



EMBEDDED EARTH

A large, glowing blue globe of the Earth is centered in the lower half of the image. The globe is overlaid with a complex network of white lines and dots, representing a global network or data flow. The background is a dark blue gradient with faint, scattered white lines and dots, suggesting a digital or space-themed environment.

VOLUME 1

ADVANTECH

INDUSTRIAL SSD & MEMORY SOLUTIONS

DESIGN-IN SERVICE FOR
PERIPHERAL SOLUTIONS

 A Member of WPG Holdings
WPG Americas Inc.





SQFLASH

LEADING INDUSTRIAL SSD SOLUTIONS

We used our decades of embedded market experience to develop SQFlash, creating an excellent industrial storage solution with a full range of product support and value-added services. Advantech SQFlash SSDs are designed with industrial operation in mind, and provide highly-reliable storage with excellent compatibility, performance, and security. All our products are built with a TCG-OPAL self-encryption disk functionality powered by AES-256 internal encryption, and Advantech's unique Flash Lock function for disk protection.



KEY FEATURES

Comprehensive Security

- ➔ FIPS certified SQFlash SSD
- ➔ TCG-OPAL compliant
- ➔ Crypto Erase and Military Erase
- ➔ Trellix & Acronis software integration

Power Failure Protection

- ➔ Comprehensive protection ensures data integrity
- ➔ Built-in voltage stabilizer for internal power supply
- ➔ Reliable startup power sequence

High-Endurance Solutions

- ➔ 10 x more durable SSD with 3D sTLC solution (P/E cycle: up to 100k)
- ➔ Industrial extended temperature support
- ➔ DeviceOn/SQ Manager delivers endurance and reliable monitoring

Thermal Solution on NVMe SSD

- ➔ Industrial heatsink cools SSD by up to 30 °C
- ➔ Flexible thermal grease prevents physical damage
- ➔ Smart thermal throttling against sudden performance drop
- ➔ Remote health and temperature monitoring

Flexible Customization Service

- ➔ 30-day time to market design-in service
- ➔ Extended longevity: 3 ~ 5 years
- ➔ Early access to the latest Storage technology
- ➔ System integration with FPGA and firmware support

Full Length Brochure Available from your WPG Americas representative

SQFLASH INDUSTRIAL STORAGE MODULES

SATA SSD

PERFORMANCE SERIES



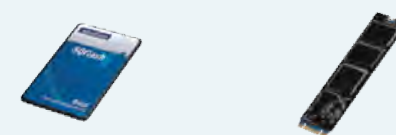
POWER LOSS PROTECTION



ENTERPRISE SERIES



FIPS CERTIFIED



MODEL NAME	SQF-S25 840 SERIES	SQF-SM8 840 SERIES	SQF-SMS 840 SERIES	SQF-S25 840V SERIES	SQF-S25 840L SERIES	SQF-S25 840F SERIES	SQF-SM8 840F SERIES
Form Factor	2.5" SATA SSD	M.2 2280 SATA SSD (NGFF)	mSATA SSD (MO-300A)	2.5" SATA SSD	2.5" SATA SSD	2.5" SATA SSD	M.2 2280 SATA SSD
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Connector	7 + 15 pin SATA	M.2 with B+M key SATA pin-out	Mini PCIe with SATA pin-out	7 + 15 pin SATA	7 + 15 pin SATA	7 + 15 pin SATA	M.2 with B+M key SATA pin-out
Flash Type	3D TLC / sTLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC
Maximum Power Consumption	4.6W	3.0W	3.0W	3.7W	3.4W	2.2W	2.0W
Capacity	TLC: 240GB ~ 15.3TB sTLC: 60GB ~ 1.9TB	240GB ~ 1.9TB	240GB ~ 1.9TB	240GB ~ 7.6TB	240GB ~ 7.6TB	240GB ~ 1.9TB	240GB ~ 1.9TB

PERFORMANCE SERIES



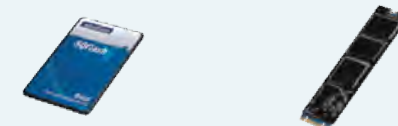
POWER LOSS PROTECTION



ENTERPRISE SERIES



FIPS CERTIFIED



MODEL NAME	SQF-S25 840 SERIES	SQF-SM8 840 SERIES	SQF-SMS 840 SERIES	SQF-S25 840V SERIES	SQF-S25 840L SERIES	SQF-S25 840F SERIES	SQF-SM8 840F SERIES
Maximum Read / Write Performance (MB/s)	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 520 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/ 100K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K
Op. Temperature	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C
DeviceOn/ SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz

