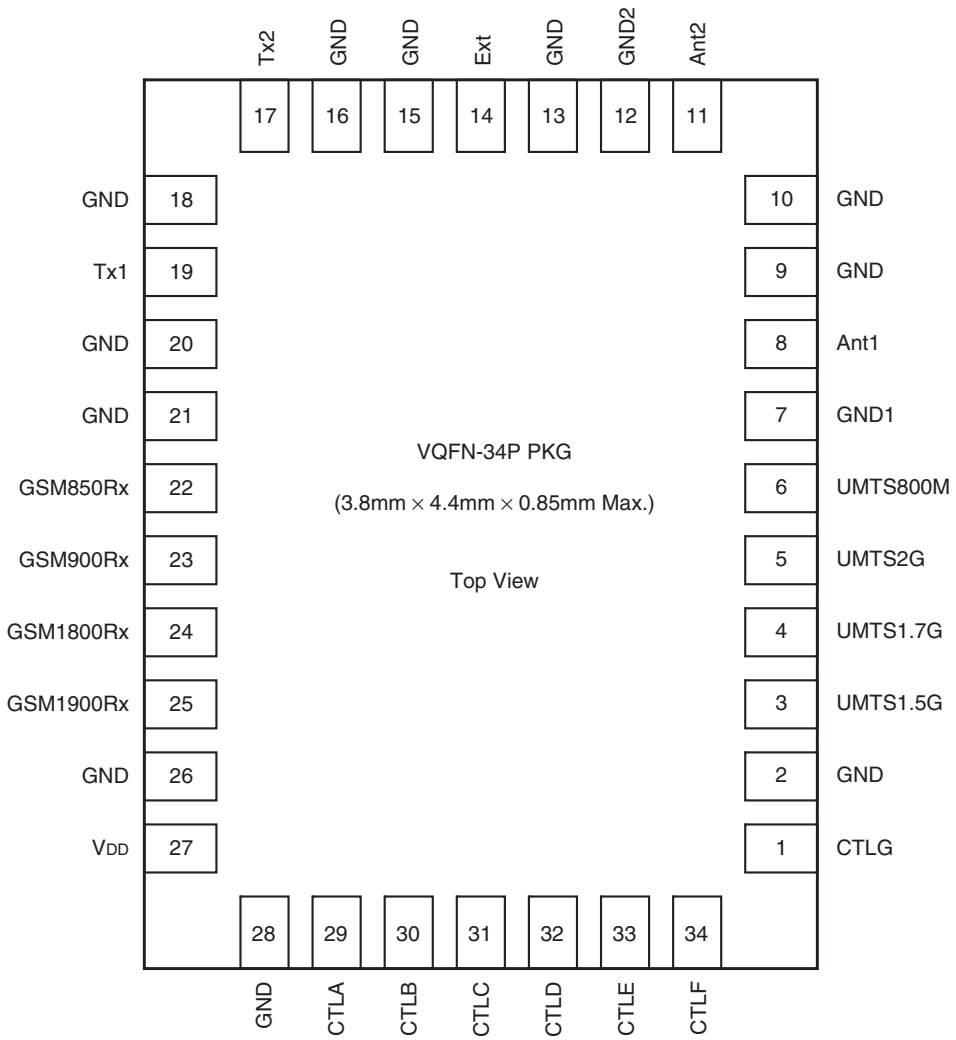
(Ta = –30 to +85℃)

Item	Min.	Typ.	Max.	Unit
V_{DD}	2.5	2.9	3.3	V
Vctl (H)	1.5	2.9	3.3	V
Vctl (L)	0	—	0.3	V

Block Diagram



Pin Configuration



Truth Table

	GSM/ UMTS	GSM BAND1	GSM BAND2	GSM Rx/Tx	UMTS BAND1	UMTS BAND2	Ant/ Ext																				
State	CTLA	CTLB	CTLC	CTLD	CTLE	CTLF	CTLG	Active Port	Active Ant	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19
1	H	H	L	L	—	—	H	GSM 850Rx	ANT1	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	H	H	H	L	—	—	H	GSM 900Rx	ANT1	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	H	L	L	L	—	—	H	GSM 1800Rx	ANT2	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4	H	L	H	L	—	—	H	GSM 1900Rx	ANT2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
5	H	H	—	H	—	—	H	GSM Tx1	ANT1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
6	H	L	—	H	—	—	H	GSM Tx2	ANT2	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
7	L	—	—	—	L	H	H	UMTS800M	ANT1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
8	L	—	—	—	H	L	H	UMTS1.5G	ANT1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
9	L	—	—	—	H	H	H	UMTS1.7G	ANT2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
10	L	—	—	—	L	L	H	UMTS2G	ANT2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
11	H	H	L	L	—	—	L	GSM 850Rx	EXT	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12	H	H	H	L	—	—	L	GSM 900Rx	EXT	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
13	H	L	L	L	—	—	L	GSM 1800Rx	EXT	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
14	H	L	H	L	—	—	L	GSM 1900Rx	EXT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
15	H	H	—	H	—	—	L	GSM Tx1	EXT	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
16	H	L	—	H	—	—	L	GSM Tx2	EXT	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
17	L	—	—	—	L	H	L	UMTS800M	EXT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
18	L	—	—	—	H	L	L	UMTS1.5G	EXT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
19	L	—	—	—	H	H	L	UMTS1.7G	EXT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
20	L	—	—	—	L	L	L	UMTS2G	EXT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

