

The GSI logo and product number are displayed on a black, diamond-shaped background that resembles a microchip. The text is white and reads 'GSI' in a large font, with 'GS82583ED36GK-625M' in a smaller font below it.

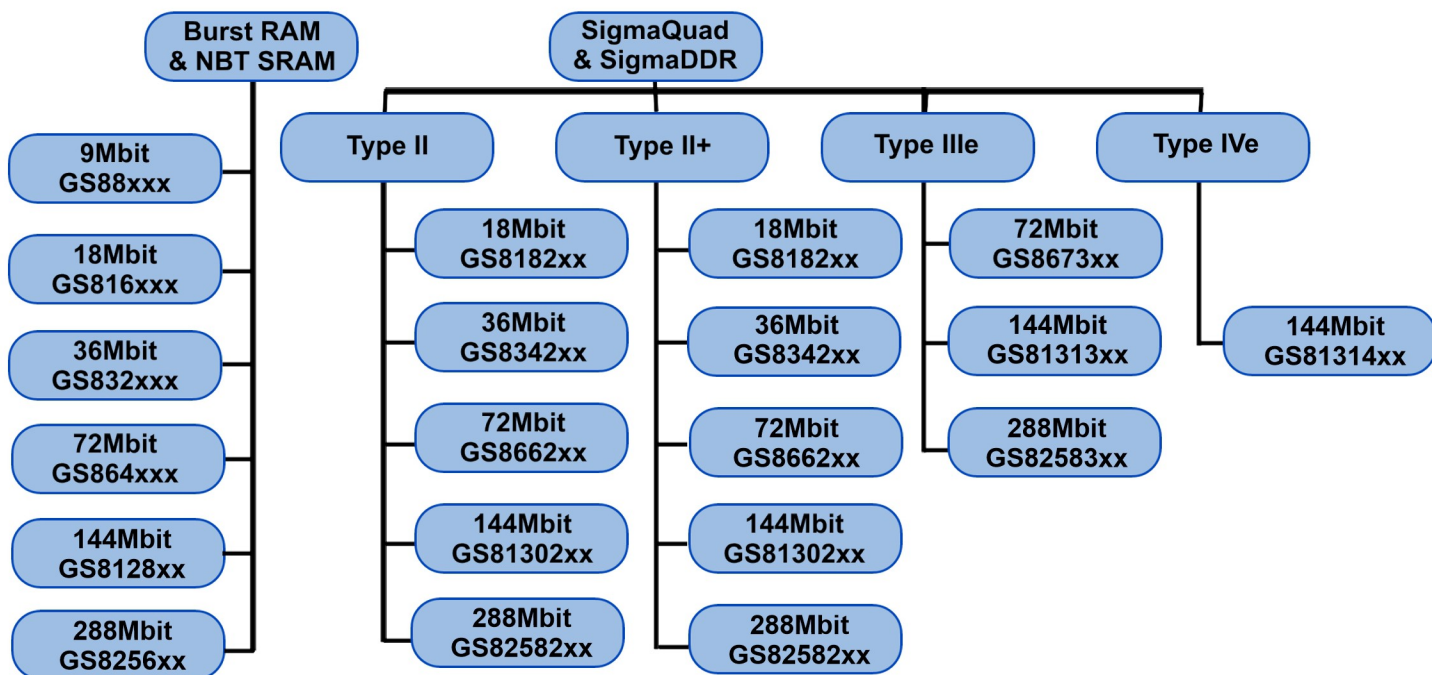
# Military Temperature Memory

2020 Product Listing

# GSI Technology 2020 Military Product Listing

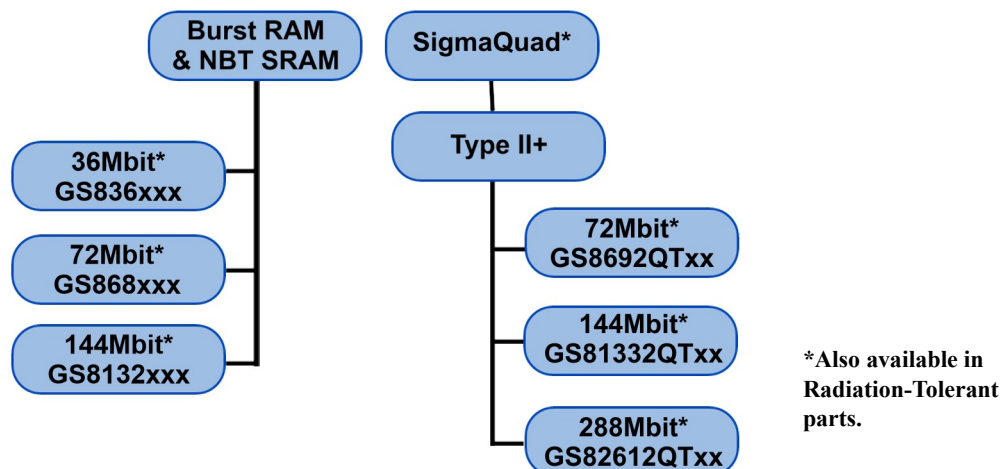
GSI Technology invites you to consider our comprehensive offering of standard

## Military Temperature SRAMs:



or

## Our innovative line of Radiation-Hardened Military Temperature SRAMs:

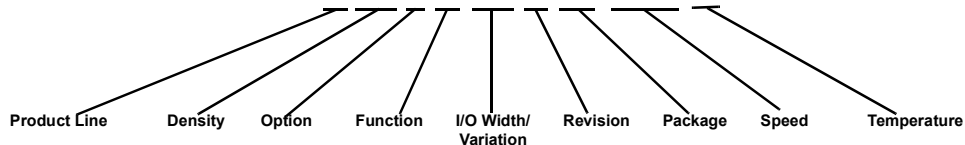


\*Also available in Radiation-Tolerant parts.

GSI Military Temperature products are 100% tested to -55°C to 125°C. They are supported by a global team of design, applications and customer service experts.

GSI Military Temperature SRAMs can be identified by the “M” in the part number:

**GS8662D38BD-450M**





**GSI Technology is excited to offer several high performance Radiation-Hardened and Radiation-Tolerant synchronous SRAMs.**

**Our Rad-Hard SRAMs are expected to serve as a critical element for advanced systems that leverage leading-edge FPGAs, ADCs, and DACs; but until now lacked the high density, high performance, and power efficiency that our outstanding memory products bring. The initial devices are qualified to Class-Q and Class-V levels to meet the rigorous requirements of aerospace and defense customers.**

**For our satellite and defense customers that have been anxiously awaiting an alternative to current Rad-Hard memory solutions, our Rad-Hard SRAMs leverage our proven commercial technology and architecture with radiation-hardening, creating an efficient, high performance, leading-edge memory at the 40nm technology node.