



GigaDevice

# PRODUCT SELECTION GUIDE 2021



# About Us

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GigaDevice Semiconductor Inc. (SSE Stock Code 603986) is a global leading fabless supplier. The company was founded in April 2005 and headquartered in Beijing, China, with branch offices in many countries and regions worldwide, providing local support at customers' fingertips.

Committed to building a complete ecosystem with three major product lines-Flash memory, MCU, and sensor-as the core driving force, GigaDevice can provide a wide range of solutions and services in the fields of industrial, automotive, computing, consumer electronics, IoT, mobile, networking and communications. GigaDevice is currently ranked No. 1 SPI NOR FLASH® supplier in China and No. 3 in the world with accumulated shipments nearly 16 billion since its inception. GigaDevice GD32 MCU is a leader in China's high performance 32-bit general-purpose microcontroller market, with more than 500 million units shipped, and over 360 part numbers from 28 family series in a variety of applications. In addition, GigaDevice delivers touchscreen controller sensor and fingerprint sensor to world-renowned mobile makers around the globe. It is currently one of the only two optical fingerprint sensor suppliers in China with mass production capability. GigaDevice's touchscreen controller sensor is ranked No. 4, and the optical fingerprint sensor is ranked No. 3 in the world.

GigaDevice management system has achieved ISO 9001:2015 and ISO 14001:2015 certification. Constantly looking to expand the technology offering to customers, GigaDevice has also formed multiple strategic alliances with leading foundries, assembly, and test plants to streamline supply chain management. For more details, please visit: [www.gigadevice.com](http://www.gigadevice.com)

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arm CORTEX

RISC-V

arm Community

RVA 中国开放指令生态 (RISC-V) 联盟  
China RISC-V Alliance

arm University Program

CRVIC 中国RISC-V产业联盟  
China RISC-V Industry Consortium

# GD32 MCU

## GD32 MCU Product Family

Performance	Arm® Cortex®-M 32-bit MCUs				RISC-V 32-bit MCUs
	Cortex®-M23	Cortex®-M3	Cortex®-M4	Cortex®-M33	RISC-V
High-Performance		GD32F207 120MHz, 3M Flash, 256K RAM GD32F205 120MHz, 3M Flash, 256K RAM	GD32F450 200MHz, 3M Flash, 512K RAM GD32F407 168MHz, 3M Flash, 192K RAM GD32F405 168MHz, 3M Flash, 192K RAM GD32F403 168MHz, 3M Flash, 128K RAM	GD32E507 180MHz, 512K/128K GD32E505 180MHz, 512K/128K GD32E503 180MHz, 512K/128K	
Mainstream		GD32F107 108MHz, 1M Flash, 96K RAM GD32F105 108MHz, 1M Flash, 96K RAM GD32F103 108MHz, 3M Flash, 96K RAM GD32F101 56MHz, 3M Flash, 80K RAM	GD32F307 120MHz, 1M Flash, 96K RAM GD32F305 120MHz, 1M Flash, 96K RAM GD32F303 120MHz, 3M Flash, 96K RAM GD32E103 120MHz, 128K Flash, 32K RAM	GD32E501 100MHz, 512K/32K	GD32VF103 108MHz, 128K Flash, 32K RAM
Entry-Level	GD32E232 72MHz, 64K Flash, 8K RAM GD32E231 72MHz, 64K Flash, 8K RAM GD32E230 72MHz, 64K Flash, 8K RAM	GD32F190 72MHz, 64K Flash, 8K RAM GD32F170 48MHz, 64K Flash, 8K RAM GD32F150 72MHz, 64K Flash, 8K RAM GD32F130 48MHz, 64K Flash, 8K RAM	GD32F350 108MHz, 128K Flash, 16K RAM GD32F330 84MHz, 128K Flash, 16K RAM		
Specific			GD32FFPR 168MHz, 1M Flash, 128K RAM	GD32EPRT 168MHz, 384K/96K+4M	

# GD32 Development Ecosystem



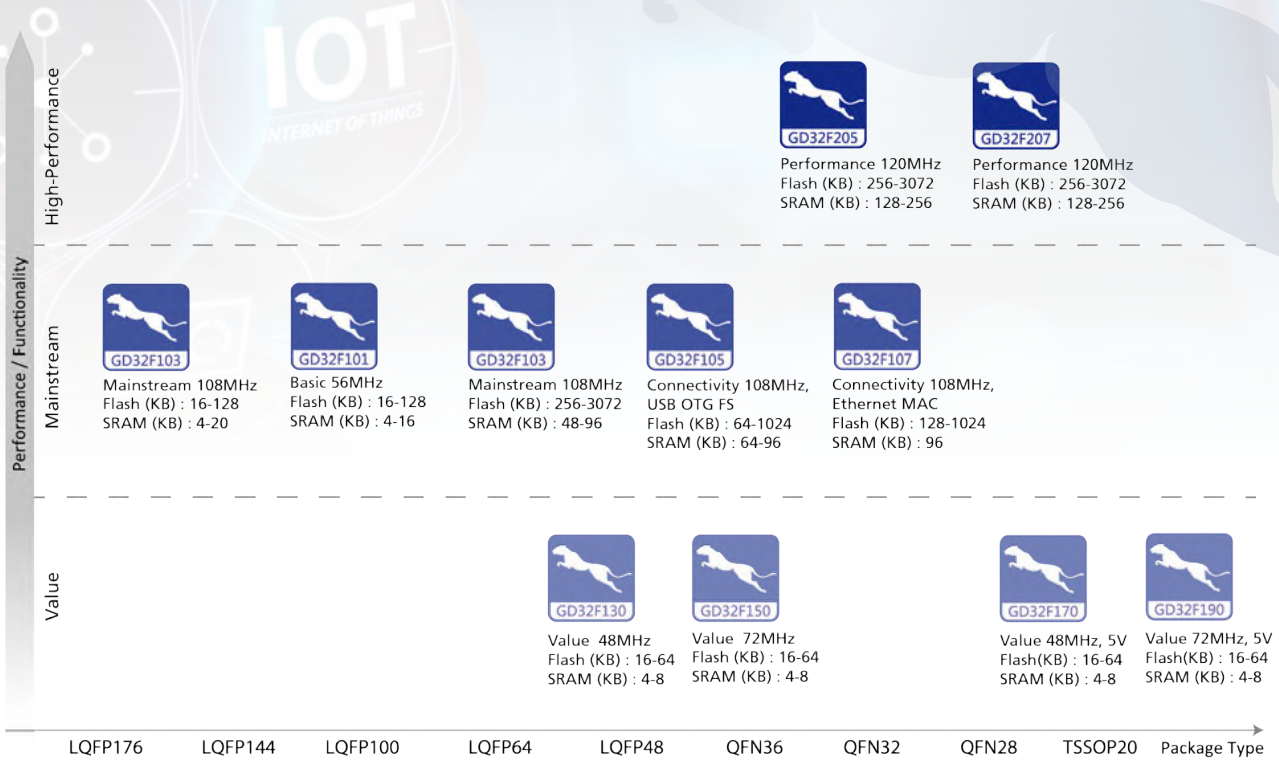
The logos are arranged in four rows:

- Row 1: KEIL™ Tools by ARM, IAR SYSTEMS, CrossWorks, CERTIFIED USB, j-link, SEGGER The Embedded Experts
- Row 2: EmbeeIDE, Microsoft Azure, aws, 0x5 HEX-Five, psacertified™, arm MBED, freeRTOS
- Row 3: LATEK, Welon, SUPERPRO®, ZLG®, ELNEC, PE micro, Phytom™
- Row 4: RISC-V®, CRVIC 中国RISC-V产业联盟, RvA 中国开放指令生态 (RISC-V) 联盟, 芯来科技 NUCLEI, GCC, GNU MCU, 天猫 GD32 旗舰店

