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P/N

ESHS-A085GT

DATA-No.

2MT48098

Rev5

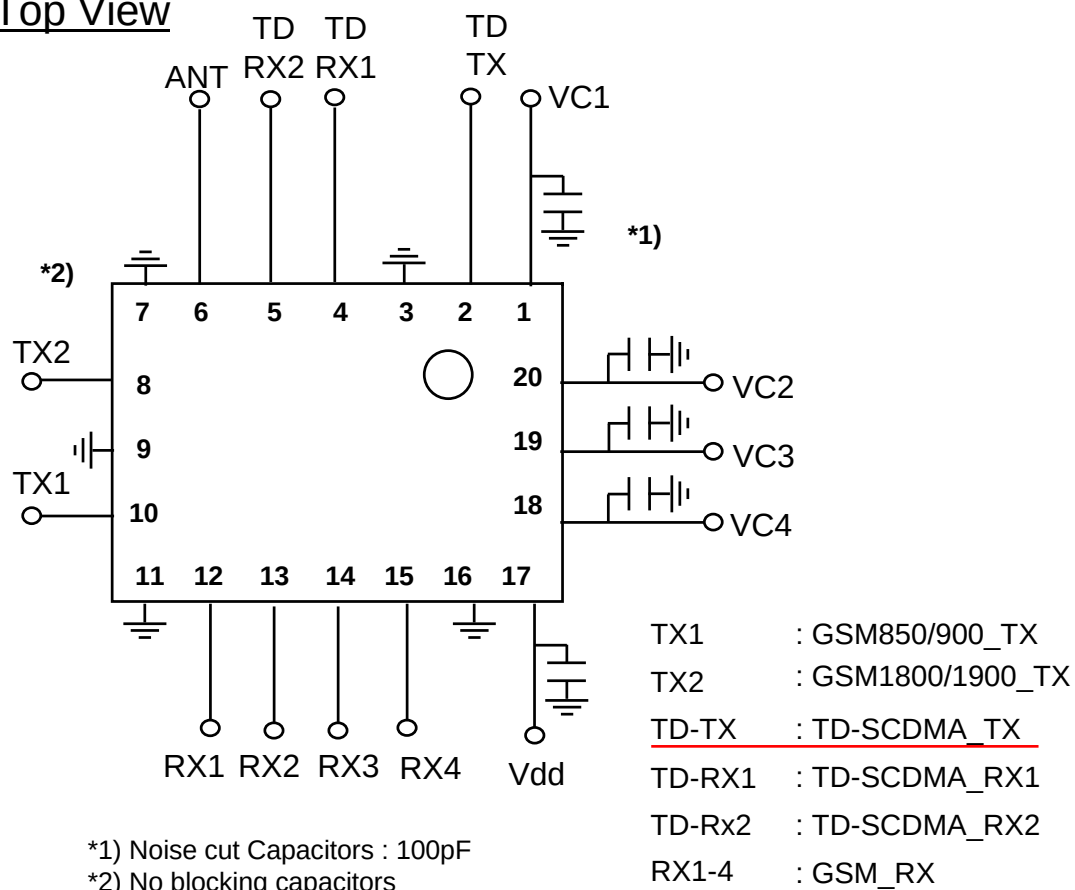
Antenna Switch Module for GSM/TD-SCDMA Dual Mode (GSM Quad/TD-SCDMA Dual)

Model No. **ESHS-A085GT (3.2 x 2.5 mm, 1.0mm[†])**

1. Measurement Circuit

2. Logic & Current

Top View



mode	VC1	VC2	VC3	VC4	Current [mA]
TX1	H	H	L	L	0.2
TX2	H	L	L	L	0.2
<u>TD_TX</u>	H	L	H	L	0.2
TD_RX1	H	H	H	L	0.2
TD_RX2	*	*	*	H	0.2
RX1	L	L	L	L	0.2
RX2	L	L	H	L	0.2
RX3	L	H	H	L	0.2
RX4	L	H	L	L	0.2

1) Vdd should be always high.

2) *:don't care(H or L)

3) Current is the sum of supply(Vdd) and control(VC).

Parameter	Min.	Typ.	Max.	Unit
Vdd	2.5	2.8	3.3	V
VC(H)	1.5	1.8	3.3	V
VC(L)	0	-	0.3	V

Date

Dwn.