**

**GSI currently offers Rad-Hard products from the SigmaQuad-II+, Synchronous Burst, and NBT families.**

**For less robust applications, GSI also offers Radiation-Tolerant SigmaQuad-II+, Synchronous Burst, and NBT SRAMs.**

**For more information regarding this exciting new technology, please contact GSI Technology at [aerospace@gstechnology.com](mailto:aerospace@gstechnology.com).**

# GSI Technology 2020 Military Product Listing

## Radiation-Hardened SRAM offerings

Rad-Hard SigmaQuad-II+™									
GSI P/N	Density	Config	Burst Length	Read Latency	ODT	Speed (MHz)	Voltage	165 BGA	
								CCGA (CE)	LGA (LE)
GS82612QT37yy-####a* GS82612QT19yy-####a	288Mb	8M x 36 16M x 18	2	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•	•
GS81332QT37yy-####a GS81332QT19yy-####a	144Mb	4M x 36 8M x 18	2	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•	•
GS8692QT37yy-####a GS8692QT19yy-####a	72Mb	2M x 36 4M x 18	2	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•	•
GS82612DT37yy-####a* GS82612DT19yy-####a	288Mb	8M x 36 16M x 18	4	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•	•
GS81332DT37yy-####a GS81332DT19yy-####a	144Mb	4M x 36 8M x 18	4	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•	•
GS8692DT37yy-####a GS8692DT19yy-####a	72Mb	2M x 36 4M x 18	4	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•	•

\*Alpha character at the end of the part number denotes qualification nomenclature (S = Engineering Sample; V = Class-V; Q = Class-Q.)