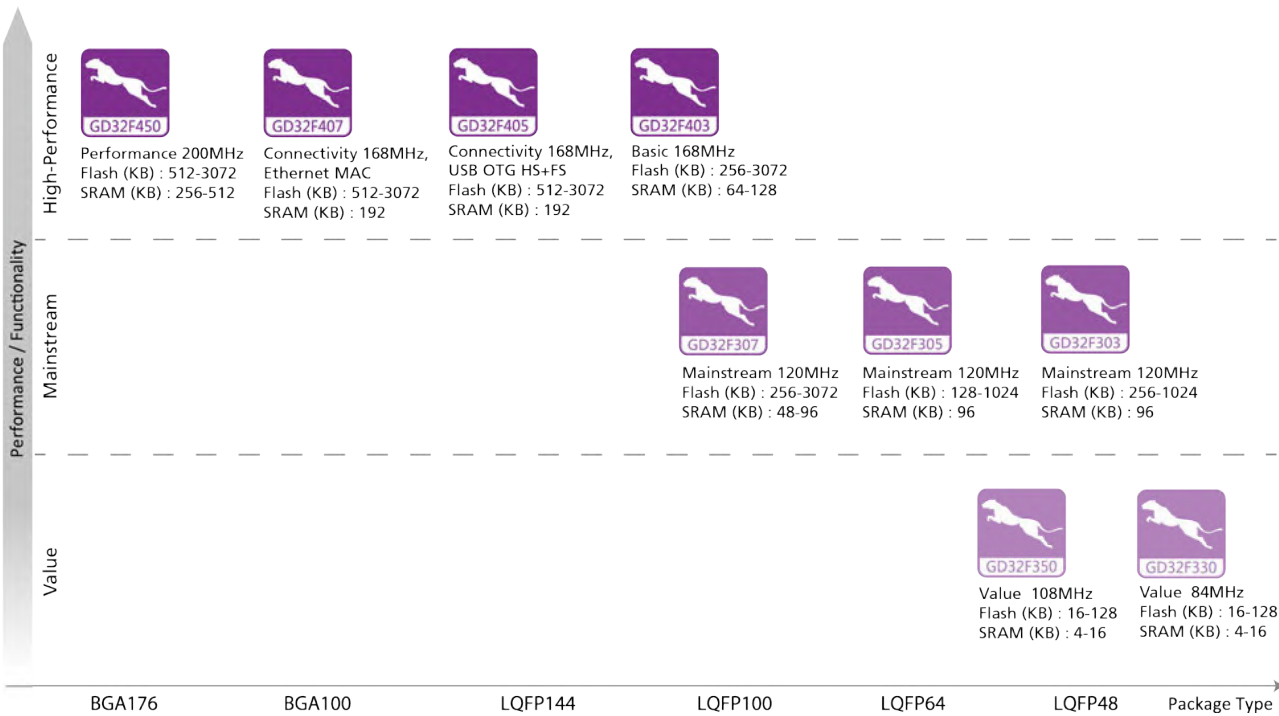
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## GD32 Cortex®-M3 MCU 200+ Part Numbers



## GD32 Cortex®-M4 MCU 100+ Part Numbers



## GD32 Cortex®-M23 MCU 20+ Part Numbers



- ✓ GD32E230 & GD32E231 & GD32E232 Arm Cortex®-M23 value line @ 72MHz
- ✓ 16K-64K Flash, 4K-8K SRAM
- ✓ 1.8-3.6V supply; 5V tolerance I/Os
- ✓ -40°C to +85°C industrial level operating temperature
- ✓ Series pin to pin compatible and flexible S/W compatible



## GD32 Cortex®-M33 MCU 20+ Part Numbers



- ✓ GD32E503/505/507/PRT High-performance line
- ✓ Cortex®-M33 @180MHz
- ✓ 128-512KB eFlash, 80-128KB SRAM
- ✓ 1.7-3.6V supply; 5V tolerance I/Os
- ✓ -40°C to +85°C industrial level operating temperature
- ✓ Series pin to pin compatible and flexible S/W compatible



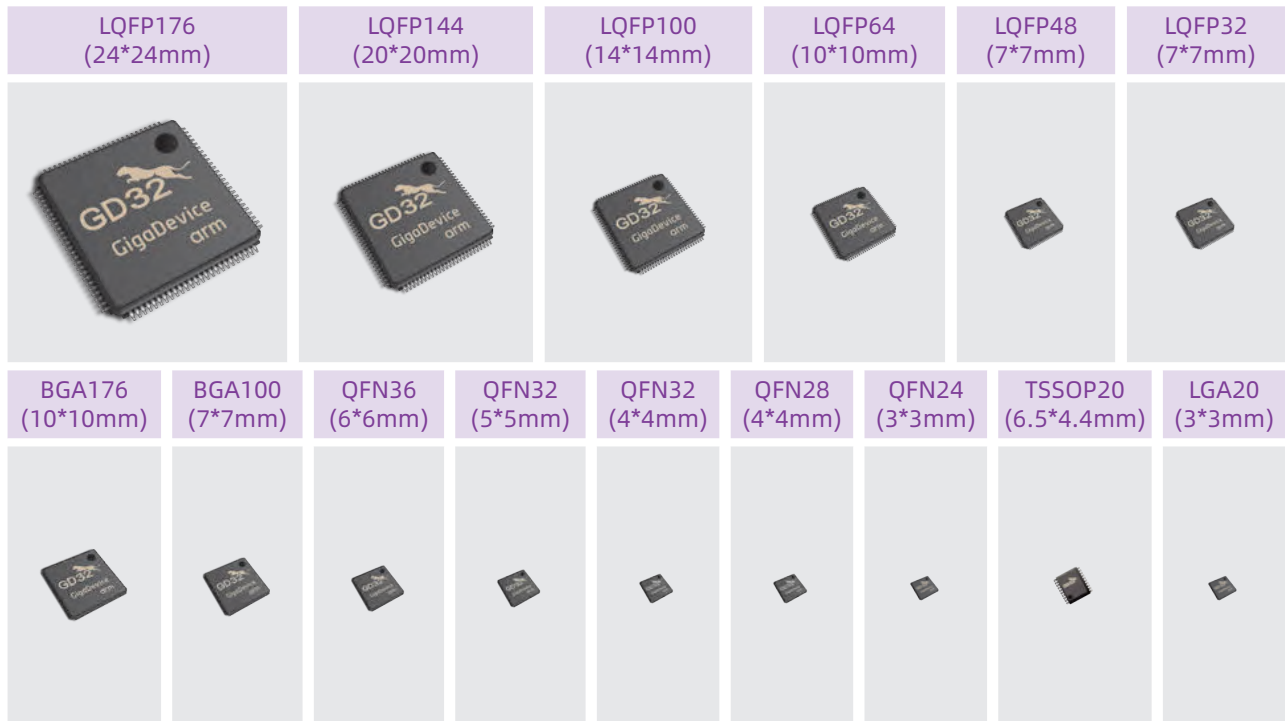
# GD32VF103 RISC-V MCU 14 Part Numbers



- ☑ **GD32VF103 RISC-V Bumblebee Core Mainstream Line**
- ☑ **Max F<sub>cpu</sub> 108MHz, 16K-128K Flash, 6K-32K SRAM**
- ☑ **2.6-3.6V supply; 5V tolerance I/Os; all support USB OTG & CAN 2.0B**
- ☑ **-40°C to +85°C industrial level operating temperature**
- ☑ **Series pin to pin compatible and flexible S/W compatible**