	GSM/ UMTS	GSM BAND1	GSM BAND2	GSM Rx/Tx	UMTS BAND1	UMTS BAND2	Ant/Ext																	
State	CTLA	CTLB	CTLC	CTLD	CTLE	CTL	CTLG	Active Port	Active Ant	F20	F21	F22	F23	F24	F25	F26	F27	F28	F29	F33	F34	F41	F42
1	H	H	L	L	—	—	H	GSM 850Rx	ANT1	ON	ON	OFF	ON	ON	ON	ON	OFF	ON	ON	OFF	OFF	ON	ON
2	H	H	H	L	—	—	H	GSM 900Rx	ANT1	ON	ON	OFF	ON	ON	ON	ON	OFF	ON	ON	OFF	OFF	ON	ON
3	H	L	L	L	—	—	H	GSM 1800Rx	ANT2	ON	ON	OFF	ON	ON	ON	ON	ON	OFF	ON	OFF	OFF	ON	ON
4	H	L	H	L	—	—	H	GSM 1900Rx	ANT2	ON	ON	OFF	ON	ON	ON	ON	ON	OFF	ON	OFF	OFF	ON	ON
5	H	H	—	H	—	—	H	GSM Tx1	ANT1	OFF	ON	ON	ON	ON	ON	ON	OFF	ON	ON	OFF	OFF	OFF	ON
6	H	L	—	H	—	—	H	GSM Tx2	ANT2	ON	OFF	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	OFF	ON	OFF
7	L	—	—	—	L	H	H	UMTS800M	ANT1	ON	ON	ON	OFF	ON	ON	ON	OFF	ON	ON	OFF	OFF	ON	ON
8	L	—	—	—	H	L	H	UMTS1.5G	ANT1	ON	ON	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	OFF	ON	ON
9	L	—	—	—	H	H	H	UMTS1.7G	ANT2	ON	ON	ON	ON	ON	OFF	ON	ON	OFF	ON	OFF	OFF	ON	ON
10	L	—	—	—	L	L	H	UMTS2G	ANT2	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	ON	OFF	OFF	ON	ON
11	H	H	L	L	—	—	L	GSM 850Rx	EXT	ON	ON	OFF	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	ON	ON
12	H	H	H	L	—	—	L	GSM 900Rx	EXT	ON	ON	OFF	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	ON	ON
13	H	L	L	L	—	—	L	GSM 1800Rx	EXT	ON	ON	OFF	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	ON	ON
14	H	L	H	L	—	—	L	GSM 1900Rx	EXT	ON	ON	OFF	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	ON	ON
15	H	H	—	H	—	—	L	GSM Tx1	EXT	OFF	ON	ON	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	OFF	ON
16	H	L	—	H	—	—	L	GSM Tx2	EXT	ON	OFF	ON	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	ON	OFF
17	L	—	—	—	L	H	L	UMTS800M	EXT	ON	ON	ON	OFF	ON	ON	ON	ON	ON	OFF	OFF	ON	ON	ON
18	L	—	—	—	H	L	L	UMTS1.5G	EXT	ON	ON	ON	ON	OFF	ON	ON	ON	ON	OFF	OFF	ON	ON	ON
19	L	—	—	—	H	H	L	UMTS1.7G	EXT	ON	ON	ON	ON	ON	OFF	ON	ON	ON	OFF	OFF	ON	ON	ON
20	L	—	—	—	L	L	L	UMTS2G	EXT	ON	ON	ON	ON	ON	ON	OFF	ON	ON	OFF	OFF	ON	ON	ON

Electrical Characteristics 1

(Ta = 25°C)

Item	Freq [MHz]	Min.	Typ.	Max.	Unit	Conditions
Bias current	—		260	500	μA	V_{DD} = 2.9V, Vctl = 0V
Ctrl current 1	—		0.01	10	μA	V_{DD} = 2.9V, Vctl = 2.9V
Ctrl current 2	—		0.01	1	μA	V_{DD} = 0V, Vctl = 2.9V
Wake up time	—		—	100	μs	V_{DD} = 0 to 2.9V
Switching speed	—		—	5	μs	

UMTS800M

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 26dBm)

Item	Freq [MHz]	UMTS800M - Ant1			UMTS800M - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	824 to 849		0.52	0.67		0.62	0.85	dB	
	869 to 894		0.52	0.67		0.62	0.85	dB	
VSWR	824 to 849		1.1	1.5		1.1	1.5	—	UMTS800M Port
			1.1	1.5		1.1	1.5	—	Ant1, Ext Port
	869 to 894		1.1	1.5		1.1	1.5	—	UMTS800M Port
			1.1	1.5		1.1	1.5	—	Ant1, Ext Port
SW isolation	824 to 849	—	—	—	16	33		dB	When UMTS800M - Ant1 measurement
		16	39		16	43		dB	When UMTS800M - Ant2 measurement
		16	39		—	—	—	dB	When UMTS800M - Ext measurement
	869 to 894	—	—	—	16	33		dB	When UMTS800M - Ant1 measurement
		16	38		16	42		dB	When UMTS800M - Ant2 measurement
		16	38		—	—	—	dB	When UMTS800M - Ext measurement
In-Rx band spurious	869 to 894		—	–125		—	–125	dBm	
Harmonics	1648 to 1698		—	–44		—	–44	dBm	
	2472 to 2547		—	–44		—	–44	dBm	
	3296 to 3396		—	–44		—	–44	dBm	
ACLR	824 to 849 ±5MHz		—	–50		—	–50	dBc	RBW = 30kHz, Channel power measurement (Bandwidth 3.84MHz)
	824 to 849 ±10MHz		—	–55		—	–55	dBc	
IMD2 * Mounted recommended circuit	fblock = 45		–118	–111		–120	–111	dBm	PTx = 21dBm Pblock = –15dBm * The IMD characteristics are design guaranteed.
	fblock = 1715		–122	–111		–118	–111	dBm	
IMD3 * Mounted recommended circuit	fblock = 790		–110	–105		–110	–105	dBm	

UMTS1.5G

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 26dBm)

Item	Freq [MHz]	UMTS1.5G - Ant1			UMTS1.5G - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1427 to 1453		0.58	0.73		0.70	0.85	dB	
	1475 to 1501		0.60	0.75		0.70	0.85	dB	
VSWR	1427 to 1453		1.2	1.5		1.1	1.5	—	UMTS1.5G Port
			1.2	1.5		1.1	1.5	—	Ant1, Ext Port
	1475 to 1501		1.2	1.5		1.1	1.5	—	UMTS1.5G Port
			1.2	1.5		1.1	1.5	—	Ant1, Ext Port
SW isolation	1427 to 1453	—	—	—	16	36		dB	When UMTS1.5G - Ant1 measurement
		16	30		16	39		dB	When UMTS1.5G - Ant2 measurement
		16	30		—	—	—	dB	When UMTS1.5G - Ext measurement
	1475 to 1501	—	—	—	16	36		dB	When UMTS1.5G - Ant1 measurement
		16	30		16	39		dB	When UMTS1.5G - Ant2 measurement
		16	30		—	—	—	dB	When UMTS1.5G - Ext measurement
In-Rx band spurious	1475 to 1501		—	–125		—	–125	dBm	
Harmonics	2854 to 2906		—	–44		—	–44	dBm	
	4281 to 4359		—	–44		—	–44	dBm	
	5708 to 5812		—	–44		—	–44	dBm	
ACLR	1427 to 1453 ±5MHz		—	–50		—	–50	dBc	RBW = 30kHz, Channel power measurement (Bandwidth 3.84MHz)
	1427 to 1453 ±10MHz		—	–55		—	–55	dBc	
IMD2 * Mounted recommended circuit	fblock = 48		–113	–106		–116	–106	dBm	PTx = 21dBm Pblock = –15dBm * The IMD characteristics are design guaranteed.
	fblock = 2924		–111	–106		–106	–101	dBm	
IMD3 * Mounted recommended circuit	fblock = 1390		–108	–103		–108	–103	dBm	
	fblock = 4362		–114	–106		–111	–106	dBm	

UMTS1.7G

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 26dBm)