Rad-Hard No Bus Turnaround						
GSI P/N	Density	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage	100 QFP
						QFP (CQ)
GS81320Z36yy-####a GS81320Z18yy-####a	144Mb	4M x 36 8M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•
GS8680Z36yy-####a GS8680Z18yy-####a	72Mb	2M x 36 4M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•
GS8360Z36yy-####a GS8360Z18yy-####a	36Mb	1M x 36 2M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•

\*Alpha character at the end of the part number denotes qualification nomenclature (S = Engineering Sample; V = Class-V; Q = Class-Q.)

Rad-Hard Synchronous Burst						
GSI P/N	Density	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage	100 QFP
						QFP (CQ)
GS8132036yy-####a GS8132018yy-####a	144Mb	4M x 36 8M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•
GS868036yy-####a GS868018yy-####a	72Mb	2M x 36 4M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•
GS836036yy-####a GS836018yy-####a	36Mb	1M x 36 2M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•

\*Alpha character at the end of the part number denotes qualification nomenclature (S = Engineering Sample; V = Class-V; Q = Class-Q.)

# GSI Technology 2020 Military Product Listing

## Radiation-Tolerant SRAM offerings

Rad-Tolerant SigmaQuad-II+™								
GSI P/N	Density	Config	Burst Length	Read Latency	ODT	Speed (MHz)	Voltage	165 BGA
								LPGA (RE)
GS82582QT37yy-### GS82582QT19yy-###	288Mb	8M x 36 16M x 18	2	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•
GS81302QT37yy-### GS81302QT19yy-###	144Mb	4M x 36 8M x 18	2	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•
GS8662QT37yy-### GS8662QT19yy-###	72Mb	2M x 36 4M x 18	2	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•
GS82582DT37yy-### GS82582DT19yy-###	288Mb	8M x 36 16M x 18	4	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•
GS81302DT37yy-### GS81302DT19yy-###	144Mb	4M x 36 8M x 18	4	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•
GS8662DT37yy-### GS8662DT19yy-###	72Mb	2M x 36 4M x 18	4	2.0	Weak/ Strong	350/250 (Military Temp)	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	•

Rad-Tolerant No Bus Turnaround						
GSI P/N	Density	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage	100 TQFP
						TQFP (RT)
GS81280Z36yy-###a GS81280Z18yy-###a	144Mb	4M x 36 8M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•
GS8640Z36yy-###a GS8640Z18yy-###a	72Mb	2M x 36 4M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•
GS8320Z36yy-###a GS8320Z18yy-###a	36Mb	1M x 36 2M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•

Rad-Tolerant Synchronous Burst						
GSI P/N	Density	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage	100 TQFP
						TQFP (RT)
GS8128036yy-###a GS8128018yy-###a	144Mb	4M x 36 8M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•
GS864036yy-###a GS864018yy-###a	72Mb	2M x 36 4M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•
GS832036yy-###a GS832018yy-###a	36Mb	1M x 36 2M x 18	333/250 (Military Temp)	2.5	V <sub>DD</sub> —2.5 V/3.3 V V <sub>DDQ</sub> —2.5 V/3.3 V	•

## Standard Military Temperature SRAMs SigmaQuad-IVe™ SRAMs<sup>1</sup>

144Mb SigmaQuad-IVe					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>2</sup>	Features
GS81314LD36GK-120M GS81314LD18GK-120M	4M x 36 8M x 18	1200	V <sub>DD</sub> —1.25 ~ 1.3 V V <sub>DDQ</sub> —1.2 ~ 1.3 V HSTL I/O	260 BGA	<b>SigmaQuad-IVe Burst of 4</b> Read Latency = 6 <b>On-Die Termination Option</b> <b>Multi-Bank, ECCRAM™</b>
GS81314LQ36GK-120M GS81314LQ18GK-120M	4M x 36 8M x 18	1200	V <sub>DD</sub> —1.25 ~ 1.3 V V <sub>DDQ</sub> —1.2 ~ 1.3 V HSTL I/O	260 BGA	<b>SigmaQuad-IVe Burst of 2</b> Read Latency = 6 <b>On-Die Termination Option</b> <b>Multi-Bank, ECCRAM™</b>
GS81314LD37GK-800M GS81314LD19GK-800M	4M x 36 8M x 18	800	V <sub>DD</sub> —1.3 V V <sub>DDQ</sub> —1.2 ~ 1.3 V HSTL I/O	260 BGA	<b>SigmaQuad-IVe Burst of 4</b> Read Latency = 5 <b>On-Die Termination Option</b> <b>Single-Bank, ECCRAM™</b>
GS81314LQ37GK-800M GS81314LQ19GK-800M	4M x 36 8M x 18	800	V <sub>DD</sub> —1.3 V V <sub>DDQ</sub> —1.2 ~ 1.3 V HSTL I/O	260 BGA	<b>SigmaQuad-IVe Burst of 2</b> Read Latency = 5 <b>On-Die Termination Option</b> <b>Single-Bank, ECCRAM™</b>