## MCU Package Options



# GD32E5 series of 32-bit ARM® Cortex®-M33 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity										Analog Interface		Package							
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Bsc TM (16bit)	SysTick (24bit)	WDG	RTC	USART+UART	I <sup>2</sup> C	SPI	USB 2.0	I <sup>2</sup> S	SD IO	Ether-net	TMU	SH RTM	Co mp	EX MC	12bit ADC Units (CHs)		12bit DAC Units						
GD32E503	GD32E503CCT6	180	256K	96K	up to 37	1	3	1	2	1	2	1	3+0	3	3	FS	2													3(10)	2	LQFP48
	GD32E503CET6	180	512K	128K	up to 37	1	9	1	2	1	2	1	3+0	3	3	FS	2													3(10)	2	LQFP48
	GD32E503RCT6	180	256K	96K	up to 51	1	3	2	2	1	2	1	4+2	3	3	FS	2	1												3(16)	2	LQFP64
	GD32E503RET6	180	512K	128K	up to 51	1	9	2	2	1	2	1	4+2	3	3	FS	2	1												3(16)	2	LQFP64
	GD32E503VCT6	180	256K	96K	up to 80	1	3	2	2	1	2	1	4+2	3	3	FS	2	1												3(16)	2	LQFP100
	GD32E503VET6	180	512K	128K	up to 80	1	9	2	2	1	2	1	4+2	3	3	FS	2	1												3(16)	2	LQFP100
	GD32E503ZCT6	180	256K	96K	up to 112	1	3	2	2	1	2	1	4+2	3	3	FS	2	1												3(21)	2	LQFP144
GD32E503ZET6	180	512K	128K	up to 112	1	9	2	2	1	2	1	4+2	3	3	FS	2	1												3(21)	2	LQFP144	
GD32E505	GD32E505RBT6	180	128K	80K	up to 51	1	3	1	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP64
	GD32E505RCT6	180	256K	96K	up to 51	1	3	1	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP64
	GD32E505RET6	180	512K	128K	up to 51	1	9	2	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP64
	GD32E505VCT6	180	256K	96K	up to 80	1	3	1	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP100
	GD32E505VET6	180	512K	128K	up to 80	1	9	2	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP100
	GD32E505ZCT6	180	256K	96K	up to 112	1	3	2	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP144
	GD32E505ZET6	180	512K	128K	up to 112	1	9	2	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP144

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity										Analog Interface		Package							
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Bsc TM (16bit)	SysTick (24bit)	WDG	RTC	USART+UART	I <sup>2</sup> C	SPI	USB 2.0	I <sup>2</sup> S	SD IO	Ether-net	TMU	SH RTM	Co mp	EX MC	12bit ADC Units (CHs)		12bit DAC Units						
GD32E507	GD32E507RCT6	180	256K	96K	up to 51	1	3	1	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP64
	GD32E507RET6	180	512K	128K	up to 51	1	9	2	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP64
	GD32E507VCT6	180	256K	96K	up to 80	1	3	1	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP100
	GD32E507VET6	180	512K	128K	up to 80	1	9	2	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP100
	GD32E507ZCT6	180	256K	96K	up to 112	1	3	2	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP144
	GD32E507ZET6	180	512K	128K	up to 112	1	9	2	2	1	2	1	4+2	3	3	HS OTG	2													2(16)	2	LQFP144
GD32 EPRT	GD32EPRTD6	180	384K	96K+4MB PSRAM	up to 51	1	3	2	2	1	2	1	3+3	3	3	FS	2													3(16)	2	LQFP64
	GD32EPRTVDT6	180	384K	96K+4MB PSRAM	up to 80	1	3	2	2	1	2	1	3+3	3	3	FS	2													3(16)	2	LQFP100



# GD32V series of 32-bit RISC-V MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity							EXMC	Analog Interface		Package		
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART +UART	I <sup>2</sup> C	SPI	CAN 2.0B	USB 2.0 FS	I <sup>2</sup> S	SDIO		Ether-net	12bit ADC Units (CHs)		12bit DAC Units	
GD32VF103	GD32VF103T4U6	108	16K	6K	up to 26	2	1	2	1	2	1	2+0	1	1	2	OTG						2(10)	2	QFN36
	GD32VF103T6U6	108	32K	10K	up to 26	2	1	2	1	2	1	2+0	1	1	2	OTG						2(10)	2	QFN36
	GD32VF103T8U6	108	64K	20K	up to 26	4	1	2	1	2	1	2+0	1	1	2	OTG						2(10)	2	QFN36
	GD32VF103TBU6	108	128K	32K	up to 26	4	1	2	1	2	1	2+0	1	1	2	OTG						2(10)	2	QFN36
	GD32VF103C4T6	108	16K	6K	up to 37	2	1	2	1	2	1	2+0	1	1	2	OTG						2(10)	2	LQFP48
	GD32VF103C6T6	108	32K	10K	up to 37	2	1	2	1	2	1	2+0	1	1	2	OTG						2(10)	2	LQFP48
	GD32VF103C8T6	108	64K	20K	up to 37	4	1	2	1	2	1	3+0	2	3	2	OTG	2					2(10)	2	LQFP48
	GD32VF103CBT6	108	128K	32K	up to 37	4	1	2	1	2	1	3+0	2	3	2	OTG	2					2(10)	2	LQFP48
	GD32VF103R4T6	108	16K	6K	up to 51	2	1	2	1	2	1	2+0	1	1	2	OTG						2(16)	2	LQFP64
	GD32VF103R6T6	108	32K	10K	up to 51	2	1	2	1	2	1	2+0	1	1	2	OTG						2(16)	2	LQFP64
	GD32VF103R8T6	108	64K	20K	up to 51	4	1	2	1	2	1	3+2	2	3	2	OTG	2					2(16)	2	LQFP64
	GD32VF103RBT6	108	128K	32K	up to 51	4	1	2	1	2	1	3+2	2	3	2	OTG	2					2(16)	2	LQFP64
	GD32VF103V8T6	108	64K	20K	up to 80	4	1	2	1	2	1	3+2	2	3	2	OTG	2					2(16)	2	LQFP100
GD32VF103VBT6	108	128K	32K	up to 80	4	1	2	1	2	1	3+2	2	3	2	OTG	2					2(16)	2	LQFP100	

# GD32E23x series of 32-bit ARM® Cortex®-M23 MCUs Selection Guide

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity							Analog Interface		Package			
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	USB 2.0 FS	I <sup>2</sup> S	Comp	OP-AMP	12bit ADC Units (CHs)		12bit DAC Units		
GD32E230	GD32E230F4P6	72	16K	4K	up to 15		4	1	1	1	2	1	1	1	1							1(9)		TSSOP20
	GD32E230F6P6	72	32K	6K	up to 15		4	1	1	1	2	1	2	1	1							1(9)		TSSOP20
	GD32E230F8P6	72	64K	8K	up to 15		4	1	1	1	2	1	2	2	2							1(9)		TSSOP20
	GD32E230F4V6	72	16K	4K	up to 15		4	1	1	1	2	1	1	1	1							1(9)		LGA20
	GD32E230F6V6	72	32K	6K	up to 15		4	1	1	1	2	1	2	1	1							1(9)		LGA20
	GD32E230F8V6	72	64K	8K	up to 15		4	1	1	1	2	1	2	2	2							1(9)		LGA20
	GD32E230G4U6	72	16K	4K	up to 23		4	1	1	1	2	1	1	1	1							1(10)		QFN28
	GD32E230G6U6	72	32K	6K	up to 23		4	1	1	1	2	1	2	1	1							1(10)		QFN28
	GD32E230G8U6	72	64K	8K	up to 23		5	1	1	1	2	1	2	2	2							1(10)		QFN28
	GD32E230K4U6	72	16K	4K	up to 27		4	1	1	1	2	1	1	1	1							1(10)		QFN32
	GD32E230K6U6	72	32K	6K	up to 27		4	1	1	1	2	1	2	1	1							1(10)		QFN32
	GD32E230K8U6	72	64K	8K	up to 27		5	1	1	1	2	1	2	2	2							1(10)		QFN32
	GD32E230K4T6	72	16K	4K	up to 25		4	1	1	1	2	1	1	1	1							1(10)		LQFP32