Item	Freq [MHz]		UMTS1.7G - Ant2			UMTS1.7G - Ext			Unit	Conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1749 to 1785			0.64	0.77		0.87	0.99	dB	
	1844 to 1880			0.67	0.79		0.92	1.04	dB	
VSWR	1749 to 1785			1.2	1.5		1.05	1.5	—	UMTS1.7G Port
				1.2	1.5		1.05	1.5	—	Ant2, Ext Port
	1844 to 1880			1.2	1.5		1.05	1.5	—	UMTS1.7G Port
				1.2	1.5		1.05	1.5	—	Ant2, Ext Port
SW isolation	1749 to 1785		16	31		16	42		dB	When UMTS1.7G - Ant1 measurement
			—	—	—	16	28		dB	When UMTS1.7G - Ant2 measurement
			16	26		—	—	—	dB	When UMTS1.7G - Ext measurement
	1844 to 1880		16	30		16	42		dB	When UMTS1.7G - Ant1 measurement
			—	—	—	16	28		dB	When UMTS1.7G - Ant2 measurement
			16	26		—	—	—	dB	When UMTS1.7G - Ext measurement
In-Rx band spurious	1844 to 1880			—	–125		—	–125	dBm	
Harmonics	3498 to 3570			—	–44		—	–44	dBm	
	5247 to 5355			—	–44		—	–44	dBm	
	6996 to 7140			—	–44		—	–44	dBm	
ACLR	1749 to 1785	±5MHz		—	–50		—	–50	dBc	RBW = 30kHz, Channel power measurement (Bandwidth 3.84MHz)
	1749 to 1785	±10MHz		—	–55		—	–55	dBc	
IMD2 * Mounted recommended circuit	fblock = 95			–111	–106		–112	–106	dBm	PTx = 21dBm Pblock = –15dBm * The IMD characteristics are design guaranteed.
	fblock = 3625			–110	–105		–106	–101	dBm	
IMD3 * Mounted recommended circuit	fblock = 1670			–111	–106		–107	–102	dBm	
	fblock = 5390			–114	–106		–109	–104	dBm	

UMTS2G

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 26dBm)

Item	Freq [MHz]	UMTS2G - Ant2			UMTS2G - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1920 to 1980		0.63	0.75		0.87	0.99	dB	
	2110 to 2170		0.69	0.81		0.98	1.10	dB	
VSWR	1920 to 1980		1.2	1.5		1.05	1.5	—	UMTS2G Port
			1.2	1.5		1.1	1.5	—	Ant2, Ext Port
	2110 to 2170		1.2	1.5		1.1	1.5	—	UMTS2G Port
			1.15	1.5		1.1	1.5	—	Ant2, Ext Port
SW isolation	1920 to 1980	16	28		16	36		dB	When UMTS2G - Ant1 measurement
		—	—	—	16	26		dB	When UMTS2G - Ant2 measurement
		16	25		—	—	—	dB	When UMTS2G - Ext measurement
	2110 to 2170	16	27		16	36		dB	When UMTS2G - Ant1 measurement
		—	—	—	16	25		dB	When UMTS2G - Ant2 measurement
		16	24		—	—	—	dB	When UMTS2G - Ext measurement
Isolation Tx ⇒ Rx	1920 to 1980	22	61		22	58		dB	UMTS2G ⇒ GSM1900Rx
In-Rx band spurious	2110 to 2170		—	–125		—	–125	dBm	
Harmonics	3840 to 3960		—	–44		—	–44	dBm	
	5760 to 5940		—	–44		—	–44	dBm	
	7680 to 7920		—	–44		—	–44	dBm	
ACLR	1920 to 1980 ±5MHz		—	–50		—	–50	dBc	RBW = 30kHz, Channel power measurement (Bandwidth 3.84MHz)
	1920 to 1980 ±10MHz		—	–55		—	–55	dBc	
IMD2 * Mounted recommended circuit	fblock = 190		–107	–102		–105	–100	dBm	PTx = 21dBm Pblock = –15dBm * The IMD characteristics are design guaranteed.
	fblock = 4090		–108	–103		–105	–100	dBm	
IMD3 * Mounted recommended circuit	fblock = 1760		–109	–104		–108	–103	dBm	
	fblock = 6040		–116	–106		–114	–106	dBm	

GSM Tx1

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 35dBm)

Item	Freq [MHz]	GSM Tx1 - Ant1			GSM Tx1 - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	824 to 915		0.43	0.58		0.55	0.7	dB	
VSWR	824 to 915		1.1	1.5		1.1	1.5	—	GSM Tx1 Port
			1.1	1.5		1.1	1.5	—	Ant1, Ext Port
SW isolation	824 to 915	—	—	—	25	45		dB	When GSM Tx - Ant1 measurement
		25	35		25	51		dB	When GSM Tx - Ant2 measurement
		22	28		—	—	—	dB	When GSM Tx - Ext measurement
Isolation Tx ⇒ Rx	824 to 915	31	46		31	41		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ GSM850Rx
		31	58		31	53		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ GSM900Rx
		31	61		31	57		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ GSM1800Rx
		31	62		31	59		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ GSM1900Rx
		31	44		31	71		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ UMTS800M
		31	38		31	46		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ UMTS1.5G
		31	37		31	45		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ UMTS1.7G
		29	34		31	44		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ex t⇒ UMTS2G
Isolation Tx ⇒ Ant	824 to 849	25	41		—	—		dB	Tx1 when selecting Ant1 - GSM850Rx⇒ Ant1
		—	—		25	38		dB	Tx1 when selecting Ant1 - GSM850Rx⇒ Ext
	880 to 915	25	38		—	—		dB	Tx1 when selecting Ant1 - GSM900Rx⇒ Ant1
		—	—		25	40		dB	Tx1 when selecting Ant1 - GSM900Rx ⇒ Ext

GSM Tx1

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 35dBm)

Item	Freq [MHz]		GSM Tx1 - Ant1			GSM Tx1 - Ext			Unit	Conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Harmonics	1648 to 1830	2Tx		–50	–36		–45	–36	dBm	
	2472 to 2745	3Tx		–46	–34		–42	–34	dBm	
	3296 to 3660	4Tx		—	–36		—	–36	dBm	
	4120 to 4575	5Tx		—	–42		—	–42	dBm	
	4944 to 5490	6Tx		—	–46		—	–46	dBm	
	5768 to 6405	7Tx		—	–46		—	–46	dBm	
	6592 to 7320	8Tx		—	–46		—	–46	dBm	
	7416 to 8235	9Tx		—	–46		—	–46	dBm	
	8240 to 9150	10Tx		—	–46		—	–46	dBm	
	9064 to 10065	11Tx		—	–46		—	–46	dBm	
	9888 to 10980	12Tx		—	–46		—	–46	dBm	
	10712 to 11895	13Tx		—	–46		—	–46	dBm	
	11536 to 12810	14Tx		—	–46		—	–46	dBm	
	12360 to 13725	15Tx		—	–46		—	–46	dBm	

GSM Tx2

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 32dBm)