EMBEDDED SERIES



MODEL NAME	SQF-S25 650 SERIES	SQF-SMS 650 SERIES	SQF-S8B 650 SERIES	SQF-S4B 650 SERIES	SQF-SHM 650 SERIES	SQF-S10 650 SERIES	SQF-SLM 650 SERIES
Form Factor	2.5" SATA SSD	mSATA SSD	M.2 2280 SATA SSD	M.2 2242 SATA SSD	Half-size mSATA SSD	CFast SATA SSD Card	Half Slim SATA SSD
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s

EMBEDDED SERIES



MODEL NAME	SQF-S25 650 SERIES	SQF-SMS 650 SERIES	SQF-S8B 650 SERIES	SQF-S4B 650 SERIES	SQF-SHM 650 SERIES	SQF-S10 650 SERIES	SQF-SLM 650 SERIES
Connector	7 + 15 pin SATA	Mini PCIe with SATA pin-out	M.2 with B+M key SATA pin-out	M.2 with B+M key SATA pin-out	Mini PCIe with SATA pin-out	CFast Type-I	7 + 15 pin SATA
Flash Type	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC
Maximum Power Consumption	1.8W	1.8W	1.8W	1.8W	1.3W	1.6W	1.4W
Capacity	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 1TB sTLC: 32GB ~ 256GB	TLC: 64GB ~ 1TB sTLC: 32GB ~ 256GB	TLC: 64GB ~ 512GB sTLC: 32GB ~ 128GB	TLC: 64GB ~ 1TB
Maximum Read / Write Performance (MB/s)	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 510 Random IOPS@4K: 89K/86K	Sequential: 550 / 510 Random IOPS@4K: 91K/85K	Sequential: 550 / 520 Random IOPS@4K: 96K/87K
Op. Temperature	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C
DeviceOn/ SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G, Peak / 80 ~ 2,000 Hz	20G, Peak / 80 ~ 2,000 Hz	20G, Peak / 80 ~ 2,000 Hz	20G, Peak / 80 ~ 2,000 Hz	20G, Peak / 80 ~ 2,000 Hz	20G, Peak / 80 ~ 2,000 Hz	20G, Peak / 80 ~ 2,000 Hz

NVMe SSD

EDGE SERVER



ENTERPRISE SERIES



EMBEDDED SERIES



MODEL NAME	SQF-CU2 ER-1 SERIES	SQF-C8M ER-1 SERIES	SQF-C8M 930 SERIES	SQF-CM8 920 SERIES	SQF-C4M 720 SERIES	SQF-C8B 720 SERIES	SQF-C8M 720 SERIES	SQF-CFX 720 SERIES
Form Factor	2.5" U.2 NVMe SSD	M.2 2280 NVMe SSD	M.2 2280 NVMe SSD	M.2 2280 NVMe SSD	M.2 2242 NVMe SSD (NGFF)	M.2 2280 NVMe SSD (NGFF)	M.2 2280 NVMe SSD (NGFF)	CFexpress card
Transfer Protocol	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.3 x4	PCIe Gen.3 x4	PCIe Gen.3 x2	PCIe Gen.3 x4	PCIe Gen.3 x2
Connector	U.2 NVMe Interface (SFF-8639)	M.2 M key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 B+M key with PCIe pin-out	M.2 M key with PCIe pin-out	CFexpress (Type B)
Flash Type	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC
Maximum Power Consumption	11.5W	7.3W	11W	5.5W	3.6W	3.0W	3.6W	3.4W
Capacity	400GB ~6.4TB	400GB ~3.2TB	400GB ~3.8TB	240GB ~1.9TB	TLC: 128GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 128GB ~ 2TB sTLC 32GB ~ 512GB	TLC: 128GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 128GB ~ 1TB sTLC: 32GB ~ 256G
Maximum Read / Write Performance (MB/s)	Seq. : 6,900 / 5,700 Ran. IOPS@4k: 779k / 761k	Seq. : 6,500 / 5,000 Ran. IOPS@4k: 779k / 753k	Seq. : 7,200 / 6,300 Ran. IOPS@4k: 550k / 1000k	Seq. : 3,300 / 3,000 Ran. IOPS@4k: 650k / 650k	Seq. : 2,450 / 1,900 Ran. IOPS@4k: 250k / 420k	Seq. : 1,750 / 1,650 Ran. IOPS@4k: 260k / 380k	Seq. : 2,450 / 1,900 Ran. IOPS@4k: 250k / 420k	Seq. : 1,750 / 1,650 Ran. IOPS@4k: 270k / 380k
Op. Temperature	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C
DeviceOn/ SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported

	EDGE SERVER		ENTERPRISE SERIES		EMBEDDED SERIES			
MODEL NAME	SQF-CU2 ER-1 SERIES	SQF-C8M ER-1 SERIES	SQF-C8M 930 SERIES	SQF-CM8 920 SERIES	SQF-C4M 720 SERIES	SQF-C8B 720 SERIES	SQF-C8M 720 SERIES	SQF-CFX 720 SERIES
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz	20G,Peak / 80~2,000 Hz

