

## Features

- Operating Frequency Range: 200 ~ 2500 MHz
- Operating Drain Voltage: 28V (up to 36V)
- 50 Ω Input
- Gain at 10 W avg.: ≥22dB
- Saturated Power: ≥15W
- Single Ended Device
- 6x10 mm surface mount air cavity package
- Support CW/pulsed or any other modulation signals
- Compliant to Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC

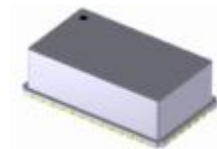
## Typical Applications

- Tactical communication
- Wideband spectrum management
- LMR
- Benchtop Amplifier
- EMC test

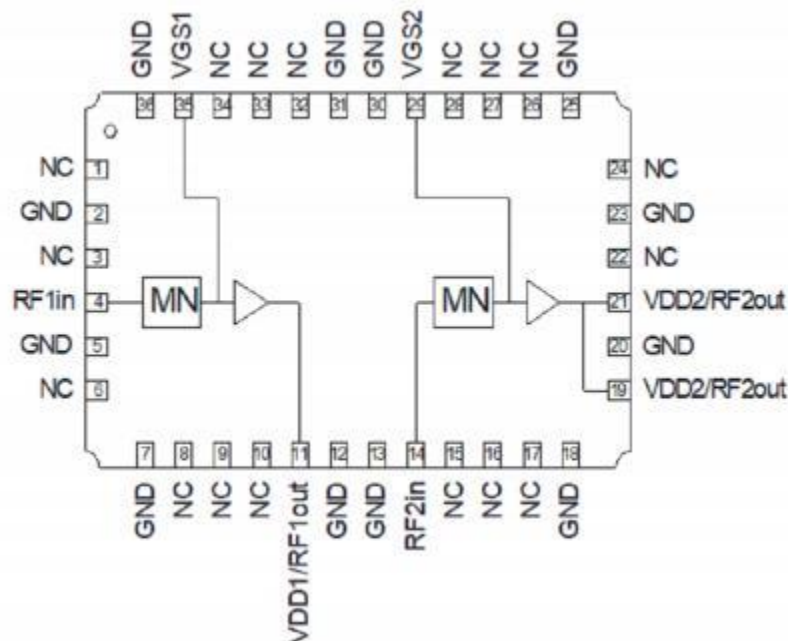
## General Description

SAC5007 is a 15-watt peak power, integrated Power Amplifier Module, designed for broad band applications, with frequencies from 200 to 2500 MHz. The module is 50 Ω input and requires minimal external components. The module offers a much smaller footprint than traditional discrete component solutions.

## Picture



## Pin Configuration and Description



**Table 1. Maximum Ratings**

Rating	Symbol	Value	Unit
Drain--Source Voltage	$V_{DSS}$	150	Vdc
Gate--Source Voltage	$V_{GS}$	-10 to +2	Vdc
Operating Voltage	$V_{DD}$	+36	Vdc
Storage Temperature Range	$T_{stg}$	-65 to +150	°C
Case Operating Temperature	$T_C$	+150	°C
Operating Junction Temperature	$T_J$	+225	°C

**Table 2. Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case $T_C=87^\circ\text{C}$ , $T_J=175^\circ\text{C}$ , DC test	$R_{\theta JC}$	3.5	°C/W

**Table 3. ESD Protection Characteristics**

Test Methodology	Class
Human Body Model (HBM) (JEDEC Standard JS-001-2012)	TBD
Charged Device Model (CDM) (JEDEC Standard JESD22-C101F)	TBD

**Table 4. Electrical Characteristics**

Parameter	Condition	Min	Typ	Max	Unit
Frequency Range		100		2600	MHz
Power Gain @ $P_{out}=10\text{W Avg.}$	Driver + Final Stage		22		dB
$P_{SAT}$		15		20	W
Drain Efficiency @ $P_{SAT}$		35	55		%

Unless otherwise noted:  $T_A = 25^\circ\text{C}$ ,  $V_{DD} = 28\text{ V}$ , Pulse Width=100 us, Duty cycle=10%

**Load Mismatch of per Section (On Test Fixture, 50-ohm system):  $V_{DD} = 30\text{ V}$ ,  $f = 2.6\text{ GHz}$**

VSWR 10:1 at P3dB pulse CW Output Power	No Device Degradation
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## Reference Circuit of Test Fixture Assembly Diagram