Item	Freq [MHz]	GSM Tx2 - Ant2			GSM Tx2 - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1710 to 1785		0.50	0.65		0.62	0.77	dB	
	1850 to 1910		0.55	0.70		0.67	0.82	dB	
VSWR	1710 to 1785		1.1	1.5		1.1	1.5	—	GSM Tx2 Port
			1.1	1.5		1.1	1.5	—	Ant2, Ext Port
	1850 to 1910		1.1	1.5		1.1	1.5	—	GSM Tx2 Port
			1.1	1.5		1.1	1.5	—	Ant2, Ext Port
SW isolation	1710 to 1785	22	30		22	46		dB	When GSM Tx2 - Ant1 measurement
		—	—	—	22	28		dB	When GSM Tx2 - Ant2 measurement
		19	24		—	—	—	dB	When GSM Tx2 - Ext measurement
	1850 to 1910	22	30		22	46		dB	When GSM Tx2 - Ant1 measurement
		—	—	—	22	28		dB	When GSM Tx2 - Ant2 measurement
		19	24		—	—	—	dB	When GSM Tx2 - Ext measurement
Isolation Tx ⇒ Rx	1710 to 1910	28	48		28	40		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ GSM850Rx
		28	55		28	51		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ GSM900Rx
		28	58		28	54		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ GSM1800Rx
		28	59		28	56		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ GSM1900Rx
		23	27		23	33		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ UMTS800M
		23	30		23	36		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ UMTS1.5G
		28	37		28	46		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ UMTS1.7G
		21	26		23	34		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ UMTS2G
Isolation Tx ⇒ Ant	1710 to 1785	22	28		—	—	—	dB	Tx2 when selecting Ant2 - GSM1800Rx ⇒ Ant2 Tx2 when selecting Ext - GSM1800Rx ⇒ Ext
		—	—	—	20	24		dB	
	1850 to 1910	22	28		—	—	—	dB	Tx2 when selecting Ant2 - GSM1900Rx ⇒ Ant2 Tx2 when selecting Ext - GSM1900Rx ⇒ Ext
		—	—	—	20	24		dB	

GSM Tx2

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 32dBm)

Item	Freq [MHz]		GSM Tx2 - Ant2			GSM Tx2 - Ext			Unit	Conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Harmonics	3420 to 3570	2Tx		–52	–39		–44	–39	dBm	
	3700 to 3820			–53	–39		–42	–37	dBm	
	5130 to 5355	3Tx		–53	–39		–50	–39	dBm	
	5550 to 5730			–54	–39		–50	–39	dBm	
	6840 to 7140	4Tx		—	–42		—	–42	dBm	
	7400 to 7640			—	–42		—	–42	dBm	
	8550 to 8925	5Tx		—	–45		—	–45	dBm	
	9250 to 9550			—	–45		—	–45	dBm	
	10260 to 10710	6Tx		—	–45		—	–45	dBm	
	11100 to 11460			—	–45		—	–45	dBm	
	11970 to 12495	7Tx		—	–45		—	–45	dBm	

GSM850Rx

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 0dBm)

Item	Freq [MHz]	GSM850Rx - Ant1			GSM850Rx - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	869 to 894		0.94	1.09		1.08	1.23	dB	
VSWR	869 to 894		1.2	1.5		1.2	1.5	—	GSM850Rx Port
			1.1	1.5		1.1	1.5	—	Ant1, Ext Port

GSM900Rx

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 0dBm)

Item	Freq [MHz]	GSM900Rx - Ant1			GSM900Rx - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	925 to 960		0.96	1.11		1.11	1.26	dB	
VSWR	925 to 960		1.2	1.5		1.2	1.5	—	GSM900Rx Port
			1.1	1.5		1.1	1.5	—	Ant1, Ext Port

GSM1800Rx

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 0dBm)

Item	Freq [MHz]	GSM1800Rx - Ant2			GSM1800Rx - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1805 to 1880		1.01	1.16		1.2	1.35	dB	
VSWR	1805 to 1880		1.25	1.5		1.2	1.5	—	GSM1800Rx Port
			1.1	1.5		1.1	1.5	—	Ant2, Ext Port

GSM1900Rx

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 0dBm)

Item	Freq [MHz]	GSM1900Rx - Ant2			GSM1900Rx - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1930 to 1990		1.00	1.15		1.19	1.34	dB	
VSWR	1930 to 1990		1.2	1.5		1.1	1.5	—	GSM1900Rx Port
			1.1	1.5		1.1	1.5	—	Ant2, Ext Port

Electrical Characteristics 2

(Ta = –30 to +85°C)

Item	Freq [MHz]	Min.	Typ.	Max.	Unit	Conditions
Bias current	—		290	550	µA	V_{DD} = 2.9V, Vctl = 0V
Ctrl current 1	—		0.1	20	µA	V_{DD} = 2.9V, Vctl = 2.9V
Ctrl current 2	—		0.1	2	µA	V_{DD} = 0V, Vctl = 2.9V
Wake up time	—		—	100	µs	V_{DD} = 0 to 2.9V
Switching speed	—		—	5	µs	

UMTS800M

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 26dBm)

Item	Freq [MHz]	UMTS800M - Ant1			UMTS800M - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	824 to 849		—	0.77		—	0.95	dB	
	869 to 894		—	0.77		—	0.95	dB	
VSWR	824 to 849		—	1.5		—	1.5	—	UMTS800M Port
			—	1.5		—	1.5	—	Ant1, Ext Port
	869 to 894		—	1.5		—	1.5	—	UMTS800M Port
			—	1.5		—	1.5	—	Ant1, Ext Port
SW isolation	824 to 849	—	—	—	16	—		dB	When UMTS800M – Ant1 measurement
		16	—		16	—		dB	When UMTS800M – Ant2 measurement
		16	—		—	—	—	dB	When UMTS800M – Ext measurement
	869 to 894	—	—	—	16	—		dB	When UMTS800M – Ant1 measurement
		16	—		16	—		dB	When UMTS800M – Ant2 measurement
		16	—		—	—	—	dB	When UMTS800M – Ext measurement
In-Rx band spurious	869 to 894		—	–125		—	–125	dBm	
Harmonics	1648 to 1698		—	–44		—	–44	dBm	
	2472 to 2547		—	–44		—	–44	dBm	
	3296 to 3396		—	–44		—	–44	dBm	
ACLR	824 to 849 ±5MHz		—	–50		—	–50	dBc	RBW = 30kHz, Channel power measurement (Bandwidth 3.84MHz)
	824 to 849 ±10MHz		—	–55		—	–55	dBc	
IMD2 * Mounted recommended circuit	fblock = 45		—	–108		—	–108	dBm	PTx = 21dBm Pblock = –15dBm * The IMD characteristics are design guaranteed.
	fblock = 1715		—	–108		—	–108	dBm	
IMD3 * Mounted recommended circuit	fblock = 790		—	–102		—	–102	dBm	
	fblock = 2550		—	–101		—	–101	dBm	

UMTS1.5G

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 26dBm)