# GD32E23x series of 32-bit ARM® Cortex®-M23 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity							Analog Interface		Package
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I²C	SPI	USB 2.0 FS	I²S	Comp	OP-AMP	12bit ADC Units (CHs)	12bit DAC Units	
GD32E230	GD32E230K6T6	72	32K	6K	up to 25		4	1	1	1	2	1	2	1	1	1	1			1(10)		LQFP32
	GD32E230K8T6	72	64K	8K	up to 25		5	1	1	1	2	1	2	2	2	1	1			1(10)		LQFP32
	GD32E230C4T6	72	16K	4K	up to 39		4	1	1	1	2	1	1	1	1	1	1			1(10)		LQFP48
	GD32E230C6T6	72	32K	6K	up to 39		4	1	1	1	2	1	2	1	1	1	1			1(10)		LQFP48
	GD32E230C8T6	72	64K	8K	up to 39		5	1	1	1	2	1	2	2	2	1	1			1(10)		LQFP48
GD32E231	GD32E231C4T6	72	16K	4K	up to 37		4	1	1	1	2	1	1	1	1	1	1		2	1(10)		LQFP48
	GD32E231C6T6	72	32K	6K	up to 37		4	1	1	1	2	1	2	1	1	1	1		2	1(10)		LQFP48
	GD32E231C8T6	72	64K	8K	up to 37		5	1	1	1	2	1	2	2	2	1	1		2	1(10)		LQFP48
GD32E232	GD32E232E4U7	72	16K	4K	up to 18	1	4	1	2	1	2	1	2	2	1	1				1(9)	4	QFN24
	GD32E232E6U7	72	32K	6K	up to 18	1	4	1	2	1	2	1	2	2	1	1				1(9)	4	QFN24
	GD32E232E8U7	72	64K	8K	up to 18	1	5	1	2	1	2	1	2	2	2	1				1(9)	4	QFN24
	GD32E232K4Q7	72	16K	4K	up to 28	1	4	1	2	1	2	1	2	2	1	1				1(16)	4	QFN32
	GD32E232K6Q7	72	32K	6K	up to 28	1	4	1	2	1	2	1	2	2	1	1				1(16)	4	QFN32
	GD32E232K8Q7	72	64K	8K	up to 28	1	5	1	2	1	2	1	2	2	2	1				1(16)	4	QFN32

# GD32E1 series of 32-bit ARM® Cortex®-M4F MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity							EXMC	Analog Interface		Package					
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	Bsc TM (16bit)	SysTick (24bit)	WDG	RTC	USART +UART	I²C	SPI	CAN 2.0B	USB 2.0 FS	I²S	SDIO		Ether-net	12bit ADC Units (CHs)		12bit DAC Units				
GD32E103	GD32E103T8U6	120	64K	20K	up to 26	4	1	2	1	2	1	2+0	1	1			OTG							2(10)	2	QFN36	
	GD32E103TBU6	120	128K	32K	up to 26	4	1	2	1	2	1	2+0	1	1			OTG							2(10)	2	QFN36	
	GD32E103C8T6	120	64K	20K	up to 37	10	1	2	1	2	1	3+0	2	3			OTG	2						2(10)	2	LQFP48	
	GD32E103CBT6	120	128K	32K	up to 37	10	1	2	1	2	1	3+0	2	3			OTG	2						2(10)	2	LQFP48	
	GD32E103R8T6	120	64K	20K	up to 51	10	2	2	1	2	1	3+2	2	3			OTG	2						2(16)	2	LQFP64	
	GD32E103RBT6	120	128K	32K	up to 51	10	2	2	1	2	1	3+2	2	3			OTG	2						2(16)	2	LQFP64	
	GD32E103V8T6	120	64K	20K	up to 80	10	2	2	1	2	1	3+2	2	3			OTG	2						2(16)	2	LQFP100	
	GD32E103VBT6	120	128K	32K	up to 80	10	2	2	1	2	1	3+2	2	3			OTG	2						2(16)	2	LQFP100	
GD32C103	GD32C103TBU6	120	128K	32K	up to 26	4	1	2	1	2	1	2+0	1	1	2 x FD		OTG								2(10)	2	QFN36
	GD32C103CBT6	120	128K	32K	up to 37	10	1	2	1	2	1	3+0	2	3	2 x FD		OTG	2							2(10)	2	LQFP48
	GD32C103RBT6	120	128K	32K	up to 51	10	2	2	1	2	1	3+2	2	3	2 x FD		OTG	2							2(16)	2	LQFP64
	GD32C103VBT6	120	128K	32K	up to 80	10	2	2	1	2	1	3+2	2	3	2 x FD		OTG	2							2(16)	2	LQFP100

# GD32F4 series of 32-bit ARM® Cortex®-M4F MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity								EXMC/SDRAM	Analog Interface		Package				
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	GPTM (32bit)	Bsc TM (16bit)	WDG	RTC	USART +UART	I²C	SPI	CAN 2.0B	USB OTG	I²S	SDIO	LCD-TFT		Cam era	ETH MAC		IPA	12bit ADC Units (CHs)	12bit DAC Units	
GD32F450	GD32F450VET6	200	512K	256K	up to 82	8	2	2	2	2	1	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1	1/0	3(16)	2	LQFP100
	GD32F450VGT6	200	1024K	256K	up to 82	8	2	2	2	2	1	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1/0	3(16)	2	LQFP100	
	GD32F450VIT6	200	2048K	512K	up to 82	8	2	2	2	2	1	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1/0	3(16)	2	LQFP100	
	GD32F450VKT6	200	3072K	256K	up to 82	8	2	2	2	2	1	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1/0	3(16)	2	LQFP100	
	GD32F450ZET6	200	512K	256K	up to 114	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	LQFP144	
	GD32F450ZGT6	200	1024K	256K	up to 114	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	LQFP144	
	GD32F450ZIT6	200	2048K	512K	up to 114	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	LQFP144	
	GD32F450ZKT6	200	3072K	256K	up to 114	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	LQFP144	
	GD32F450IGH6	200	1024K	256K	up to 140	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	BGA176	
	GD32F450IHH6	200	2048K	512K	up to 140	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	BGA176	
GD32F405	GD32F450IKH6	200	3072K	256K	up to 140	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	BGA176	
	GD32F405RET6	168	512K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(16)	2	LQFP64	
	GD32F405RGT6	168	1024K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(16)	2	LQFP64	
	GD32F405RKT6	168	3072K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(16)	2	LQFP64	
	GD32F405VGT6	168	1024K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(16)	2	LQFP100	
	GD32F405VKT6	168	3072K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(16)	2	LQFP100	
	GD32F405VGH6	168	1024K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(16)	2	BGA100	
	GD32F405VKH6	168	3072K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(16)	2	BGA100	
	GD32F405ZGT6	168	1024K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(24)	2	LQFP144	
	GD32F405ZKT6	168	3072K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1						3(24)	2	LQFP144	
GD32F407	GD32F407RET6	168	512K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1			1	1		3(16)	2	LQFP64	
	GD32F407RGT6	168	1024K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1			1	1		3(16)	2	LQFP64	
	GD32F407RKT6	168	3072K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1			1	1		3(16)	2	LQFP64	
	GD32F407VET6	168	512K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/0	3(16)	2	LQFP100	
	GD32F407VGT6	168	1024K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/0	3(16)	2	LQFP100	
	GD32F407VKT6	168	3072K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/0	3(16)	2	LQFP100	
	GD32F407VEH6	168	512K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/0	3(16)	2	BGA100	
	GD32F407VGH6	168	1024K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/0	3(16)	2	BGA100	
	GD32F407VKH6	168	3072K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/0	3(16)	2	BGA100	
	GD32F407ZET6	168	512K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/1	3(24)	2	LQFP144	
	GD32F407ZGT6	168	1024K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/1	3(24)	2	LQFP144	
	GD32F407ZKT6	168	3072K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/1	3(24)	2	LQFP144	
	GD32F407IEH6	168	512K	192K	up to 140	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/1	3(24)	2	BGA176	
	GD32F407IGH6	168	1024K	192K	up to 140	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/1	3(24)	2	BGA176	
	GD32F407IKH6	168	3072K	192K	up to 140	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1					1/1	3(24)	2	BGA176	
GD32F403	GD32F403RCT6	168	256K	64K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1					0/0	3(16)	2	LQFP64	
	GD32F403RET6	168	512K	96K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1					0/0	3(16)	2	LQFP64	
	GD32F403RGT6	168	1024K	128K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1					0/0	3(16)	2	LQFP64	
	GD32F403RIT6	168	2048K	128K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1					0/0	3(16)	2	LQFP64	
	GD32F403RKT6	168	3072K	128K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1					0/0	3(16)	2	LQFP64	
	GD32F403VCT6	168	256K	64K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	LQFP100	
	GD32F403VET6	168	512K	96K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	LQFP100	
	GD32F403VGT6	168	1024K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	LQFP100	
	GD32F403VIT6	168	2048K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	LQFP100	
	GD32F403VKT6	168	3072K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	LQFP100	
	GD32F403VCH6	168	256K	64K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	BGA100	
	GD32F403VEH6	168	512K	96K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	BGA100	
	GD32F403VGH6	168	1024K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	BGA100	
	GD32F403VIH6	168	2048K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	BGA100	
	GD32F403VKH6	168	3072K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(16)	2	BGA100	
	GD32F403ZCT6	168	256K	64K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(21)	2	LQFP144	
	GD32F403ZET6	168	512K	96K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(21)	2	LQFP144	
	GD32F403ZGT6	168	1024K	128K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(21)	2	LQFP144	
	GD32F403ZIT6	168	2048K	128K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1					1/0	3(21)	2	LQFP144	
	GD32F403ZKT6	168	3072K	128K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1									

