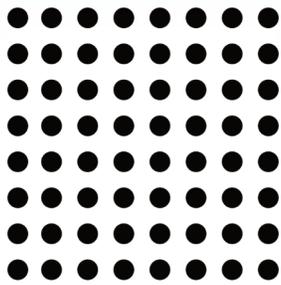


## FCM2801: 28 GHz High-Efficiency CMOS Power Amplifier for 5G mmWave Applications



# FALCOMM

### PRODUCT DESCRIPTION

Falcomm's FCM2801 is a high-efficiency 28 GHz power amplifier designed for 5G mmWave applications.

Built on a CMOS process and leveraging Falcomm's patented Dual-Drive™ architecture, the FCM2801 delivers outstanding power-added efficiency, gain, and linearity in a compact, cost-effective Si footprint.

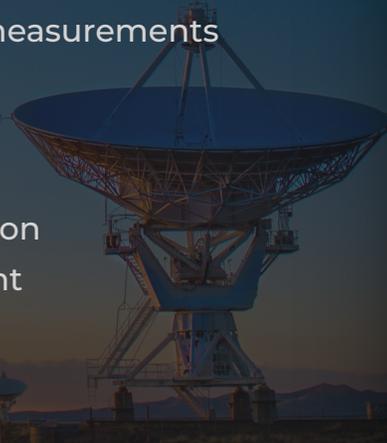
Ideal for phased arrays, infrastructure equipment, and broadband front ends, the FCM2801 is available as a silicon-proven IP block, enabling rapid integration and fast time-to-market for 28 GHz mmWave systems.

### BENEFITS INCLUDE

- Best in class efficiency
- Plug and play
- Frequency and process agnostic
- 0.5x silicon area reduction
- 6dB lower loss matching network
- Silicon proven design flow that accurately models within 2% of measurements

### APPLICATIONS

- IoT devices
- Satellite Communication
- Mobile User Equipment
- Cellular Base Stations
- Automotive Radar
- Fixed Wireless Access



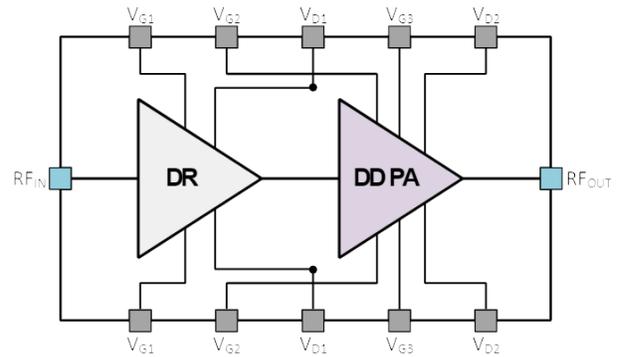
### FEATURES

- **2-stage PAEmax = 52.3%**
- **PA-stage DEmax = 61.5%**
- **Psat = 19.02dBm**
- **Gain = 22dB**
- **Efficiency maintained at lower supply voltages**
- **High data rate modulation speeds**

## RECOMMENDED OPERATING CONDITIONS

Parameter	Value	Units
VG1	200 to 300	mV
VG2	200 to 300	mV
VG3	1.1 to 1.3	V
VD1	0.75 to 1	V
VD2	1.6 to 2	V
Input Power at Psat	4	dBm
Max Power Dissipation	150	mW
Quiescent Current	25	mA

## FUNCTIONAL BLOCK DIAGRAM



## ELECTRICAL SPECIFICATIONS

Parameter	Min	Typ	Max	Units
Technology		SOI CMOS		
Supply	1.6	1.8	2	V
Gain		22		dB
Frequency Range	23	28	36	GHz
$P_{sat}$		19.5		dBm
$OP_{1dB}$		18		dBm
$DE_{max}$		62		%
$PAE_{max}$		53		%
$PAE_{P1dB}$		50		%
Modulation Scheme		64QAM		
Frequency Range		28		GHz
Data Rate		1.5		Gsymbols/s
Data Rate		9		Gb/s
EVM		-25		dB
SNR(MER)		-25		dB
ACPR		-29		dB
$P_{avg}$		14		dBm
$PAE_{avg}$		32		%

Table 1. Device was measured at room temperature and using a 50Ohm system for CW and modulation.