**Notes:**

1. SigmaQuad-IVe is a trademark of GSI Technology.
2. GK package is 6/6 RoHS-compliant. Contact your local sales representative for K package (leaded version) availability.

## SigmaQuad-IIIe™ SRAMs<sup>1</sup>

288Mb SigmaQuad-IIIe					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>2</sup>	Features
GS82583ED36GK-625M GS82583ED18GK-625M	8M x 36 16M x 18	625	V <sub>DD</sub> —1.3 V V <sub>DDQ</sub> —1.2V/1.3 V/1.5 V	260 BGA	<b>SigmaQuad-IIIe Burst of 4</b> Read Latency = 3 <b>On-Die Termination Option</b>
GS82583EQ36GK-450M GS82583EQ18GK-450M	8M x 36 16M x 18	450	V <sub>DD</sub> —1.3 V V <sub>DDQ</sub> —1.2V/1.3 V/1.5 V	260 BGA	<b>SigmaQuad-IIIe Burst of 2</b> Read Latency = 3 <b>On-Die Termination Option</b>
144Mb SigmaQuad-IIIe					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>2</sup>	Features
GS81313LD36GK-714M GS81313LD18GK-714M	4M x 36 8M x 18	714	V <sub>DD</sub> —1.25 ~ 1.3 V V <sub>DDQ</sub> —1.2 ~ 1.3 V HSTL I/O	260 BGA	<b>SigmaQuad-IIIe Burst of 4</b> Read Latency = 3 <b>On-Die Termination Option</b> <b>ECCRAM™</b>
GS81313LQ36GK-714M GS81313LQ18GK-714M	4M x 36 8M x 18	714	V <sub>DD</sub> —1.25 ~ 1.3 V V <sub>DDQ</sub> —1.2 ~ 1.3 V HSTL I/O	260 BGA	<b>SigmaQuad-IIIe Burst of 2</b> Read Latency = 3 <b>On-Die Termination Option</b> <b>ECCRAM™</b>

**Notes:**

1. SigmaQuad-IIIe is a trademark of GSI Technology.
2. GK package is 6/6 RoHS-compliant. Contact your local sales representative for K package (leaded version) availability.

## SigmaQuad-IIIe™ SRAMs<sup>1</sup>

72Mb SigmaQuad-IIIe					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>2</sup>	Features
GS8673ED36BGK-625M GS8673ED18BGK-625M	2M x 36 4M x 18	625	V <sub>DD</sub> —1.35 V V <sub>DDQ</sub> —1.2 V/1.5 V	260 BGA	<b>SigmaQuad-IIIe Burst of 4</b> Read Latency = 3 <b>On-Die Termination Option</b> <b>ECCRAM™</b>
GS8673EQ36BGK-625M GS8673EQ18BGK-625M	2M x 36 4M x 18	625	V <sub>DD</sub> —1.35 V V <sub>DDQ</sub> —1.2 V/1.5 V	260 BGA	<b>SigmaQuad-IIIe Burst of 2</b> Read Latency = 3 <b>On-Die Termination Option</b> <b>ECCRAM™</b>

**Notes:**

1. SigmaQuad-IIIe is a trademark of GSI Technology.
2. GK package is 6/6 RoHS-compliant. Contact your local sales representative for K package (leaded version) availability.