# GD32F3 series of 32-bit ARM® Cortex®-M4 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity						EXMC	Analog Interface		Package					
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART +UART	I²C	SPI	CAN 2.0B	USB 2.0 FS	I²S		SDIO	Ether-net		12bit ADC Units (CHs)	12bit DAC Units			
GD32F303	GD32F303CCT6	120	256K	48K	up to 37	4	1	2	1	2	1	3	2	3	1	1	2						3(10)	2	LQFP48	
	GD32F303CET6	120	512K	64K	up to 37	4	1	2	1	2	1	3	2	3	1	1	2						3(10)	2	LQFP48	
	GD32F303CGT6	120	1024K	96K	up to 37	10	1	2	1	2	1	3	2	3	1	1	2						3(10)	2	LQFP48	
	GD32F303RCT6	120	256K	48K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303RET6	120	512K	64K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303RIT6	120	2048K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303RKT6	120	3072K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303VCT6	120	256K	48K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP100
	GD32F303VET6	120	512K	64K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP100
	GD32F303VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP100
	GD32F303VIT6	120	2048K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP100
	GD32F303VKT6	120	3072K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP100
	GD32F303ZCT6	120	256K	48K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1						3(21)	2	LQFP144
	GD32F303ZET6	120	512K	64K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1						3(21)	2	LQFP144
	GD32F303ZGT6	120	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1						3(21)	2	LQFP144
GD32F303ZIT6	120	2048K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1						3(21)	2	LQFP144	
GD32F303ZKT6	120	3072K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1						3(21)	2	LQFP144	
GD32F305	GD32F305RBT6	120	128K	64K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP64	
	GD32F305RCT6	120	256K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP64	
	GD32F305RET6	120	512K	96K	up to 51	4	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP64	
	GD32F305RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP64	
	GD32F305VCT6	120	256K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP100	
	GD32F305VET6	120	512K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP100	
	GD32F305VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP100	
	GD32F305ZCT6	120	256K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP144	
	GD32F305ZET6	120	512K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP144	
	GD32F305ZGT6	120	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP144	
GD32F307	GD32F307RCT6	120	256K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP64	
	GD32F307RET6	120	512K	96K	up to 51	4	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP64	
	GD32F307RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP64	
	GD32F307VCT6	120	256K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP100	
	GD32F307VET6	120	512K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP100	
	GD32F307VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP100	
	GD32F307ZCT6	120	256K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP144	
	GD32F307ZET6	120	512K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP144	
	GD32F307ZGT6	120	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	2	OTG	2						2(16)	2	LQFP144	

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity						Analog Interface		Package				
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I²C	SPI	USB 2.0 FS	I²S	CEC	Comp		12bit ADC Units (CHs)	12bit DAC Units		
GD32F330	GD32F330F4P6	84	16K	4K	up to 15	1	4	1		1	2	1	1	1								1(9)		TSSOP20
	GD32F330F6P6	84	32K	4K	up to 15	1	4	1		1	2	1	2	1	1							1(9)		TSSOP20
	GD32F330F8P6	84	64K	8K	up to 15	1	4	1		1	2	1	2	2	2							1(9)		TSSOP20
	GD32F330G4U6	84	16K	4K	up to 23	1	4	1		1	2	1	1	1	1							1(10)		QFN28
	GD32F330G6U6	84	32K	4K	up to 23	1	4	1		1	2	1	2	1	1							1(10)		QFN28
	GD32F330G8U6	84	64K	8K	up to 23	1	5	1		1	2	1	2	2	2							1(10)		QFN28
	GD32F330K4U6	84	16K	4K	up to 27	1	4	1		1	2	1	1	1	1							1(10)		QFN32
	GD32F330K6U6	84	32K	4K	up to 27	1	4	1		1	2	1	2	1	1							1(10)		QFN32
	GD32F330K8U6	84	64K	8K	up to 27	1	5	1		1	2	1	2	2	2							1(10)		QFN32
	GD32F330C4T6	84	16K	4K	up to 39	1	4	1		1	2	1	1	1	1							1(10)		LQFP48
	GD32F330C6T6	84	32K	4K	up to 39	1	4	1		1	2	1	2	1	1							1(10)		LQFP48
	GD32F330C8T6	84	64K	8K	up to 39	1	5	1		1	2	1	2	2	2							1(10)		LQFP48
	GD32F330CBT6	84	128K	16K	up to 39	1	5	1		1	2	1	2	2	2							1(10)		LQFP48
	GD32F330R8T6	84	64K	16K	up to 55	1	5	1		1	2	1	2	2	2							1(16)		LQFP64
	GD32F330RBT6	84	128K	16K	up to 55	1	5	1		1	2	1	2	2	2							1(16)		LQFP64