OTHER FLASH PRODUCT

	ONBOARD BGA SSD		EMMC		HIGH SPEED CARD		PEN DRIVE
MODEL NAME	SQF-CUS 730 SERIES	SQF-SUS 640 SERIES	SQF-MM5	SQF-MMC	SQF-ISD	SQF-MSD	SQF-UPD
Form Factor	291 ball BGA -1620	156 ball BGA -1620	153 ball BGA -1113	100 ball BGA -1113	SD Card	Micro SD Card	USD Drive
Transfer Protocol	PCIe Gen.4 x4	SATA 6Gb/s	eMMC 5.0	eMMC 5.0	UHS-I, CL10, A2 SD / SPI	UHS-I, CL10, A2 SD / SPI	USB 3.2 GEN 1

ONBOARD BGA SSD



EMMC



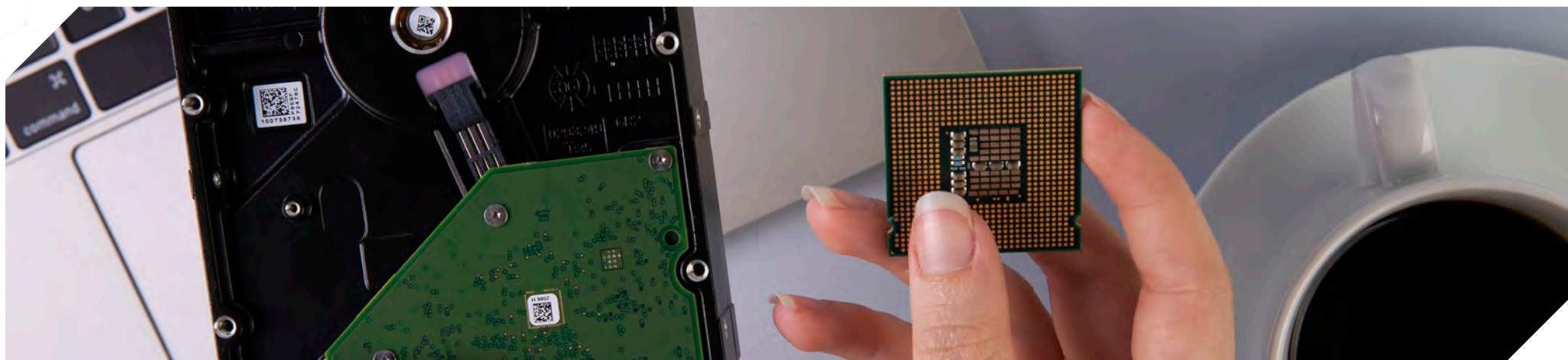
HIGH SPEED CARD



PEN DRIVE

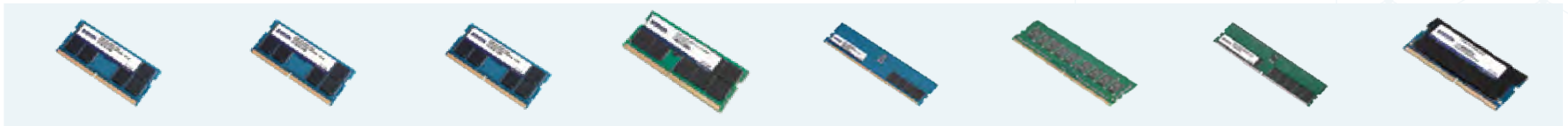


MODEL NAME	SQF-CUS 730 SERIES	SQF-SUS 640 SERIES	SQF-MM5	SQF-MMC	SQF-ISD	SQF-MSD	SQF-UPD
Connector	N/A	N/A	N/A	N/A	9-pin	8-pin	USB-A
Flash Type	3D TLC	MLC / UMLC / 3D TLC	MLC / UMLC / 3D TLC	MLC / UMLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC
Maximum Power Consumption	3.2W	1.5W	0.4W	0.4W	1.4W	1.4W	1.8W
Capacity	256GB ~ 1TB	4GB ~ 512GB	2GB ~ 64GB	2GB ~ 64GB	16GB ~ 256GB	16GB ~ 512GB	64GB ~ 256GB
Maximum Read / Write Performance (MB/s)	Seq. : 3,700 / 3,000 Random IOPS@4k: 600k / 310k	Seq. : 550 / 490 Random IOPS@4k: 74k / 86k	Seq. : 250/ 150 HS200 Upto 200MB/s HS400 Upto 400MB/s	Seq. : 250/ 150 HS200 Upto 200MB/s HS400 Upto 400MB/s	Seq. : 100/ 93 Random IOPS@4k: 9.8k / 2.7k (Up to V30)	Seq. : 100/ 93 Random IOPS@4k: 9.8k / 3.8k Up to V30)	Seq. : 210/ 60
Op. Temperature	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	-25 ~ 85 °C / -40 ~ 85 °C	-25 ~ 85 °C / -40 ~ 85 °C	0 ~ 70 °C