## SigmaQuad-II™ and SigmaQuad-II+™ SRAMs<sup>1</sup>

288Mb SigmaQuad-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>2</sup>	Features
GS82582D38GE-500M GS82582D20GE-500M	8M x 36 16M x 18	500	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (15 x 17 mm)	<b>SigmaQuad-II+ Burst of 4</b> Read Latency = 2.5 <b>On-Die Termination Option</b>
GS82582Q37GE-375M GS82582Q19GE-375M	4M x 36 8M x 18	375	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (15 x 17 mm)	<b>SigmaQuad-II+ Burst of 2</b> Read Latency = 2.0 <b>On-Die Termination Option</b>

288Mb SigmaQuad-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>2</sup>	Features
GS82582D36GE-375M GS82582D18GE-375M	8M x 36 16M x 18	375	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (15 x 17 mm)	<b>SigmaQuad-II+ Burst of 4</b>
GS82582Q36GE-333M GS82582Q18GE-333M	4M x 36 8M x 18	333	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (15 x 17 mm)	<b>SigmaQuad-II+ Burst of 2</b>

144Mb SigmaQuad-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>3</sup>	Features
GS81302D38AGD-550M GS81302D20AGD-550M	4M x 36 8M x 18	550	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II+ Burst of 4</b> Read Latency = 2.5 <b>On-Die Termination Option</b>
GS81302Q37AGD-400M GS81302Q19AGD-400M	4M x 36 8M x 18	400	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II+ Burst of 2</b> Read Latency = 2.0 <b>On-Die Termination Option</b>

**Notes:**

1. SigmaQuad™-II and SigmaDDR™-II products are pin and function compatible with QDR-II™ and QDR-II+™ products, respectively. SigmaQuad, SigmaQuad-II, and SigmaQuad-II+ are trademarks of GSI Technology. All other trademarks belong to their respective holders.
2. GE package is 6/6 RoHS-compliant. Contact your local sales representative for E package (leaded version) availability.
3. GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.

# GSI Technology 2020 Military Product Listing

## SigmaQuad-II™ and SigmaQuad-II+™ SRAMs<sup>1</sup>

144Mb SigmaQuad-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>3</sup>	Features
GS81302D36AGD-375M GS81302D18AGD-375M	4M x 36 8M x 18	375	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II Burst of 4</b>
GS81302Q36AGD-375M GS81302Q18AGD-375M	4M x 36 8M x 18	375	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II Burst of 2</b>
72Mb SigmaQuad-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>3</sup>	Features
GS8662D38CGD-550M GS8662D20CGD-550M	2M x 36 4M x 18	550	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II+ Burst of 4</b> <b>Read Latency = 2.5</b> <b>On-Die Termination Option</b>
GS8662D38BD-450M GS8662D20BD-450M GS8662D11BD-450M GS8662D06BD-450M	2M x 36 4M x 18 8M x 9 8M x 8	450	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II+ Burst of 4</b> <b>Read Latency = 2.5</b> <b>On-Die Termination Option</b>
GS8662Q37BD-333M GS8662Q19BD-333M GS8662Q10BD-333M GS8662Q07BD-333M	2M x 36 4M x 18 8M x 9 8M x 8	333	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II+ Burst of 2</b> <b>Read Latency = 2.0</b> <b>On-Die Termination Option</b>
72Mb SigmaQuad-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8662D36BD-350M GS8662D18BD-350M GS8662D09BD-350M GS8662D08BD-350M	2M x 36 4M x 18 8M x 9 8M x 8	350	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II Burst of 4</b>
GS8662Q36BD-333M GS8662Q18BD-333M GS8662Q09BD-333M GS8662Q08BD-333M	2M x 36 4M x 18 8M x 9 8M x 8	333	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II Burst of 2</b>
36Mb SigmaQuad-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8342D38BD-500M GS8342D20BD-500M GS8342D11BD-500M GS8342D06BD-500M	1M x 36 2M x 18 4M x 9 4M x 8	500	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II+ Burst of 4</b> <b>Read Latency = 2.5</b> <b>On-Die Termination Option</b>
GS8342Q37BD-333M GS8342Q19BD-333M GS8342Q10BD-333M GS8342Q07BD-333M	1M x 36 2M x 18 4M x 9 4M x 8	333	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II+ Burst of 2</b> <b>Read Latency = 2.0</b> <b>On-Die Termination Option</b>

**Notes:**

- SigmaQuad™-II and SigmaDDR™-II products are pin and function compatible with QDR-II™ and QDR-II+™ products, respectively. SigmaQuad, SigmaQuad-II, and SigmaQuad-II+ are trademarks of GSI Technology. All other trademarks belong to their respective holders.
- GE package is 6/6 RoHS-compliant. Contact your local sales representative for E package (leaded version) availability.
- GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.