Item	Freq [MHz]		UMTS1.5G - Ant1			UMTS1.5G - Ext			Unit	Conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1427 to 1453			—	0.83		—	0.95	dB	
	1475 to 1501			—	0.85		—	0.95	dB	
VSWR	1427 to 1453			—	1.5		—	1.5	—	UMTS1.5G Port
				—	1.5		—	1.5	—	Ant1, Ext Port
	1475 to 1501			—	1.5		—	1.5	—	UMTS1.5G Port
				—	1.5		—	1.5	—	Ant1, Ext Port
SW isolation	1427 to 1453		—	—	—	16	—		dB	When UMTS1.5G - Ant1 measurement
			16	—		16	—		dB	When UMTS1.5G - Ant2 measurement
			16	—		—	—	—	dB	When UMTS1.5G - Ext measurement
	1475 to 1501		—	—	—	16	—		dB	When UMTS1.5G - Ant1 measurement
			16	—		16	—		dB	When UMTS1.5G - Ant2 measurement
			16	—		—	—	—	dB	When UMTS1.5G - Ext measurement
In-Rx band spurious	1475 to 1501			—	–125		—	–125	dBm	
Harmonics	2854 to 2906			—	–44		—	–44	dBm	
	4281 to 4359			—	–44		—	–44	dBm	
	5708 to 5812			—	–44		—	–44	dBm	
ACLR	1427 to 1453	±5MHz		—	–50		—	–50	dBc	RBW = 30kHz, Channel power measurement (Bandwidth 3.84MHz)
	1427 to 1453	±10MHz		—	–55		—	–55	dBc	
IMD2 * Mounted recommended circuit	fblock = 48			—	–103		—	–103	dBm	PTx = 21dBm Pblock = –15dBm * The IMD characteristics are design guaranteed.
	fblock = 2924			—	–103		—	–98	dBm	
IMD3 * Mounted recommended circuit	fblock = 1390			—	–100		—	–100	dBm	
	fblock = 4362			—	–101		—	–101	dBm	

UMTS1.7G

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 26dBm)

Item	Freq [MHz]		UMTS1.7G - Ant2			UMTS1.7G - Ext			Unit	Conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1749 to 1785			—	0.87		—	1.09	dB	
	1844 to 1880			—	0.89		—	1.14	dB	
VSWR	1749 to 1785			—	1.5		—	1.5	—	UMTS1.7G Port
				—	1.5		—	1.5	—	Ant2, Ext Port
	1844 to 1880			—	1.5		—	1.5	—	UMTS1.7G Port
				—	1.5		—	1.5	—	Ant2, Ext Port
SW isolation	1749 to 1785		16	—		16	—		dB	When UMTS1.7G - Ant1 measurement
			—	—	—	16	—		dB	When UMTS1.7G - Ant2 measurement
			16	—		—	—	—	dB	When UMTS1.7G - Ext measurement
	1844 to 1880		16	—		16	—		dB	When UMTS1.7G - Ant1 measurement
			—	—	—	16	—		dB	When UMTS1.7G - Ant2 measurement
			16	—		—	—	—	dB	When UMTS1.7G - Ext measurement
In-Rx band spurious	1844 to 1880			—	–125		—	–125	dBm	
Harmonics	3498 to 3570			—	–44		—	–44	dBm	
	5247 to 5355			—	–44		—	–44	dBm	
	6996 to 7140			—	–44		—	–44	dBm	
ACLR	1749 to 1785	±5MHz		—	–50		—	–50	dBc	RBW = 30kHz, Channel power measurement (Bandwidth 3.84MHz)
	1749 to 1785	±10MHz		—	–55		—	–55	dBc	
IMD2 * Mounted recommended circuit	fblock = 95			—	–103		—	–103	dBm	PTx = 21dBm Pblock = –15dBm * The IMD characteristics are design guaranteed.
	fblock = 3625			—	–102		—	–98	dBm	
IMD3 * Mounted recommended circuit	fblock = 1670			—	–103		—	–99	dBm	
	fblock = 5390			—	–103		—	–101	dBm	

UMTS2G

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 26dBm)

Item	Freq [MHz]		UMTS2G - Ant2			UMTS2G - Ext			Unit	Conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1920 to 1980			—	0.85		—	1.09	dB	
	2110 to 2170			—	0.91		—	1.20	dB	
VSWR	1920 to 1980			—	1.5		—	1.5	—	UMTS2G Port
				—	1.5		—	1.5	—	Ant2, Ext Port
	2110 to 2170			—	1.5		—	1.5	—	UMTS2G Port
				—	1.5		—	1.5	—	Ant2, Ext Port
SW isolation	1920 to 1980		16	—		16	—		dB	When UMTS2G - Ant1 measurement
			—	—	—	16	—		dB	When UMTS2G - Ant2 measurement
			16	—		—	—	—	dB	When UMTS2G - Ext measurement
	2110 to 2170		16	—		16	—		dB	When UMTS2G - Ant1 measurement
			—	—	—	16	—		dB	When UMTS2G - Ant2 measurement
			16	—		—	—	—	dB	When UMTS2G - Ext measurement
Isolation Tx ⇒ Rx	1920 to 1980		22	—		22	—		dB	When UMTS2G ⇒ GSM1900Rx
In-Rx band spurious	2110 to 2170			—	–125		—	–125	dBm	
Harmonics	3840 to 3960			—	–44		—	–44	dBm	
	5760 to 5940			—	–44		—	–44	dBm	
	7680 to 7920			—	–44		—	–44	dBm	
ACLR	1920 to 1980	±5MHz		—	–50		—	–50	dBc	RBW = 30kHz, Channel power measurement (Bandwidth 3.84MHz)
	1920 to 1980	±10MHz		—	–55		—	–55	dBc	
IMD2 * Mounted recommended circuit	fblock = 190			—	–99		—	–97	dBm	PTx = 21dBm Pblock = –15dBm * The IMD characteristics are design guaranteed.
	fblock = 4090			—	–100		—	–97	dBm	
IMD3 * Mounted recommended circuit	fblock = 1760			—	–101		—	–100	dBm	
	fblock = 6040			—	–103		—	–103	dBm	

GSM Tx1

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 35dBm)

Item	Freq [MHz]	GSM Tx1 - Ant1			GSM Tx1 - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	824 to 915		—	0.68		—	0.8	dB	
VSWR	824 to 915		—	1.5		—	1.5	—	GSM Tx1 Port
			—	1.5		—	1.5	—	Ant1, Ext Port
SW isolation	824 to 915	—	—	—	25	—		dB	When GSM Tx1 - Ant1 measurement
		25	—		25	—		dB	When GSM Tx1 - Ant2 measurement
		22	—		—	—	—	dB	When GSM Tx1 - Ext measurement
Isolation Tx ⇒ Rx	824 to 915	31	—		31	—		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ GSM850Rx
		31	—		31	—		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ GSM900Rx
		31	—		31	—		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ GSM1800Rx
		31	—		31	—		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ GSM1900Rx
		31	—		31	—		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ UMTS800M
		31	—		31	—		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ UMTS1.5G
		31	—		31	—		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ UMTS1.7G
		29	—		31	—		dB	Tx1 when selecting Tx1 - Ant1 and Tx1-Ext ⇒ UMTS2G
Isolation Tx ⇒ Ant	824 to 849	25	—		—	—		dB	Tx1 when selecting Ant1 - GSM850Rx ⇒ Ant1
		—	—		25	—		dB	Tx1 when selecting Ant1 - GSM850Rx ⇒ Ext
	880 to 915	25	—		—	—		dB	Tx1 when selecting Ant1 - GSM900Rx ⇒ Ant1
		—	—		25	—		dB	Tx1 when selecting Ant1 - GSM900Rx ⇒ Ext

