4G+5G 12-Select-6 Power Amplifier

Specification

Product Name	4G+5G 12-out-of-6 4W Power Amplifier
Product Code	2.PA.03.0143
Product Description	MK-B5/B8/B1/B3/B34/B39/B40/B41 /N28/N41/N78/N79-DV28V-B
Author	

Document revision history

date	author	edition	Change content and reason
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一、 System chart

二、 Specification

1、Technical specifications of the radio frequency section

Item		Specification	Remarks
Frequency range (MHz)		**4G** **B5：825MHz-835MHz/870MHz-880MHz** **B8：885MHz-915MHz/930MHz-960MHz** **B8: 904MHz-915MHz; F-B8 uplink reception channel switching on B8** **B1:1920MHz-1980MHz/2110MHz-2170MHz** **B3：1710MHz-1785MHz/1805MHz-1880MHz** **B3 mobile band: 1710MHz-1735MHz/1805MHz-1830MHz; F-B3 handover: 1-(1805-1880),0-(1805-1830)** **B34：2010MHz-2025MHz** **B39：1880MHz-1920MHz** **B40：2300MHz-2400MHz** **B41：2496MHz-2690MHz** **5G** **N28:703MHz-748MHz/758MHz-803MHz** **N1:1920MHz-1980MHz/2110MHz-2170MHz** **N41:2496MHz-2690MHz** **N78:3400MHz-3600MHz;** **N79:4800MHz-4900MHz**	
Amplifier section			
Maximum output power (dBm)		36±1	Center frequency as standard
Maximum undamaged input level (dBm)		0	
Anti-burnout protection for amplifier output port		Under TDD operation mode, when the output port is open at rated power, the module remains undamaged for 10 consecutive minutes without deterioration of its performance metrics.	
Maximum gain （dB）		35±2 N78/N79:38±2	Center frequency as standard
In-band fluctuation (peak-to-peak) (dB)		≤4.5	Each frequency band Single test
stray emission		9kHz～1GHz≤-36dBm	RBW= 100kHz
		1GHz～12.75GHz≤-30dBm	RBW = 1 MHz (excluding the SEM test frequency band)
ACLR (dBc)	BW	≤-30	ETM1.1 20M Actual measurement shall be based on EVM
	2BW	≤-50	

Item		Specification	Remarks
EVM(%)		≤8	
CCDF(0.01%)		≥7.5dB	Full power ETM3.1
Input and output standing wave ratio		≤2.0	power up
low noise section			
Maximum output power (dBm)		-10±1	Center frequency as standard
Maximum undamaged input level (dBm)		-10	
Gain （dB）		20±2	Center frequency as standard
In-band fluctuation (peak-to-peak) (dB)		≤4.5	
ACLR (dBc)	BW	≤-40	
	2BW	≤-50	
EVM(%)		≤5	
Input and output standing wave ratio		≤2.5	power up
Noise factor		≤10	
Common part			
Transceiver isolation		≥70dB @ uplink downlink isolation	Downlink and uplink port isolation, meaning the uplink output port is isolated when the downlink is operating at full power.
RF response of power amplifier power supply (power amplifier on/off, LNA on/off)		1. Rise time + rise time delay: ≤2.5μs; (Rise time: from 10% of the maximum value to 90% of the maximum value); 2. Fall edge + fall edge delay: ≤2.5us; (fall time: from 90% of the maximum value to 10% of the maximum value);	
Gain temperature drift		≤2 (full temperature)	
Service voltage （V）		**28V**	
Current （A）		≤1.8A (single channel)	36dBm
Working temperature （℃）		-25 - +55	

2. External Interfaces

1) Interface Requirements

Power supply interface	2-pin 3.96VH bent-type socket	
Radio Frequency interface	PA (Power Amplifier) input port: MCX LNA OUT (Low Noise Amplifier Output): MCX ANT amplifier output/low-noise amplifier input port: MCX	Antenna port 1: ANT B5 Antenna port 2: ANT B39+B40 Antenna port 3: ANT B8+N28 Antenna port 4: ANT N78+N79 Antenna port 5: ANT B34+N41 Antenna port 6: ANT B3 Antenna port 7: ANT N1+B41
Communication monitoring interface	1*4 Pin 2.5 pitch Pin 1： A； Pin 2: GND (Ground); Pin 3：B； Pin 4：NC；	An optional RS485 interface is available for reading and writing amplifier information.