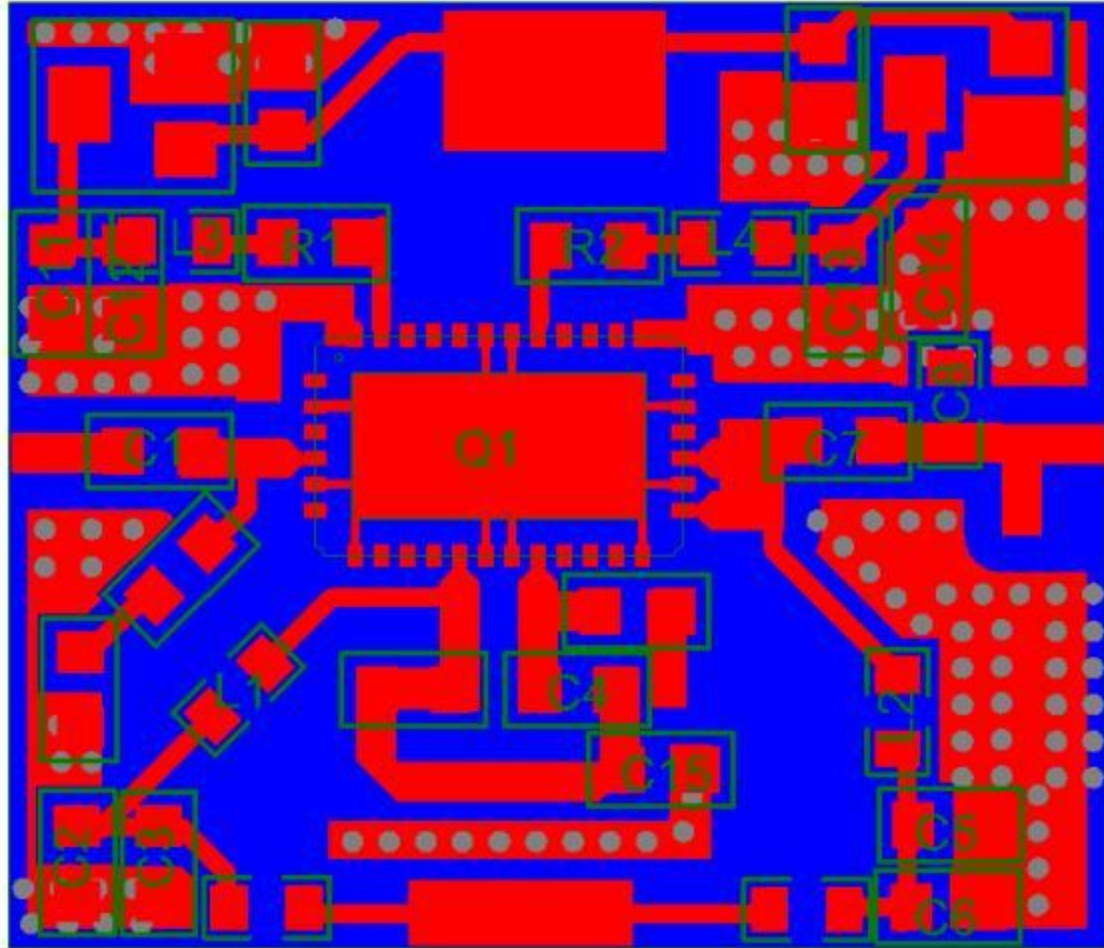


Figure 1 . Test Circuit Component Layout

Table 5. Test Circuit Component Designations and Values

Component	Description	Suggested
		Manufacturer
C1	30pF	DLC75D
C2, C5, C12, C13	100pF	DLC75D
C3, C6, C11, C14	10uF	
C4, C7	100pF	ATC600S
C8, C15	1.5pF	DLC75D
R1, R2	Chip Resistor,20ohm	603
L1	330nH	603
L2	100nH	
L3, L4	4.3nH	805
PCB	RO4350B 20mils	Rogers

### SuperApex, LLC

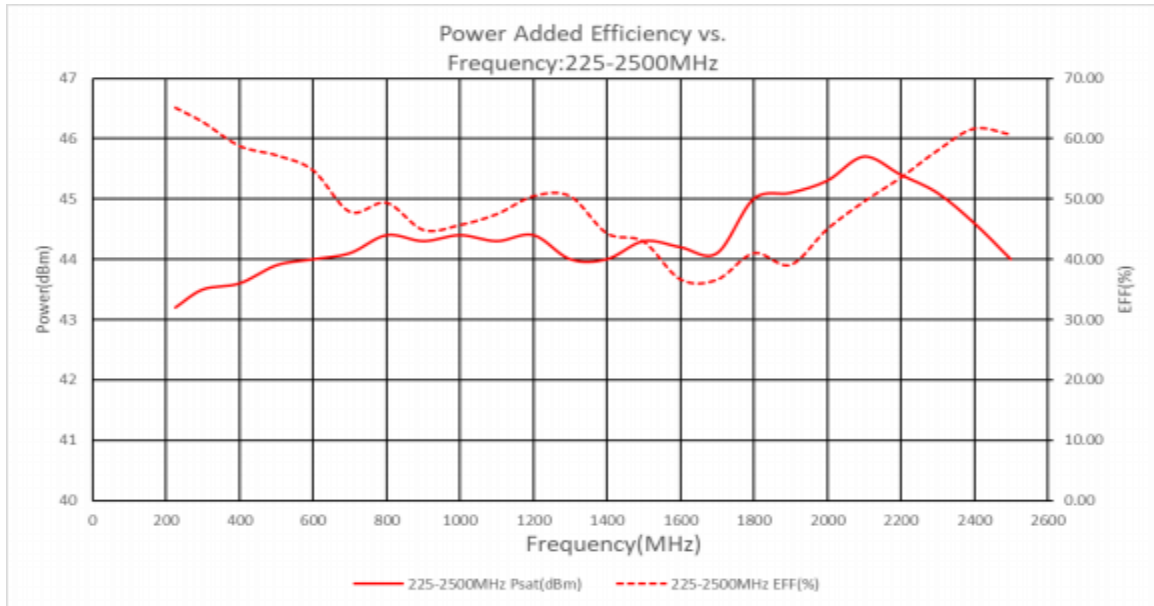
1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA  
Tel: 1-847-505-8319, 1-847-573-9866  
E-mail: sales@superapexco.com  
Website: www.superapexco.com

## TYPICAL CHARACTERISTICS

**Figure 2 . Psat and Efficiency vs. Frequency**

Test Condition: Pulse CW , Pulse width=100us , Duty Cycle=10%

Driver: VDS=30V, Vgs=-2.65V Idq=40mA Final: VDS=30V Vgs=-2.75V Idq=100mA



**Figure 3 . Network Analyzer output S11/S21**

Driver: VDS=30V, Vgs=-2.65V Idq=40mA/Final: VDS=30V Vgs=-2.75V Idq=100mA