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity							Analog Interface		Package		
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	USB 2.0 FS	I <sup>2</sup> S	CEC	Comp	12bit ADC Units (CHs)	12bit DAC Units			
GD32F350	GD32F350G4U6	108	16K	4K	up to 24	1	5	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1(10)	1	QFN28
	GD32F350G6U6	108	32K	6K	up to 24	1	5	1	1	1	2	1	2	1	1	1	1	1	1	1	2	1(10)	1	QFN28
	GD32F350G8U6	108	64K	8K	up to 24	1	5	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1(10)	1	QFN28
	GD32F350K4U6	108	16K	4K	up to 27	1	5	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1(10)	1	QFN32
	GD32F350K6U6	108	32K	6K	up to 27	1	5	1	1	1	2	1	2	1	1	1	1	1	1	1	2	1(10)	1	QFN32
	GD32F350K8U6	108	64K	8K	up to 27	1	5	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1(10)	1	QFN32
	GD32F350C4T6	108	16K	4K	up to 39	1	5	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1(10)	1	LQFP48
	GD32F350C6T6	108	32K	6K	up to 39	1	5	1	1	1	2	1	2	1	2	1	1	1	1	1	2	1(10)	1	LQFP48
	GD32F350C8T6	108	64K	8K	up to 39	1	5	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1(10)	1	LQFP48
	GD32F350CBT6	108	128K	16K	up to 39	1	5	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1(10)	1	LQFP48
	GD32F350R4T6	108	16K	4K	up to 55	1	5	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1(16)	1	LQFP64
	GD32F350R6T6	108	32K	8K	up to 55	1	5	1	1	1	2	1	2	1	2	1	1	1	1	1	2	1(16)	1	LQFP64
	GD32F350R8T6	108	64K	16K	up to 55	1	5	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1(16)	1	LQFP64
	GD32F350RBT6	108	128K	16K	up to 55	1	5	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1(16)	1	LQFP64

## GD32F2 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity										EXMC/SDRAM	Analog Interface		Package										
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	Bsc TM (16bit)	SysTick (24bit)	WDG	RTC	USART+USART	I <sup>2</sup> C	SPI	CAN 2.0B	USB 2.0 FS	I <sup>2</sup> S	SDIO	LCD-TFT	Cam era	ETH MAC	Crypto/Hash		12bit ADC Units (CHs)	12bit DAC Units											
GD32F205	GD32F205RCT6	120	256K	128K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1																3(16)	2	LQFP64
	GD32F205RET6	120	512K	128K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1																3(16)	2	LQFP64
	GD32F205RGT6	120	1024K	256K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1																3(16)	2	LQFP64
	GD32F205RKT6	120	3072K	256K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1																3(16)	2	LQFP64
	GD32F205VCT6	120	256K	128K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1														1/0	3(16)	2	LQFP100
	GD32F205VET6	120	512K	128K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1													1/0	3(16)	2	LQFP100	
	GD32F205VGT6	120	1024K	256K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1													1/0	3(16)	2	LQFP100	
	GD32F205VKT6	120	3072K	256K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1													1/0	3(16)	2	LQFP100	
	GD32F205ZCT6	120	256K	128K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1													1/1	3(24)	2	LQFP144	
	GD32F205ZET6	120	512K	128K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1													1/1	3(24)	2	LQFP144	
	GD32F205ZGT6	120	1024K	256K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1													1/1	3(24)	2	LQFP144	
	GD32F205ZKT6	120	3072K	256K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1													1/1	3(24)	2	LQFP144	
	GD32F207RCT6	120	256K	128K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1																3(16)	2	LQFP64
	GD32F207RET6	120	512K	128K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1																3(16)	2	LQFP64
GD32F207RGT6	120	1024K	256K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1																3(16)	2	LQFP64	
GD32F207RKT6	120	3072K	256K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1																3(16)	2	LQFP64	
GD32F207VCT6	120	256K	128K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100			
GD32F207VET6	120	512K	128K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100			
GD32F207VGT6	120	1024K	256K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100			
GD32F207VKT6	120	3072K	256K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100			
GD32F207ZCT6	120	256K	128K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144			
GD32F207ZET6	120	512K	128K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144			
GD32F207ZGT6	120	1024K	256K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144			
GD32F207ZKT6	120	3072K	256K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144			
GD32F207IET6	120	512K	128K	up to 140	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP176			
GD32F207IGT6	120	1024K	256K	up to 140	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP176			
GD32F207IKT6	120	3072K	256K	up to 140	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP176			

# GD32F1 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity						Analog Interface		Package			
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	USB 2.0 FS	I <sup>2</sup> S	CEC	12bit ADC Units (CHs)		12bit DAC Units		
GD32F130	GD32F130F4P6	48	16K	4K	up to 15	1	4	1		1	2	1	1	1	1						1(9)		TSSOP20
	GD32F130F6P6	48	32K	4K	up to 15	1	4	1		1	2	1	2	1	1						1(9)		TSSOP20
	GD32F130F8P6	48	64K	8K	up to 15	1	4	1		1	2	1	2	2	2						1(9)		TSSOP20
	GD32F130G4U6	48	16K	4K	up to 23	1	4	1		1	2	1	1	1	1						1(10)		QFN28
	GD32F130G6U6	48	32K	4K	up to 23	1	4	1		1	2	1	2	1	1						1(10)		QFN28
	GD32F130G8U6	48	64K	8K	up to 23	1	5	1		1	2	1	2	2	2						1(10)		QFN28
	GD32F130K4T6	48	16K	4K	up to 27	1	4	1		1	2	1	1	1	1						1(10)		QFN32
	GD32F130K6T6	48	32K	4K	up to 27	1	4	1		1	2	1	2	1	1						1(10)		QFN32
	GD32F130K8T6	48	64K	8K	up to 27	1	5	1		1	2	1	2	2	2						1(10)		QFN32
	GD32F130K4U6	48	16K	4K	up to 27	1	4	1		1	2	1	1	1	1						1(10)		QFN32
	GD32F130K6U6	48	32K	4K	up to 27	1	4	1		1	2	1	2	1	1						1(10)		QFN32
	GD32F130K8U6	48	64K	8K	up to 27	1	5	1		1	2	1	2	2	2						1(10)		QFN32
	GD32F130C4T6	48	16K	4K	up to 39	1	4	1		1	2	1	1	1	1						1(10)		LQFP48
	GD32F130C6T6	48	32K	4K	up to 39	1	4	1		1	2	1	2	1	1						1(10)		LQFP48
GD32F130C8T6	48	64K	8K	up to 39	1	5	1		1	2	1	2	2	2						1(10)		LQFP48	
GD32F130R8T6	48	64K	8K	up to 55	1	5	1		1	2	1	2	2	2						1(16)		LQFP64	
GD32F150	GD32F150G4U6	72	16K	4K	up to 24	1	5	1	1	1	2	1	1	1	1	1	1	1	1	1	1(10)	1	QFN28
	GD32F150G6U6	72	32K	6K	up to 24	1	5	1	1	1	2	1	2	1	1	1	1	1	1	1	1(10)	1	QFN28
	GD32F150G8U6	72	64K	8K	up to 24	1	5	1	1	1	2	1	2	2	2	1	1	1	1	1	1(10)	1	QFN28
	GD32F150K4U6	72	16K	4K	up to 27	1	5	1	1	1	2	1	1	1	1	1	1	1	1	1	1(10)	1	QFN32
	GD32F150K6U6	72	32K	6K	up to 27	1	5	1	1	1	2	1	2	1	1	1	1	1	1	1	1(10)	1	QFN32
	GD32F150K8U6	72	64K	8K	up to 27	1	5	1	1	1	2	1	2	2	2	1	1	1	1	1	1(10)	1	QFN32
	GD32F150C4T6	72	16K	4K	up to 39	1	5	1	1	1	2	1	1	1	1	1	1	1	1	1	1(10)	1	LQFP48
	GD32F150C6T6	72	32K	6K	up to 39	1	5	1	1	1	2	1	2	1	1	1	1	1	1	1	1(10)	1	LQFP48
	GD32F150C8T6	72	64K	8K	up to 39	1	5	1	1	1	2	1	2	2	2	1	1	1	1	1	1(10)	1	LQFP48
	GD32F150R4T6	72	16K	4K	up to 55	1	5	1	1	1	2	1	1	1	1	1	1	1	1	1	1(16)	1	LQFP64
	GD32F150R6T6	72	32K	6K	up to 55	1	5	1	1	1	2	1	2	1	1	1	1	1	1	1	1(16)	1	LQFP64
	GD32F150R8T6	72	64K	8K	up to 55	1	5	1	1	1	2	1	2	2	2	1	1	1	1	1	1(16)	1	LQFP64