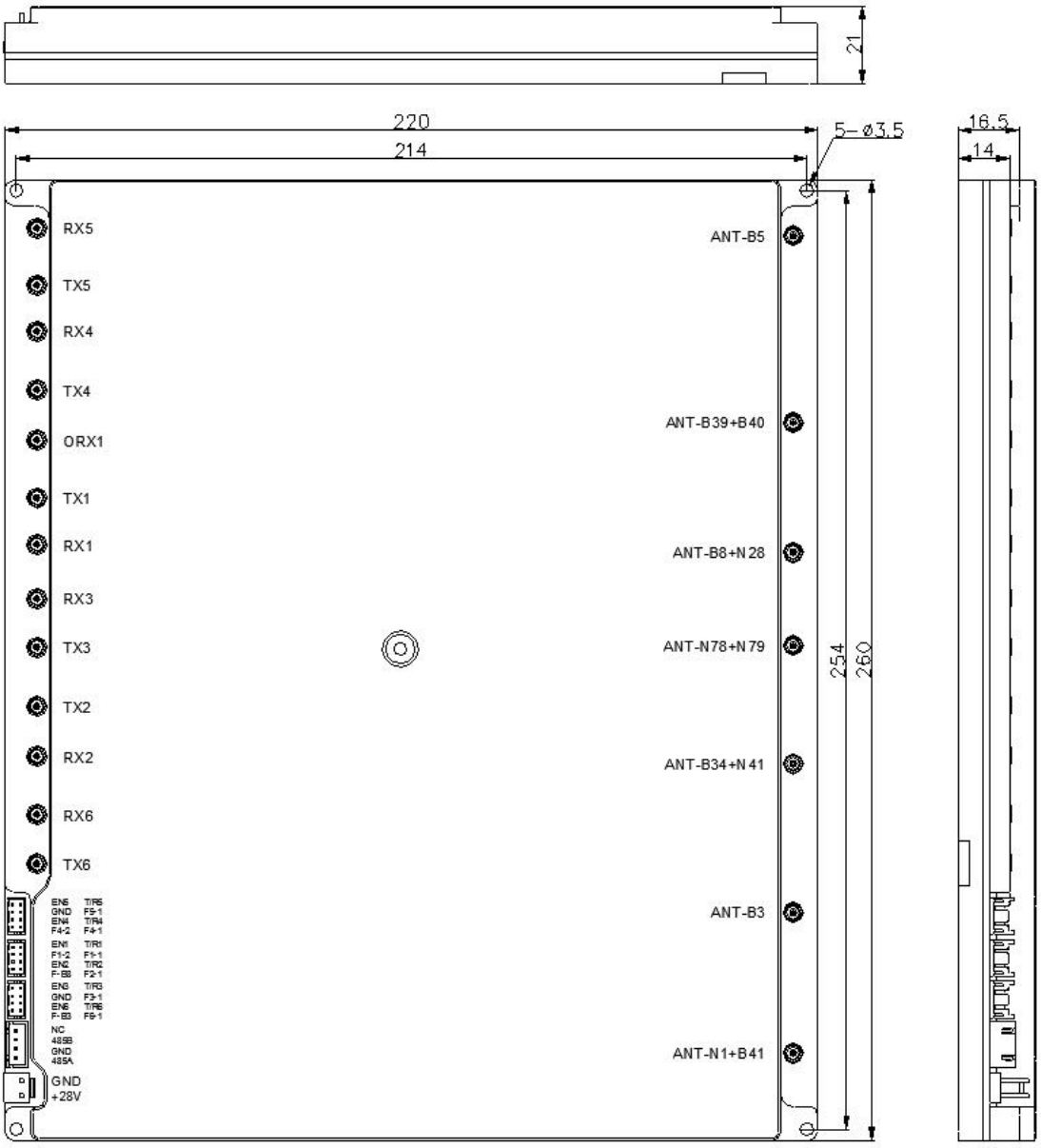
External synchronization enable interface control section	Channel 5 Switch Control (B40/B5) EN5: Channel enable (0 for power amplifier on, 1 for power amplifier off). T/R5: TDD channel 5 synchronization: 0-PA on, LNA off; 1-LNA on, PA off. F5-1：0-B40，1-B5 Channel 4 Switch Control (B39/B34/N28/B8) EN4: Channel enable (0 for power amplifier on, 1 for power amplifier off). T/R4: TDD channel synchronization for channel 4: 0-PA on, LNA off for TDD channel; 1-LNA on, PA off for TDD channel. F4-1, F4-2: 11-B39,01-N28 (N28 is not controlled by EN4),00-B8 (B8 is not controlled by EN4),10-B34 (B34 is not controlled by EN4) control ） F-B8: B8 uplink control, 1-(885-915),0-(904-915) Channel 1 Switch Control (N78/B34/N28/B8) EN1: Channel enable (0 for power amplifier on, 1 for power amplifier off). T/R1: TDD channel synchronization for channel 1: PA is enabled and LNA is disabled for 0-TDD channel; LNA is enabled and PA is disabled for 1-TDD channel. F1-1, F1-2: 00-N78,01-B8 (B8 is not controlled by EN1),11-N28 (N28 is not controlled by EN1),10-B34 (B34 is not controlled by EN1) Control) (N28, the B8 uplink output port connects to ORX1) F-B8: B8 uplink control, 1-(885-915),0-(904-915) Channel 3 Switch Control (N79/B3) EN3: Channel enable (0 for power amplifier on, 1 for power amplifier off). T/R3: TDD channel 3 synchronization: PA on and LNA off for 0-TDD channel; LNA on and PA off for 1-TDD channel. F3-1：1-N79，0-B3 F-B3：1-(1805-1880)，0-（1805-1830） Channel 2 Switch Control (N41-2/N1) EN2: Channel enable (0 for power amplifier on, 1 for power amplifier off). T/R2: TDD channel 2 synchronization: 0-PA on, LNA off; 1-LNA on, PA off.	3 PHD2.0MM-2*4PIN double-row sockets Connect to the digital motherboard module

2: Monitoring Function

Test item	Specification	Remarks
Temperature detection error	Temperature error ≤3	
RF switch	Power amplifier shutdown	
Over temperature alarm	Turn off when ≥ 90 ° automatically	
Embedded software environment	Supports RS485 protocol interface; capable of temperature detection	

3. Dimensions and structural diagram:

Test item	**Specification**	**Remarks**
Module appearance	Cavity conductive oxidation, surface sandblasting	
Module size (mm)	260×220×21mm	
Install fixed hole size	M3	


21
220
214
5-ø3.5
16.5
14
RX5
TX5
RX4
TX4
ORX1
TX1
RX1
RX3
TX3
TX2
RX2
RX6
TX6
ANT-B5
ANT-B39+B40
ANT-B8+N28
ANT-N78+N79
ANT-B34+N41
ANT-B3
ANT-N1+B41
254
260
GND
+28V