## SigmaQuad-II™ and SigmaQuad-II+™ SRAMs<sup>1</sup>

36Mb SigmaQuad-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8342D36BD-350M GS8342D18BD-350M GS8342D09BD-350M GS8342D08BD-350M	1M x 36 2M x 18 4M x 9 4M x 8	350	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	SigmaQuad-II Burst of 4
GS8342Q36BD-333M GS8342Q18BD-333M GS8342Q09BD-333M GS8342Q08BD-333M	1M x 36 2M x 18 4M x 9 4M x 8	333	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	SigmaQuad-II Burst of 2
18Mb SigmaQuad-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8182D37BD-400M GS8182D19BD-400M	512K x 36 1M x 18	400	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	SigmaQuad-II+ Burst of 4 Read Latency = 2.0
18Mb SigmaQuad-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8182D36BD-375M GS8182D18BD-375M GS8182D09BD-375M GS8182D08BD-375M	512K x 36 1M x 18 2M x 9 2M x 8	375	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	SigmaQuad-II Burst of 4
GS8182Q36BD-300M GS8182Q18BD-300M GS8182Q09BD-300M GS8182Q08BD-300M	512K x 36 1M x 18 2M x 9 2M x 8	300	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	SigmaQuad-II Burst of 2

**Notes:**

1. SigmaQuad™-II and SigmaDDR™-II products are pin and function compatible with QDR-II™ and QDR-II+™ products, respectively. SigmaQuad, SigmaQuad-II, and SigmaQuad-II+ are trademarks of GSI Technology. All other trademarks belong to their respective holders.
2. GE package is 6/6 RoHS-compliant. Contact your local sales representative for E package (leaded version) availability.
3. GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.

## SigmaDDR-IIIe™ SRAMs<sup>1</sup>

288Mb SigmaDDR-IIIe					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>2</sup>	Features
GS82583ET36GK-625M GS82583ET18GK-625M	8M x 36 16M x 18	625	V <sub>DD</sub> —1.3 V V <sub>DDQ</sub> —1.2V/1.3 V/ 1.5 V	260 BGA	<b>DDR-IIIe Burst of 2</b> Read Latency = 3 <b>On-Die Termination Option</b>
144Mb SigmaDDR-IIIe					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS81313LT36GK-714M GS81313LT18GK-714M	4M x 36 8M x 18	714	V <sub>DD</sub> —1.25 ~ 1.3 V V <sub>DDQ</sub> —1.2 ~ 1.3 V HSTL I/O	260 BGA	<b>DDR-IIIe Burst of 2</b> Read Latency = 3 <b>On-Die Termination Option</b> <b>ECCRAM™</b>
72Mb SigmaDDR-IIIe					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>3</sup>	Features
GS8673ET36BHK-550M GS8673ET18BHK-550M	2M x 36 4M x 18	550	V <sub>DD</sub> —1.35 V V <sub>DDQ</sub> —1.2 V/1.5 V	260 BGA	<b>DDR-IIIe Burst of 2</b> Read Latency = 3 <b>On-Die Termination Option</b> <b>ECCRAM™</b>

**Notes:**

1. SigmaQuad-IIIe is a trademark of GSI Technology.
2. GK package is 6/6 RoHS-compliant. Contact your local sales representative for K package (leaded version) availability.
3. HK package is 5/6 RoHS-compliant with leaded package balls and lead-free die bumps.