Appd.

PIN1	VC1	PIN11	GND
PIN2	TD_TX	PIN12	RX1
PIN3	GND	PIN13	RX2
PIN4	TD_RX1	PIN14	RX3
PIN5	TD_RX2	PIN15	RX4
PIN6	ANT	PIN16	GND
PIN7	GND	PIN17	Vdd
PIN8	TX2	PIN18	VC4
PIN9	GND	PIN19	VC3
PIN10	TX1	PIN20	VC2
		PIN21	GND

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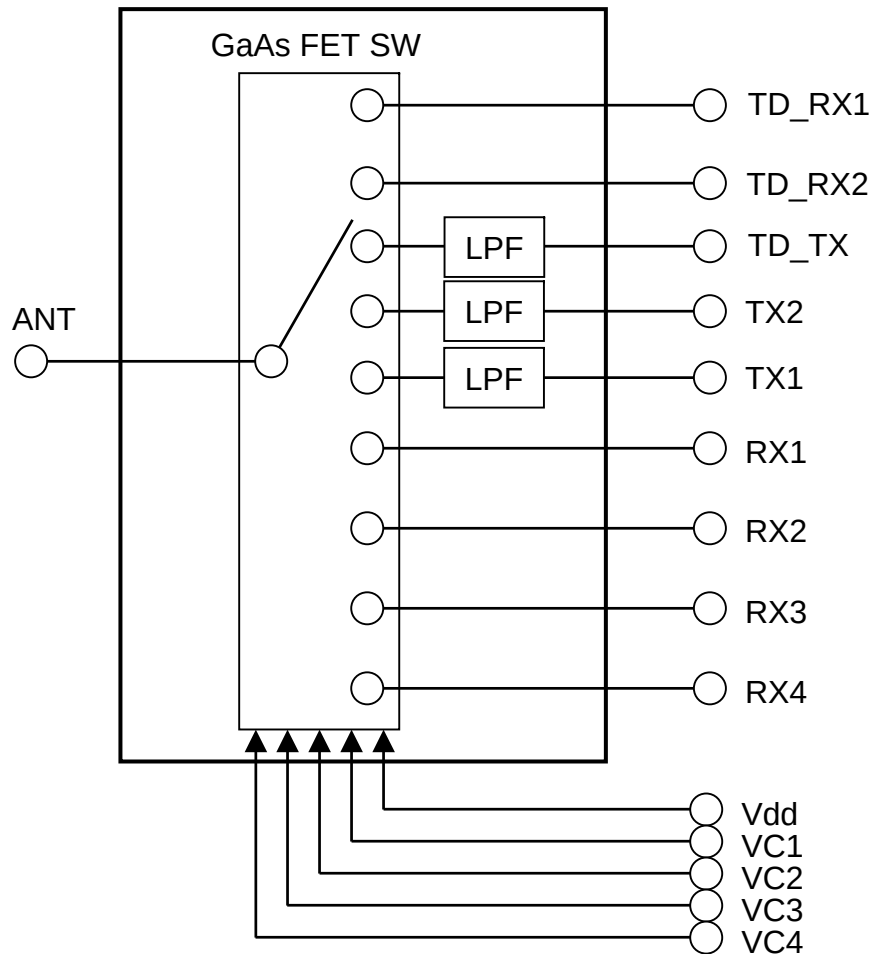
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5. Concept



6. Absolute Maximum

- Bias Voltage Vdd 4V
- Control Voltage Vctl 4V
- Input power Max <Tx1> +36dBm (duty cycle 12.5 to 50%)
- Input power Max <Tx2> +34dBm (duty cycle 12.5 to 50%)
- Input power Max <Rx1,2,3,4> +13dBm
- Input power Max <TD_Tx> +30dBm
- Operating Temperature -35 to 85degC
- Storage Temperature -45 to 95degC