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity							Analog Interface		Package		
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	CAN 2.0B	I <sup>2</sup> S	LCD	OP-amp	Comp		12bit ADC Units (CHs)	12bit DAC Units
GD32F170	GD32F170T4U6	48	16K	4K	up to 28	1	4	1		1	2	1	1	1	1	2					1(10)		QFN36
	GD32F170T6U6	48	32K	4K	up to 28	1	4	1		1	2	1	2	1	1	2					1(10)		QFN36
	GD32F170T8U6	48	64K	8K	up to 28	1	5	1		1	2	1	2	3	3	2					1(10)		QFN36
	GD32F170C4T6	48	16K	4K	up to 39	1	4	1		1	2	1	1	1	1	2					1(10)		LQFP48
	GD32F170C6T6	48	32K	4K	up to 39	1	4	1		1	2	1	2	1	1	2					1(10)		LQFP48
	GD32F170C8T6	48	64K	8K	up to 39	1	5	1		1	2	1	2	3	3	2					1(10)		LQFP48
	GD32F170R8T6	48	64K	8K	up to 55	1	5	1		1	2	1	2	3	3	2					1(16)		LQFP64
GD32F190	GD32F190T4U6	72	16K	4K	up to 28	1	5	1	1	1	2	1	1	1	2	1		2	2	2	1(10)	2	QFN36
	GD32F190T6U6	72	32K	6K	up to 28	1	5	1	1	1	2	1	2	1	2	1		2	2	2	1(10)	2	QFN36
	GD32F190T8U6	72	64K	8K	up to 28	1	5	1	1	1	2	1	2	3	3	2	2	2	2	2	1(10)	2	QFN36
	GD32F190C4T6	72	16K	4K	up to 39	1	5	1	1	1	2	1	1	1	2	1	4x18	2	2	2	1(10)	2	LQFP48
	GD32F190C6T6	72	32K	6K	up to 39	1	5	1	1	1	2	1	2	1	2	1	4x18	2	2	2	1(10)	2	LQFP48
	GD32F190C8T6	72	64K	8K	up to 39	1	5	1	1	1	2	1	2	3	3	2	2	4x18	2	2	1(10)	2	LQFP48
	GD32F190R4T6	72	16K	4K	up to 55	1	5	1	1	1	2	1	1	1	1	2	1	8x32	3	2	1(16)	2	LQFP64
	GD32F190R6T6	72	32K	6K	up to 55	1	5	1	1	1	2	1	2	1	1	2	1	8x32	3	2	1(16)	2	LQFP64
GD32F190R8T6	72	64K	8K	up to 55	1	5	1	1	1	2	1	2	3	3	2	2	8x32	3	2	1(16)	2	LQFP64	

# GD32F1 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity						EXMC	Analog Interface		Package		
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART (UART)	I <sup>2</sup> C	SPI	CAN 2.0B	USB 2.0 FS	I <sup>2</sup> S		SDIO	Ether-net		12bit ADC Units (CHs)	12bit DAC Units
GD32F103	GD32F103T4U6	108	16K	6K	up to 26	2	1		1	2	1	2	1	1	1	1					2(10)		QFN36
	GD32F103T6U6	108	32K	10K	up to 26	2	1		1	2	1	2	1	1	1	1					2(10)		QFN36
	GD32F103T8U6	108	64K	20K	up to 26	3	1		1	2	1	2	1	1	1	1					2(10)		QFN36
	GD32F103TBU6	108	128K	20K	up to 26	3	1		1	2	1	2	1	1	1	1					2(10)		QFN36
	GD32F103C4T6	108	16K	6K	up to 37	2	1		1	2	1	2	1	1	1	1					2(10)		LQFP48
	GD32F103C6T6	108	32K	10K	up to 37	2	1		1	2	1	2	1	1	1	1					2(10)		LQFP48
	GD32F103C8T6	108	64K	20K	up to 37	3	1		1	2	1	3	2	2	1	1					2(10)		LQFP48
	GD32F103CBT6	108	128K	20K	up to 37	3	1		1	2	1	3	2	2	1	1					2(10)		LQFP48
	GD32F103R4T6	108	16K	6K	up to 51	2	1		1	2	1	2	1	1	1	1					2(16)		LQFP64
	GD32F103R6T6	108	32K	10K	up to 51	2	1		1	2	1	2	1	1	1	1					2(16)		LQFP64
	GD32F103R8T6	108	64K	20K	up to 51	3	1		1	2	1	3	2	2	1	1					2(16)		LQFP64
	GD32F103RBT6	108	128K	20K	up to 51	3	1		1	2	1	3	2	2	1	1					2(16)		LQFP64
	GD32F103RCT6	108	256K	48K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1			3(16)	2	LQFP64
	GD32F103RDT6	108	384K	64K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1			3(16)	2	LQFP64
	GD32F103RET6	108	512K	64K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1			3(16)	2	LQFP64
	GD32F103RFT6	108	768K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1			3(16)	2	LQFP64
	GD32F103RGT6	108	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1			3(16)	2	LQFP64
	GD32F103RIT6	108	2048K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1			3(16)	2	LQFP64
	GD32F103RKT6	108	3072K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1			3(16)	2	LQFP64
	GD32F103V8T6	108	64K	20K	up to 80	3	1		1	2	1	3	2	2	1	1				•	2(16)		LQFP100
	GD32F103VBT6	108	128K	20K	up to 80	3	1		1	2	1	3	2	2	1	1				•	2(16)		LQFP100
	GD32F103VCT6	108	256K	48K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1		•	3(16)	2	LQFP100
	GD32F103VDT6	108	384K	64K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1		•	3(16)	2	LQFP100
	GD32F103VET6	108	512K	64K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1		•	3(16)	2	LQFP100
	GD32F103VFT6	108	768K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1		•	3(16)	2	LQFP100
	GD32F103VGT6	108	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1		•	3(16)	2	LQFP100
	GD32F103VIT6	108	2048K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1		•	3(16)	2	LQFP100
	GD32F103VKT6	108	3072K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1		•	3(16)	2	LQFP100
	GD32F103ZCT6	108	256K	48K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1		•	3(21)	2	LQFP144
	GD32F103ZDT6	108	384K	64K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1		•	3(21)	2	LQFP144
	GD32F103ZET6	108	512K	64K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1		•	3(21)	2	LQFP144
	GD32F103ZFT6	108	768K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1		•	3(21)	2	LQFP144
GD32F103ZGT6	108	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1		•	3(21)	2	LQFP144	
GD32F103ZIT6	108	2048K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1		•	3(21)	2	LQFP144	
GD32F103ZKT6	108	3072K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1		•	3(21)	2	LQFP144	