## SigmaDDR-II™ and SigmaDDR-II+™ SRAMs<sup>1</sup>

288Mb SigmaQuad-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>2</sup>	Features
GS82582T38GE-500M GS82582T20GE-500M	8M x 36 16M x 18	500	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (15 x 17 mm)	<b>SigmaQuad-II+ Burst of 2</b> Read Latency = 2.0 <b>On-Die Termination Option</b>
144Mb SigmaDDR-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package <sup>3</sup>	Features
GS81302T38AGD-550M GS81302T20AGD-550M	4M x 36 8M x 18	550	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>DDR-II+ Burst of 2</b> Read Latency = 2.5 <b>On-Die Termination Option</b>
144Mb SigmaDDR-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS81302T36E-350M GS81302T18E-350M GS81302T09E-350M GS81302T08E-350M	4M x 36 8M x 18 16M x 9 16M x 8	350	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (15 x 17 mm)	<b>DDR-II Burst of 2</b>

**Notes:**

1. SigmaQuad™-II and SigmaDDR™-II products are pin and function compatible with QDR-II™ and QDR-II+™ products, respectively. SigmaQuad, SigmaQuad-II, and SigmaQuad-II+ are trademarks of GSI Technology. All other trademarks belong to their respective holders.
2. GE package is 6/6 RoHS-compliant. Contact your local sales representative for E package (leaded version) availability.
3. GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.

## SigmaDDR-II™ and SigmaDDR-II+™ SRAMs<sup>1</sup>

72Mb SigmaDDR-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8662T38CGD-550M GS8662T20CGD-550M	2M x 36 4M x 18	550	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>SigmaQuad-II+ Burst of 2</b> Read Latency = 2.5 <b>On-Die Termination Option</b>
GS8662T38BD-450M GS8662T20BD-450M GS8662T11BD-450M GS8662T06BD-450M	2M x 36 4M x 18 8M x 9 8M x 8	450	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>DDR-II+ Burst of 2</b> Read Latency = 2.5
72Mb SigmaDDR-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8662T36BD-350M GS8662T18BD-350M GS8662T09BD-350M GS8662T08BD-350M	2M x 36 4M x 18 8M x 9 8M x 8	350	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>DDR-II Burst of 2</b>
36Mb SigmaDDR-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8342T38BD-500M GS8342T20BD-500M GS8342T11BD-500M GS8342T06BD-500M	1M x 36 2M x 18 4M x 9 4M x 8	500	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>DDR-II+ Burst of 2</b> Read Latency = 2.5 <b>On-Die Termination Option</b>
36Mb SigmaDDR-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8342T36BD-350M GS8342T18BD-350M GS8342T09BD-350M GS8342T08BD-350M	1M x 36 2M x 18 4M x 9 4M x 8	350	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>DDR-II Burst of 2</b>
18Mb SigmaDDR-II+					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8182T37BD-400M GS8182T19BD-400M	512K x 36 1M x 18	400	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>DDR-II+ Burst of 2</b> Read Latency = 2.0
18Mb SigmaDDR-II					
GSI P/N	Config	Speed (MHz)	Voltage	Package	Features
GS8182T36BD-375M GS8182T18BD-375M GS8182T09BD-375M GS8182T08BD-375M	512K x 36 1M x 18 2M x 9 2M x 8	375	V <sub>DD</sub> —1.8 V V <sub>DDQ</sub> —1.5 V/1.8 V	165 BGA (13 x 15 mm)	<b>DDR-II Burst of 2</b>

**Notes:**

1. SigmaQuad™-II and SigmaDDR™-II products are pin and function compatible with QDR-II™ and QDR-II+™ products, respectively. SigmaQuad, SigmaQuad-II, and SigmaQuad-II+ are trademarks of GSI Technology. All other trademarks belong to their respective holders.
2. GE package is 6/6 RoHS-compliant. Contact your local sales representative for E package (leaded version) availability.
3. GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.

# GSI Technology 2020 Military Product Listing

## No Bus Turnaround (NBT™) SRAMs<sup>1</sup>

288Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package <sup>2,3</sup>	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS82564Z36GB-333M GS82564Z18GB-333M	8M x 36 16M x 18	333	2.5–3.0	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS82564Z36GD-333M GS82564Z18GD-333M	8M x 36 16M x 18	333	2.5–3.0	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes
144Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package <sup>2,3</sup>	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS81282Z36GB-333M GS81282Z18GB-333M	4M x 36 8M x 18	333	2.5–3.0	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS81282Z36GD-333M GS81282Z18GD-333M	4M x 36 8M x 18	333	2.5–3.0	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes
72Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS8642Z36B-250M GS8642Z18B-250M	2M x 36 4M x 18	250	2.3–3.5	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS8642Z72C-250M	1M x 72	250	2.3–3.5	2.5/3.3 V	2.5/3.3 V	209 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
36Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS8322Z36AB-375M GS8322Z18AB-375M	1M x 36 2M x 18	375	2.5–4.0	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS8322Z36AD-375M GS8322Z18AD-375M	1M x 36 2M x 18	375	2.5–4.0	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS8322Z72C-225M	512K x 72	225	2.5–4.0	2.5/3.3 V	2.5/3.3 V	209 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes

**Notes:**

1. NBT is a trademark of GSI Technology.
2. GB package is 6/6 RoHS-compliant. Contact your local sales representative for B package (leaded version) availability.
3. GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.

# GSI Technology 2020 Military Product Listing

## No Bus Turnaround (NBT™) SRAMs<sup>1</sup>

18Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS8162Z72CC-300M	256K x 72	300	2.8–3.8	2.5/3.3 V	2.5/3.3 V	209 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS8162Z36DB-375M GS8162Z18DB-375M	512K x 36 1M x 18	375	2.5–3.8	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS8162Z36DD-375M GS8162Z18DD-375M	512K x 36 1M x 18	375	2.5–3.8	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes
9Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS882Z36CB-300M GS882Z18CB-300M	256K x 36 512K x 18	300	2.5–3.8	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS882Z36CD-300M GS882Z18CD-300M	256K x 36 512K x 18	300	2.5–3.8	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes

**Notes:**

1. NBT is a trademark of GSI Technology.
2. GB package is 6/6 RoHS-compliant. Contact your local sales representative for B package (leaded version) availability.
3. GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.

## Synchronous Burst SRAMs

288Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package <sup>1,2</sup>	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS8256436GB-333M GS8256418GB-333M	8M x 36 16M x 18	333	2.5–3.0	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS8256436GD-333M GS8256418GD-333M	8M x 36 16M x 18	333	2.5–3.0	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes
144Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package <sup>1,2</sup>	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS8128236GB-333M GS8128218GB-333M	4M x 36 8M x 18	333	2.5–3.0	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS8128236GD-333M GS8128218GD-333M	4M x 36 8M x 18	333	2.5–3.0	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes

**Notes:**

1. GB package is 6/6 RoHS-compliant. Contact your local sales representative for B package (leaded version) availability.
2. GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.

## Synchronous Burst SRAMs

72Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Package	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS864236B-250M GS864218B-250M	2M x 36 4M x 18	250	2.3–3.5	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS864272C-250M	1M x 72	250	2.3–3.5	2.5/3.3 V	2.5/3.3 V	209 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
36Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Packages	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS832236AB-375M GS832218AB-375M	1M x 36 2M x 18	375	2.5–4.0	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS832236AD-375M GS832218AD-375M	1M x 36 2M x 18	375	2.5–4.0	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS832272C-225M	512K x 72	225	2.5–4.0	2.5/3.3 V	2.5/3.3 V	209 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
18Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Packages	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS816272CC-200M	256K x 72	200	2.8–3.8	2.5/3.3 V	2.5/3.3 V	209 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS816236DB-375M GS816218DB-375M	512K x 36 1M x 18	375	2.5–3.8	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS816236DD-375M GS816218DD-375M	512K x 36 1M x 18	375	2.5–3.8	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes
9Mb							
GSI P/N	Config	Speed (MHz)	Pipeline tKQ (ns)	Voltage Options		Packages	Features
				V <sub>DD</sub>	V <sub>DDQ</sub>		
GS88236CB-300M GS88218CB-300M	256K x 36 512K x 18	300	2.5–3.8	2.5/3.3 V	2.5/3.3 V	119 BGA	JTAG; FLXDrive™; Pipeline and Flow Through modes
GS88236CD-300M GS88218CD-300M	256K x 36 512K x 18	300	2.5–3.8	2.5/3.3 V	2.5/3.3 V	165 BGA (13 x 15 mm)	JTAG; FLXDrive™; Pipeline and Flow Through modes

**Notes:**

1. GB package is 6/6 RoHS-compliant. Contact your local sales representative for B package (leaded version) availability.
2. GD package is 6/6 RoHS-compliant. Contact your local sales representative for D package (leaded version) availability.



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