SGRAM INDUSTRIAL MEMORY MODULES

DDR5 NEW

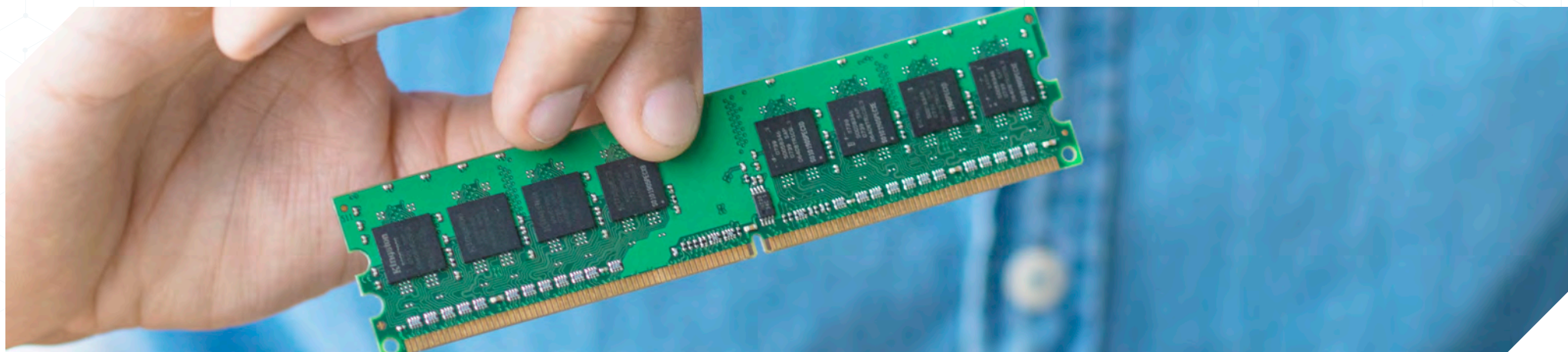


SERIES	SQR-SD5N	SQR-SD5I	SQR-SD5U	SQR-SD5 (ECC)	SQR-UD5N	SQR-UD5 (ECC)	SQR-RD5N	SQR-HS5N
Interface	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5
Form Factor	SODIMM	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	RDIMM	SODIMM
Pin	262pin	262pin	262pin	262pin	288pin	262pin	288pin	262pin
Frequency(MHz)	5600/4800	5600/4800	5600/4800	5600/4800	5600/4800	5600/4800	5600/4800	5600/4800
Capacity	8/16/24/32/48	8/16/24/32/48	8/16/32	16/32	8/16/24/32/48	16/32GB	16/32/64/128GB	8/16/24/32/48
Voltage	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v
Temperature	0~95°C	-40~95°C	-40~105°C	0~95°C	0~95°C	0~95°C	0~95°C	0~95°C

DDR3



SERIES	SQR-SD3N	SQR-SD3I	SQR-SD3 (ECC)	SQR-UD3N	SQR-UD3N (ECC)	SQR-HS3N
Interface	DDR3	DDR3	DDR3	DDR3	DDR3	DDR3
Form Factor	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	SODIMM
Pin	204pin	204pin	204pin	240pin	240pin	204pin
Frequency(MHz)	1600	1600	1600	1600	1600	1600
Capacity	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB
Voltage	1.35v	1.35v	1.35v	1.35v	1.35v	1.35v
Temperature	0~85°C	-40~85°C	0~85°C	0~85°C	0~85°C	0~85°C



CONTACT US TODAY:

USA

888.WPG.8881

ARIZONA

15880 N. Greenway/ Hayden Loop
Suite A-170, Scottsdale, AZ
85260 800.553.8406

FLORIDA

113135 W. Linebaugh Avenue Suite
101, Tampa, FL 33626
813.814.9100
800.800.5441

CANADA

Eastern 800.225.0818
Western 408.392.8100

CALIFORNIA

11735 Technology Drive Suite 770
San Jose, CA 95110 408.392.8100

MISSISSIPPI

DISTRIBUTION WAREHOUSE
481 Airport Industrial Drive
Southhaven, MS
38671 888.WPG.8881

MEXICO

011.521.333.1297768

ILLINOIS

11827 Walden Office Square
Suite 548, Schaumburg, IL 60173
847.760.5280

NEW YORK

3125 Veterans Memorial Highway
Suite 3, Ronkonkoma, NY
11779 631.320.0000

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WPG Americas Inc.