GSM Tx1

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 35dBm)

Item	Freq [MHz]		GSM Tx1 - Ant1			GSM Tx1 - Ext			Unit	Conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Harmonics	1648 to 1830	2Tx		—	–36		—	–36	dBm	
	2472 to 2745	3Tx		—	–34		—	–34	dBm	
	3296 to 3660	4Tx		—	–36		—	–36	dBm	
	4120 to 4575	5Tx		—	–42		—	–42	dBm	
	4944 to 5490	6Tx		—	–46		—	–46	dBm	
	5768 to 6405	7Tx		—	–46		—	–46	dBm	
	6592 to 7320	8Tx		—	–46		—	–46	dBm	
	7416 to 8235	9Tx		—	–46		—	–46	dBm	
	8240 to 9150	10Tx		—	–46		—	–46	dBm	
	9064 to 10065	11Tx		—	–46		—	–46	dBm	
	9888 to 10980	12Tx		—	–46		—	–46	dBm	
	10712 to 11895	13Tx		—	–46		—	–46	dBm	
	11536 to 12810	14Tx		—	–46		—	–46	dBm	
	12360 to 13725	15Tx		—	–46		—	–46	dBm	

GSM Tx2

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 32dBm)

Item	Freq [MHz]	GSM Tx2 - Ant2			GSM Tx2 - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1710 to 1785		—	0.73		—	0.89	dB	
	1850 to 1910		—	0.78		—	0.94	dB	
VSWR	1710 to 1785		—	1.5		—	1.5	—	GSM Tx2 Port
			—	1.5		—	1.5	—	Ant2, Ext Port
	1850 to 1910		—	1.5		—	1.5	—	GSM Tx2 Port
			—	1.5		—	1.5	—	Ant2, Ext Port
SW isolation	1710 to 1785	22	—		22	—		dB	When GSM Tx2 - Ant1 measurement
		—	—	—	22	—		dB	When GSM Tx2 - Ant2 measurement
		19	—		—	—	—	dB	When GSM Tx2 - Ext measurement
	1850 to 1910	22	—		22	—		dB	When GSM Tx2 - Ant1 measurement
		—	—	—	22	—		dB	When GSM Tx2 - Ant2 measurement
		19	—		—	—	—	dB	When GSM Tx2 - Ext measurement
Isolation Tx ⇒ Rx	1710 to 1910	28	—		28	—		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ GSM850Rx
		28	—		28	—		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ GSM900Rx
		28	—		28	—		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ GSM1800Rx
		28	—		28	—		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ GSM1900Rx
		23	—		23	—		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ UMTS800M
		23	—		23	—		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ UMTS1.5G
		28	—		28	—		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ UMTS1.7G
		21	—		23	—		dB	Tx2 when selecting Tx2 - Ant2 and Tx2-Ext ⇒ UMTS2G
Isolation Tx ⇒ Ant	1710 to 1785	22	—		—	—	—	dB	Tx2 when selecting Ant2 - GSM1800Rx ⇒ Ant2
		—	—	—	20	—		dB	Tx2 when selecting Ext - GSM1800Rx ⇒ Ext
	1850 to 1910	22	—		—	—	—	dB	Tx2 when selecting Ant2 - GSM1900Rx ⇒ Ant2
		—	—	—	20	—		dB	Tx2 when selecting Ext - GSM1900Rx ⇒ Ext

GSM Tx2

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 32dBm)

Item	Freq [MHz]		GSM Tx2 - Ant2			GSM Tx2 - Ext			Unit	Conditions
			Min.	Typ.	Max.	Min.	Typ.	Max.		
Harmonics	3420 to 3570	2Tx		—	–39		—	–39	dBm	
	3700 to 3820			—	–39		—	–37	dBm	
	5130 to 5355	3Tx		—	–39		—	–39	dBm	
	5550 to 5730			—	–39		—	–39	dBm	
	6840 to 7140	4Tx		—	–42		—	–42	dBm	
	7400 to 7640			—	–42		—	–42	dBm	
	8550 to 8925	5Tx		—	–45		—	–45	dBm	
	9250 to 9550			—	–45		—	–45	dBm	
	10260 to 10710	6Tx		—	–45		—	–45	dBm	
	11100 to 11460			—	–45		—	–45	dBm	
	11970 to 12495	7Tx		—	–45		—	–45	dBm	

GSM850Rx

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 0dBm)

Item	Freq [MHz]	GSM850Rx – Ant1			GSM850Rx – Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	869 to 894		—	1.19		—	1.33	dB	
VSWR	869 to 894		—	1.5		—	1.5	—	GSM850Rx Port
			—	1.5		—	1.5	—	Ant1, Ext Port

GSM900Rx

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 0dBm)

Item	Freq [MHz]	GSM900Rx - Ant1			GSM900Rx - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	925 to 960		—	1.21		—	1.36	dB	
VSWR	925 to 960		—	1.5		—	1.5	—	GSM900Rx Port
			—	1.5		—	1.5	—	Ant1, Ext Port

GSM1800Rx

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 0dBm)

