



## ARTIK™ 05x Series

### Remotely monitor, control and access data from WiFi®-connected assets in real time—safely and securely

The Samsung ARTIK™ 05x Series Smart IoT Modules are a high performance solution to empower the next generation of smart, safe devices with advanced services

#### Provide new services to your customers

With ARTIK 05x Series Modules and SmartThings Cloud, you can safely deliver valuable new product capabilities to your customers. Simplify installation, share data, track use, predict maintenance issues to reduce downtime, provide product upgrades, and add new sources of service revenue post-sale.

#### For the first time, manufacturers have an end-to-end, enterprise grade, security solution for edge products

The ARTIK platform provides cost-effective, enterprise-grade security to support trusted services and protect against unauthorized intrusions. ARTIK modules don't just rely on perimeter protection—security is built into hardware, software and each connected interaction so every product can work safely on its own.

#### ARTIK IoT makes interoperability easier for you and your customers

Extend your IoT solutions to include a wide ecosystem of external products and service providers. The integrated Samsung SmartThings cloud makes it easy to connect your products to third-party products and make everything work together. Create responsive home and building environments. Trigger actions between devices and alarms or safety equipment. Share data with manufacturing execution systems to improve equipment effectiveness and deliver money-saving operational improvements.

#### Focus your development resources on what you do best, ARTIK IoT takes care of the rest

The ARTIK family of fully-integrated modules provides everything you need for rapid development of high performance, IoT-enabled products with pre-tested, production-ready hardware with out-of-the-box connectivity, advanced software, robust security, and an integrated cloud solution.

## Application examples

#### 3.3 VDC (055s)

- Sensors
- Monitors
- Controllers
- Thermostats

#### 5-12 VDC (053/053s)

- Valves, Actuators
- Home appliances
- Motors, robots
- MDDS Class 1 gateways

## Product Features

Production ready. Pre-integrated.  
Multiple power supply options. -20 to 85 °C



#### Build high performance products with real-time response

- ARM® Cortex® R4 320MHz core with 1.4MB RAM and 8MB Flash on module
- Real-time OS with fully integrated middleware
- 68 I/O interface pins for greater flexibility



#### Get fast data speeds with industry leading Wi-Fi

- IEEE 802.11™ b/g/n Wi-Fi subsystem with built-in acceleration
- Certified for regulatory standards such as FCC/IC/CE



#### Support security and protect privacy

- Strong root of trust with Samsung PKI and mutual authentication to the cloud
- Physical Unclonable Function (PUF) unique ID
- Secure boot validates software authenticity during power-up (s version)
- Samsung KMS for simplified code signing (s version)
- Hardware accelerated data encryption
- Secure data storage



#### Enable compelling new product features with ARTIK cloud services

- Onboard and connect devices in minutes
- Securely manage and update products over the air
- Access third-party products and services with integrated SmartThings Cloud and cloud connectors
- Orchestrate complex interactions between devices and data sources



#### Flexible power supply

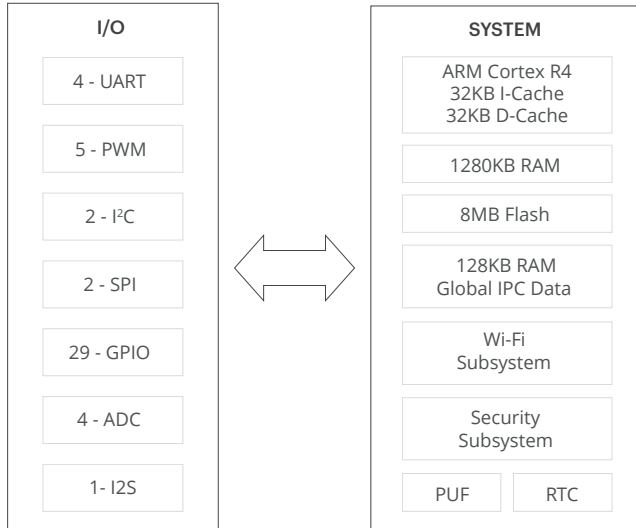
- 3.3 VDC or 5-12 VDC extended input voltage