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7-1. Specifications

parameter	freq.[MHz]	unit	Target Spec.		typ	Test condition
			Min.	Max.		
Tx1 mode (Tx1 -> ANT)						
Insertion Loss @+25deg.C.	824 915	dB		1.0	0.66	Measured with network analyzer at +10 dBm level, measurement port and other ports should be 50 ohm.
-35 to +85deg.C.	824 915	dB		1.2	---	
Ripple	824 915	dB		0.5	<0.1	
Attenuation	1648 1698	dB	25		33.6	
	1760 1830	dB	25		28.6	
	2472 2547	dB	25		29.9	
	2640 2745	dB	25		32.0	
V.S.W.R. Tx1 port	824 915	-		1.5	1.06	
ANT port	824 915	-		1.5	1.11	
Isolation Tx1 -> Rx1	824 915	dB	30		44.6	
Tx1 -> Rx2	824 915	dB	30		40.9	
Tx1 -> Rx3	824 915	dB	30		40.4	
Tx1 -> Rx4	824 915	dB	30		52.7	
Harmonics Generation (+35dBm input power)	1648 1830	dBc		-70	---	
	2472 2745	dBc		-70	---	
Current consumption	-	mA		0.5	0.2	

parameter	freq.[MHz]	unit	target Spec.		typ	Test condition
			Min.	Max.		
Tx2 mode (Tx2 -> ANT)						
Insertion Loss @+25deg.C.	1710 1910	dB		1.1	0.79	Measured with network analyzer at +10 dBm level, measurement port and other ports should be 50 ohm.
-35 to +85deg.C.	1710 1910	dB		1.3	---	
Ripple	1710 1910	dB		0.5	<0.1	
Attenuation	3420 3820	dB	25		26.4	
	5130 5730	dB	22		24.2	
V.S.W.R. Tx2 port	1710 1910	-		1.6	1.16	
ANT port	1710 1910	-		1.6	1.25	
Isolation Tx2 -> Rx1	1710 1910	dB	30		52.1	
Tx2 -> Rx2	1710 1910	dB	30		57.7	
Tx2 -> Rx3	1710 1910	dB	35		55.7	
Tx2 -> Rx4	1710 1910	dB	30		56.6	
Tx2 -> TD-Rx1	1710 1910	dB	20		28.0	
Tx2 -> TD-Rx2	1710 1910	dB	20		24.1	
Harmonics Generation (+32dBm input power)	3420 3820	dBc		-67	---	
	5130 5730	dBc		-67	---	
Current consumption	-	mA		0.5	0.2	

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parameter	freq.[MHz]	unit	target Spec.		typ	Test condition	
			Min.	Max.			
Rx1 mode (ANT -> Rx1)							
Insertion Loss @+25deg.C.	869	960	dB		1.0	0.69	Measured with network analyzer at +10 dBm level, measurement port and other ports should be 50 ohm.
	1805	1990	dB		1.2	0.75	
-35 to +85deg.C.	869	960	dB		1.2	---	
	1805	1990	dB		1.4	---	
V.S.W.R. ANT port	869	960	-		1.8	1.29	
	1805	1990	-		1.8	1.25	
V.S.W.R. Rx1 port	869	960	-		1.8	1.31	
	1805	1990	-		1.8	1.21	
Isoltaion Tx1 -> Ant	824	915	dB	20		24.3	
	Tx2 -> Ant	1710	1910	dB	20		
Current consumption	-		mA		0.5	0.2	
Rx2 mode (ANT -> Rx2)							
Insertion Loss @+25deg.C.	869	960	dB		1.0	0.71	Measured with network analyzer at +10 dBm level, measurement port and other ports should be 50 ohm.
	1805	1990	dB		1.2	0.84	
-35 to +85deg.C.	869	960	dB		1.2	---	
	1805	1990	dB		1.4	---	
V.S.W.R. ANT port	869	960	-		1.8	1.27	
	1805	1990	-		1.8	1.24	
V.S.W.R. Rx2 port	869	960	-		1.8	1.22	
	1805	1990	-		1.8	1.20	
Isoltaion Tx1 -> Ant	824	915	dB	20		23.9	
	Tx2 -> Ant	1710	1910	dB	20		
Current consumption	-		mA		0.5	0.2	
Rx3 mode (ANT -> Rx3)							
Insertion Loss @+25deg.C.	869	960	dB		1.0	0.65	Measured with network analyzer at +0 dBm level, measurement port and other ports should be 50 ohm.
	1805	1990	dB		1.2	0.76	
-35 to +85deg.C.	869	960	dB		1.2	---	
	1805	1990	dB		1.4	---	
V.S.W.R. ANT port	869	960	-		1.8	1.23	
	1805	1990	-		1.8	1.20	
V.S.W.R. Rx3 port	869	960	-		1.8	1.18	
	1805	1990	-		1.8	1.15	
Isoltaion Tx1 -> Ant	824	915	dB	20		23.6	
	Tx2 -> Ant	1710	1910	dB	20		
Current consumption	-		mA		0.5	0.2	
Rx4 mode (ANT -> Rx4)							
Insertion Loss @+25deg.C.	869	960	dB		1.0	0.78	Measured with network analyzer at +10 dBm level, measurement port and other ports should be 50 ohm.
	1805	1990	dB		1.2	0.91	
-35 to +85deg.C.	869	960	dB		1.2	---	
	1805	1990	dB		1.4	---	
V.S.W.R. ANT port	869	960	-		1.8	1.25	
	1805	1990	-		1.8	1.20	
V.S.W.R. Rx4 port	869	960	-		1.8	1.20	
	1805	1990	-		1.8	1.12	
Isoltaion Tx1 -> Ant	824	915	dB	20		24.6	
	Tx2 -> Ant	1710	1910	dB	20		
Current consumption	-		mA		0.5	0.2	