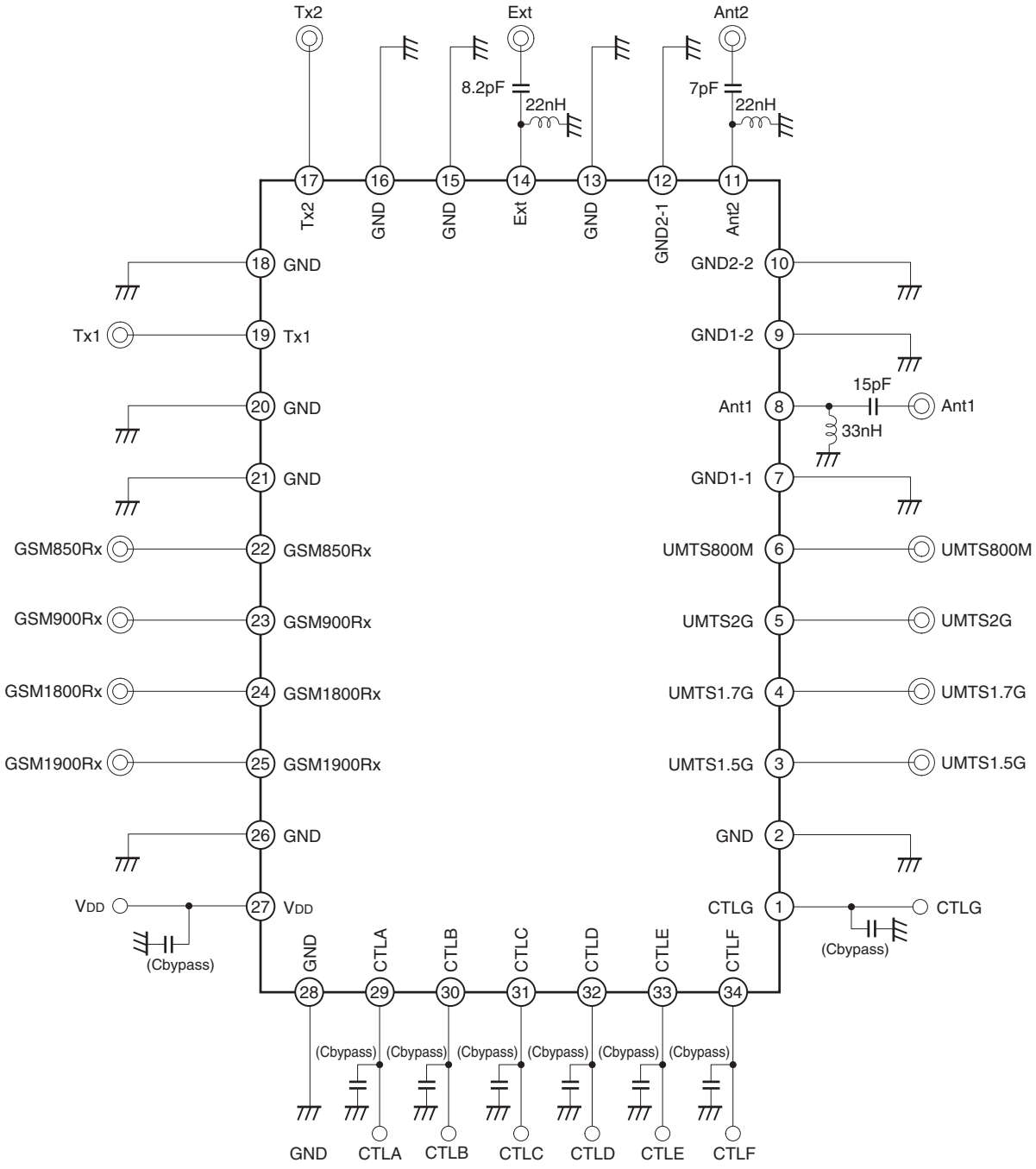
Item	Freq [MHz]	GSM1800Rx - Ant2			GSM1800Rx - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1805 to 1880		—	1.26		—	1.45	dB	
VSWR	1805 to 1880		—	1.5		—	1.5	—	GSM1800Rx Port
			—	1.5		—	1.5	—	Ant2, Ext Port

GSM1900Rx

(V_{DD} = 2.9V, Vctl = 0/2.9V, Pin = 0dBm)

Item	Freq [MHz]	GSM1900Rx - Ant2			GSM1900Rx - Ext			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.		
Insertion loss * Mounted recommended circuit	1930 to 1990		—	1.25		—	1.44	dB	
VSWR	1930 to 1990		—	1.5		—	1.5	—	GSM1900Rx Port
			—	1.5		—	1.5	—	Ant2, Ext Port

Recommended Circuit



*1 When the DC level of the connected device is GND or open, no DC blocking capacitors are required.

*2 The DC level of each RF pin is GND.

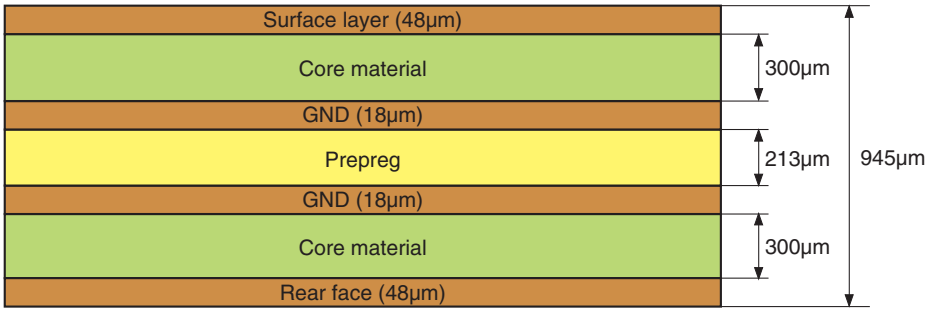
*3 LC circuit is recommended for IMD2 (Rx-Tx) improvement and ESD protection to Antenna pins. (For constants, see above.)

*4Cbypass: This capacitor is used for DC line bypass (100pF is recommended.)

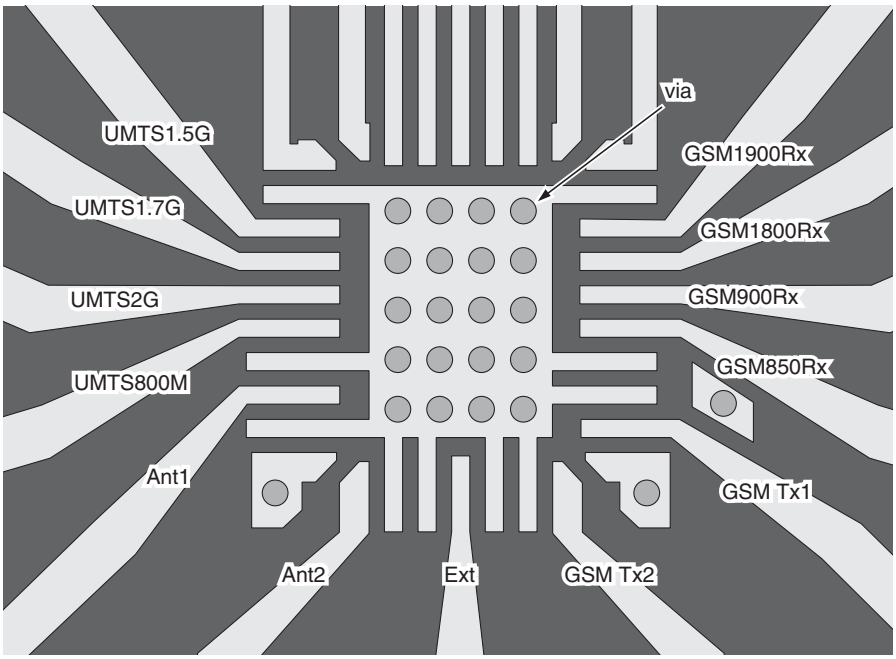
Evaluation Board

The board as shown below is used for the CXM3543AER characteristics measurement.