# Samsung ARTIK™ O5x Series Modules

## Samsung ARTIK™ O5x Module Features

Processor	
CPU	32 bit ARM® Cortex® R4 with 32KB I-Cache and 32KB D-Cache @ 320MHz
Memory	
RAM	1280KB (General use) 128KB (Global IPC data)
FLASH	8MB Flash
Security	
Secure System	AES/DES/TDES, SHA-1/SHA-2, PKA (Public Key Accelerator), PRNG/DTRNG (Random Number Generators), Secure key storage
PUF	Physical Unclonable Function
Radio	
Wi-Fi®	Certified IEEE 802.11™ b/g/n Wi-Fi®, 2.4GHz radio
Regulatory	FCC (U.S), IC (Canada), CE (EU), KC (Korea), SRRC (China)
Power Management - Single supply	
O53/O53s	5V-12VDC
O55s	3.3 VDC
Interfaces	
I/O	UART, I2C, SPI, PWM, ADC, GPIO, I2S
Form Factor - Dimensions	
O53/O53s	15mm W x 40mm H x 3mm D
O55s	15mm W x 26mm H x 3mm D
Temperature	
	-20 to 85 °C T <sub>case</sub>

## Samsung ARTIK™ O5x Module Block Diagram

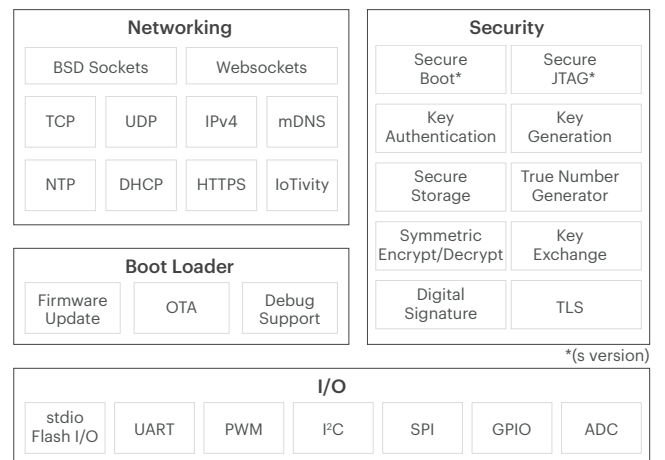


## Samsung Tizen RT™ OS Features

Kernel Services	
Real time	Tasks, threads, queues, mutex, semaphore, signal
Time	Real-time clock, date/time, timer, sleep
Network Services	
Internet	DHCP, NTP client, DNS client, mDNS, BSD sockets, Websockets
Services	Web client/server, MQTT client, IoTivity, cJSON
Libc Services	
Libc Compatibility	Flash-based Stdio, Stdlib, String, Unistd, Time
Security Services	
Crypto Library	AES, RSA, Hash, ECDH, ECDSA
Authentication	HMAC 128/256, certificate
Certificate Storage	Secure Flash storage
Firmware Integrity	Secure boot* and JTAG protection*

\*(s version)

## Samsung TizenRT™ OS Block Diagram



\*(s version)

## Ordering Information

For ordering, please contact a sales representative in your area or visit [artik.io/contact-us](http://artik.io/contact-us)

For product information, visit [artik.io/modules/artik-O5x](http://artik.io/modules/artik-O5x)

## O5x Series Product Portfolio

	Supply Voltage	Security	Pin Compatibility	Dimensions	Module Part Number	KIT Part Number
O53	5-12 VDC	Secure Element	O53s	15mm W x 40mm H x 3mm D	SIP-OP5WRS301	SIP-KIT NXF001
O53s	5-12 VDC	SE, KMS, Secure Boot	O53	15mm W x 40mm H x 3mm D	SIP-OP5WRS302	SIP-KIT NXF002
O55s	3.3 VDC	SE, KMS, Secure Boot	-	15mm W x 26mm H x 3mm D	SIP-OP5WRS502	SIP-KIT NXH002

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