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7-2. Specifications

parameter	freq.[MHz]		unit	target Spec.		typ	Test condition
				Min.	Max.		
TD-Tx mode (TD Tx-> ANT)							
Insertion Loss @+25deg.C.	1880	1920	dB		1.1	0.77	Measured with network analyzer at +10 dBm level, measurement port and other ports should be 50 ohm.
	2010	2025	dB		1.2	0.87	
-35 to +85deg.C.	1880	1920	dB		1.3	---	
	2010	2025	dB		1.4	---	
Ripple	1880	1920	dB		0.5	<0.1	
	2010	2025	dB		0.5	<0.1	
Attenuation	3760	4050	dB	20		29.2	
	5640	6075	dB	20		27.0	
V.S.W.R. TD Tx port	1880	1920	-		1.5	1.22	
	2010	2025	-		1.5	1.21	
V.S.W.R. ANT port	1880	1920	-		1.5	1.24	
	2010	2025	-		1.5	1.20	
Isolation TD Tx -> TD Rx1	1880	2025	dB	20		22.4	
	1880	2025	dB	20		24.1	
Harmonics Generation (+30dBm input power)	3760	4050	dBc		-65	---	
	5640	6075	dBc		-65	---	
Current consumption	-		mA		0.5	0.2	

parameter	freq.[MHz]		unit	target Spec.		typ	Test condition
				Min.	Max.		
TD-Rx1 mode (ANT -> TD Rx1)							
Insertion Loss @+25deg.C.	1880	1920	dB		0.8	0.57	Measured with network analyzer at +10 dBm level, measurement port and other ports should be 50 ohm.
	2010	2025	dB		0.8	0.60	
-35 to +85deg.C.	1880	1920	dB		1.0	---	
	2010	2025	dB		1.0	---	
Ripple	1880	1920	dB		0.3	<0.1	
	2010	2025	dB		0.3	<0.1	
V.S.W.R. ANT port	1880	1920	-		1.8	1.09	
	2010	2025	-		1.8	1.12	
V.S.W.R. TD-Rx1 port	1880	1920	-		1.8	1.16	
	2010	2025	-		1.8	1.20	
Isolation TD Tx -> Ant	1880	2025	dB	20		22.8	
Current consumption	-		mA		0.5	0.2	
TD-Rx2 mode (ANT -> TD Rx2)							
Insertion Loss @+25deg.C.	1880	1920	dB		0.8	0.60	Measured with network analyzer at +10 dBm level, measurement port and other ports should be 50 ohm.
	2010	2025	dB		0.8	0.63	
-35 to +85deg.C.	1880	1920	dB		1.0	---	
	2010	2025	dB		1.0	---	
Ripple	1880	1920	dB		0.3	<0.1	
	2010	2025	dB		0.3	<0.1	
V.S.W.R. ANT port	1880	1920	-		1.8	1.15	
	2010	2025	-		1.8	1.19	
V.S.W.R. TD-Rx2 port	1880	1920	-		1.8	1.22	
	2010	2025	-		1.8	1.27	
Isolation TD Tx -> Ant	1880	2025	dB	20		23.2	
Current consumption	-		mA		0.5	0.2	

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