<Layer structure>



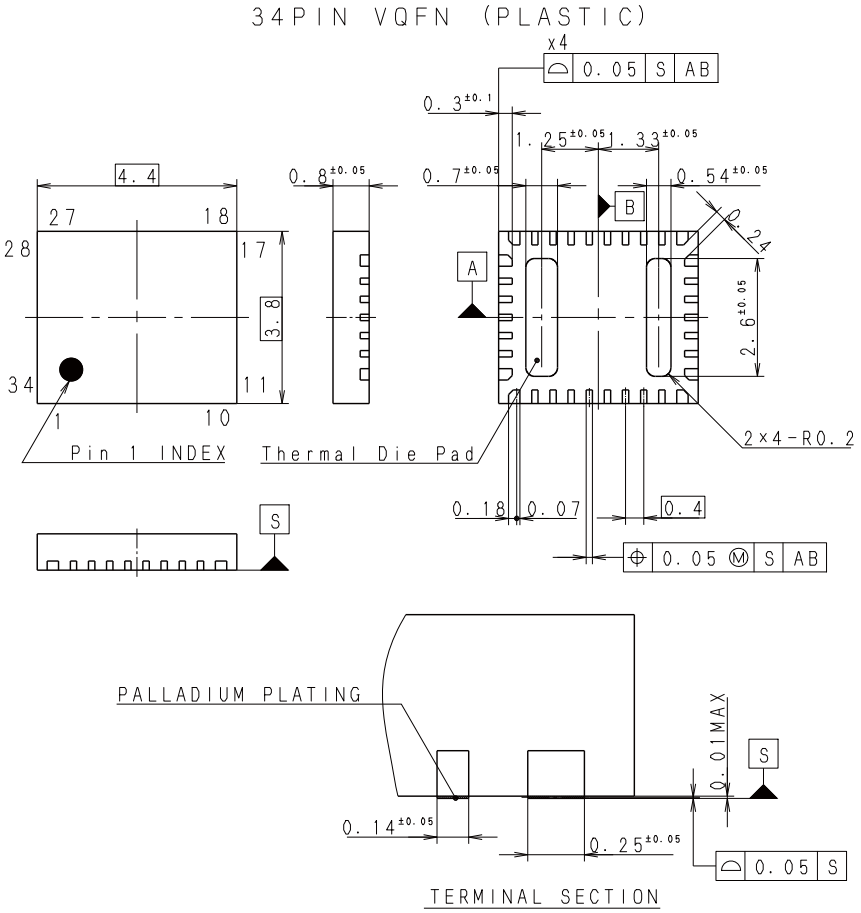
<Surface layer pattern (Device-mounted area)>



Package Outline

(Unit: mm)

Product Code: 875340562



TERMINAL SECTION

Note:Cutting burr of lead are 0.05mm MAX.

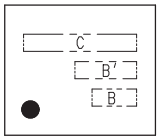
PACKAGE STRUCTURE

SONY CODE	VQFN-34P-541
JEITA CODE	————
JEDEC CODE	————

PACKAGE MATERIAL	EPOXY RESIN
TERMINAL TREATMENT	PALLADIUM PLATING
TERMINAL MATERIAL	COPPER ALLOY
PACKAGE MASS	0.04g

PART No. AP-2000-34QNBE1	Rev. 0
ISSUED '11.11.24	REVISED
PRODUCTION LINE	COMPILING DIV. SONY SEMICONDUCTOR.
REMARKS PKG CODE:ER-34-JBE	

Marking



MARKING C: M3543A

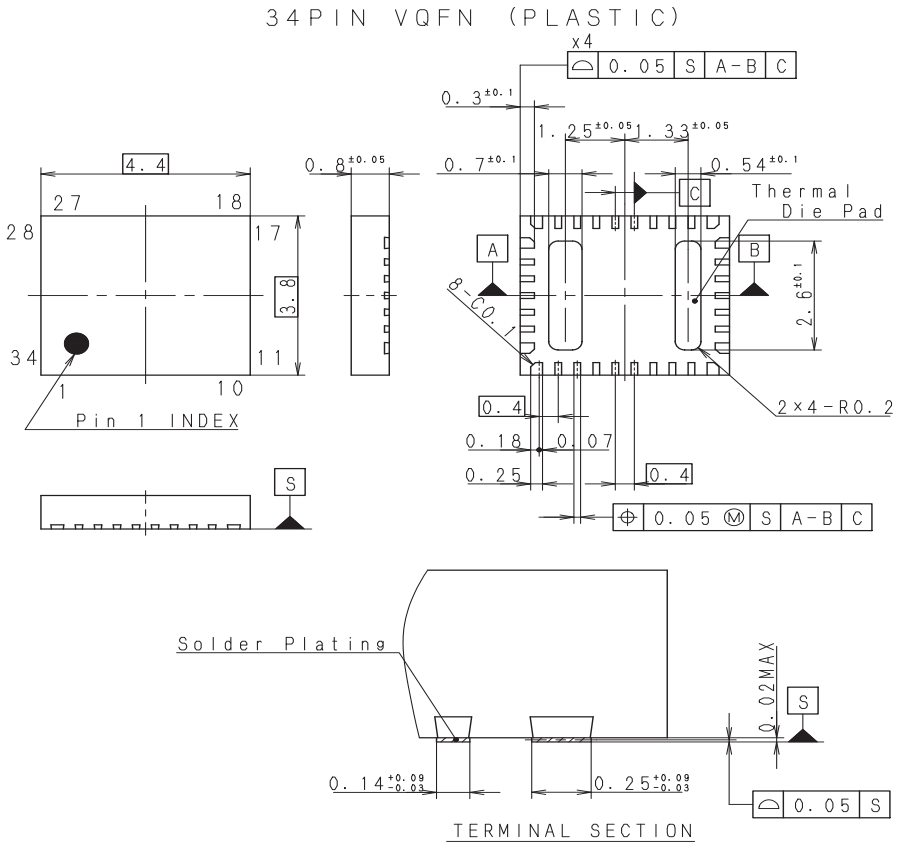
注1) C部は製品名(Max7文字)を配置する。
(7文字を超える場合は製品名省略標示規定に従う。)
2) B部, B'部はロット番号(Max7文字)を配置する.
(但し B部は年、週コードMax3文字、B'部は組立ロット番号Max4文字とする。)
3) 文字位置は、右詰めとする。

< INSTRUCTIONS >
1) TYPE NO. (MAX 7 CHARACTERS) IN SECTION C.
(FOR MORE THAN 7 CHARACTERS FOLLOW RULES FOR ABBREVIATIONS.)
2) LOT NO. (MAX 7 CHARACTERS) IN SECTION B, B'.
(B: YEAR, WEEK CODE MAX 3 CHARACTERS, B': ASSEMBLY LOT NO. MAX 4 CHARACTERS.)
3) PUT THE POSITION OF A CHARACTER REFERENCE FROM THE RIGHT SIDE.

Package Outline

(Unit: mm)

Product Code: 875333196
875340631



TERMINAL SECTION

Note:Cutting burr of lead are 0.05mm MAX.

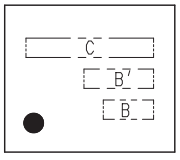
SONY CODE	VQFN-34P-01
JEITA CODE	————
JEDEC CODE	————

PACKAGE STRUCTURE

PACKAGE MATERIAL	EPOXY RESIN
TERMINAL TREATMENT	SOLDER PLATING
TERMINAL MATERIAL	COPPER ALLOY
PACKAGE MASS	0.04g

PART No. AP-4000-34001S	Rev. 0
ISSUED '07.03.08	REVISED
PRODUCTION LINE	COMPILING DIV. SONY SEMICONDUCTOR KYUSHU.
REMARKS PKG CODE:ER-034-AD	

Marking



MARKING C: M3543A

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3) PUT THE POSITION OF A CHARACTER REFERENCE FROM THE RIGHT SIDE.