# GD32F1 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity							EXMC	Analog Interface		Package	
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART (UART)	I <sup>2</sup> C	SPI	CAN 2.0B	USB 2.0 FS	I <sup>2</sup> S	SDIO		Ether-net	12bit ADC Units (CHs)		12bit DAC Units
GD32F105	GD32F105R8T6	108	64K	64K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RBT6	108	128K	64K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RCT6	108	256K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RDT6	108	384K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RET6	108	512K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RFT6	108	768K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RGT6	108	1024K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105V8T6	108	64K	64K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F105VBT6	108	128K	64K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F105VCT6	108	256K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F105VDT6	108	384K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F105VET6	108	512K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F105VFT6	108	768K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F105VGT6	108	1024K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F105ZCT6	108	256K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP144
	GD32F105ZDT6	108	384K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP144
	GD32F105ZET6	108	512K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP144
GD32F105ZFT6	108	768K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP144	
GD32F105ZGT6	108	1024K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP144	
GD32F107	GD32F107RBT6	108	128K	96K	up to 51	4	1	2	1	2	1	5	1	3	2	OTG	2		•		2(16)	2	LQFP64
	GD32F107RCT6	108	256K	96K	up to 51	4	1	2	1	2	1	5	1	3	2	OTG	2		•		2(16)	2	LQFP64
	GD32F107RDT6	108	384K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2		•		2(16)	2	LQFP64
	GD32F107RET6	108	512K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2		•		2(16)	2	LQFP64
	GD32F107RFT6	108	768K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2		•		2(16)	2	LQFP64
	GD32F107RGT6	108	1024K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2		•		2(16)	2	LQFP64
	GD32F107VBT6	108	128K	96K	up to 80	4	1	2	1	2	1	5	1	3	2	OTG	2		•	•	2(16)	2	LQFP100
	GD32F107VCT6	108	256K	96K	up to 80	4	1	2	1	2	1	5	1	3	2	OTG	2		•	•	2(16)	2	LQFP100
	GD32F107VDT6	108	384K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP100
	GD32F107VET6	108	512K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP100
	GD32F107VFT6	108	768K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP100
	GD32F107VGT6	108	1024K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP100
	GD32F107ZCT6	108	256K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP144
	GD32F107ZDT6	108	384K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP144
	GD32F107ZET6	108	512K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP144
	GD32F107ZFT6	108	768K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP144
	GD32F107ZGT6	108	1024K	96K	up to 112	4	1	2	1	2	1	5	2	3	2	OTG	2		•	•	2(16)	2	LQFP144



# GD32F1 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity						EXMC	Analog Interface		Package																								
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART (UART)	I <sup>2</sup> C	SPI	CAN 2.0B	USB 2.0 FS	I <sup>2</sup> S		SDIO	Ether-net		12bit ADC Units (CHs)	12bit DAC Units																						
GD32F101	GD32F101T4U6	56	16K	4K	up to 26	2	1		1	2	1	2	1	1																										1(10)		QFN36			
	GD32F101T6U6	56	32K	6K	up to 26	2	1		1	2	1	2	1	1																											1(10)		QFN36		
	GD32F101T8U6	56	64K	10K	up to 26	3	1		1	2	1	2	1	1																											1(10)		QFN36		
	GD32F101TBU6	56	128K	16K	up to 26	3	1		1	2	1	2	1	1																												1(10)		QFN36	
	GD32F101C4T6	56	16K	4K	up to 37	2	1		1	2	1	2	1	1																												1(10)		LQFP48	
	GD32F101C6T6	56	32K	6K	up to 37	2				1	2	1	2	1	1																											1(10)		LQFP48	
	GD32F101C8T6	56	64K	10K	up to 37	3				1	2	1	3	2	2																											1(10)		LQFP48	
	GD32F101CBT6	56	128K	16K	up to 37	3				1	2	1	3	2	2																											1(10)		LQFP48	
	GD32F101R4T6	56	16K	4K	up to 51	2				1	2	1	2	1	1																											1(16)		LQFP64	
	GD32F101R6T6	56	32K	6K	up to 51	2				1	2	1	2	1	1																											1(16)		LQFP64	
	GD32F101R8T6	56	64K	10K	up to 51	3				1	2	1	3	2	2																											1(16)		LQFP64	
	GD32F101RBT6	56	128K	16K	up to 51	3				1	2	1	3	2	2																											1(16)		LQFP64	
	GD32F101RCT6	56	256K	32K	up to 51	4			2	1	2	1	5	2	3																											1(16)	2	LQFP64	
	GD32F101RDT6	56	384K	48K	up to 51	4			2	1	2	1	5	2	3																											1(16)	2	LQFP64	
	GD32F101RET6	56	512K	48K	up to 51	4			2	1	2	1	5	2	3																											1(16)	2	LQFP64	
	GD32F101RFT6	56	768K	80K	up to 51	10			2	1	2	1	5	2	3																											2(16)	2	LQFP64	
	GD32F101RGT6	56	1024K	80K	up to 51	10			2	1	2	1	5	2	3																											2(16)	2	LQFP64	
	GD32F101RIT6	56	2048K	80K	up to 51	10			2	1	2	1	5	2	3																											2(16)	2	LQFP64	
	GD32F101RKT6	56	3072K	80K	up to 51	10			2	1	2	1	5	2	3																											2(16)	2	LQFP64	
	GD32F101V8T6	56	64K	10K	up to 80	3				1	2	1	3	2	2																											•	1(16)		LQFP100
	GD32F101VBT6	56	128K	16K	up to 80	3				1	2	1	3	2	2																											•	1(16)		LQFP100
	GD32F101VCT6	56	256K	32K	up to 80	4			2	1	2	1	5	2	3																											•	1(16)	2	LQFP100
	GD32F101VDT6	56	384K	48K	up to 80	4			2	1	2	1	5	2	3																											•	1(16)	2	LQFP100
	GD32F101VET6	56	512K	48K	up to 80	4			2	1	2	1	5	2	3																											•	1(16)	2	LQFP100
	GD32F101VFT6	56	768K	80K	up to 80	10			2	1	2	1	5	2	3																											•	2(16)	2	LQFP100
	GD32F101VGT6	56	1024K	80K	up to 80	10			2	1	2	1	5	2	3																											•	2(16)	2	LQFP100
	GD32F101VIT6	56	2048K	80K	up to 80	10			2	1	2	1	5	2	3																											•	2(16)	2	LQFP100
	GD32F101VKT6	56	3072K	80K	up to 80	10			2	1	2	1	5	2	3																											•	2(16)	2	LQFP100
	GD32F101ZCT6	56	256K	32K	up to 112	4			2	1	2	1	5	2	3																											•	1(16)	2	LQFP144
	GD32F101ZDT6	56	384K	48K	up to 112	4			2	1	2	1	5	2	3																											•	1(16)	2	LQFP144
	GD32F101ZET6	56	512K	48K	up to 112	4			2	1	2	1	5	2	3																											•	1(16)	2	LQFP144
	GD32F101ZFT6	56	768K	80K	up to 112	10			2	1	2	1	5	2	3																											•	2(16)	2	LQFP144
GD32F101ZGT6	56	1024K	80K	up to 112	10			2	1	2	1	5	2	3																											•	2(16)	2	LQFP144	
GD32F101ZIT6	56	2048K	80K	up to 112	10			2	1	2	1	5	2	3																											•	2(16)	2	LQFP144	
GD32F101ZKT6	56	3072K	80K	up to 112	10			2	1	2	1	5	2	3																											•	2(16)	2	LQFP144	

# SPI NOR Flash



## GD SPI NOR Flash Features

### 3.0V

- ◆ **Single Power Supply Voltage**
  - Voltage range: 2.7V~3.6V
- ◆ **High Speed Clock Frequency**
  - Maximum 200MHz for fast read\*
  - Dual I/O Data transfer up to 332Mbit/s
  - Quad I/O Data transfer up to 664Mbit/s
  - DTR Quad I/O Data transfer up to 1600Mbit/s
  - DTR Octal I/O Data transfer up to 3200Mbit/s
  - Continuous read with 8/16/32/64-Byte wrap
- ◆ **Flexible Memory Architecture**
  - Sector size: 4K Bytes
  - Block size: 32/64K Bytes

### 1.8V

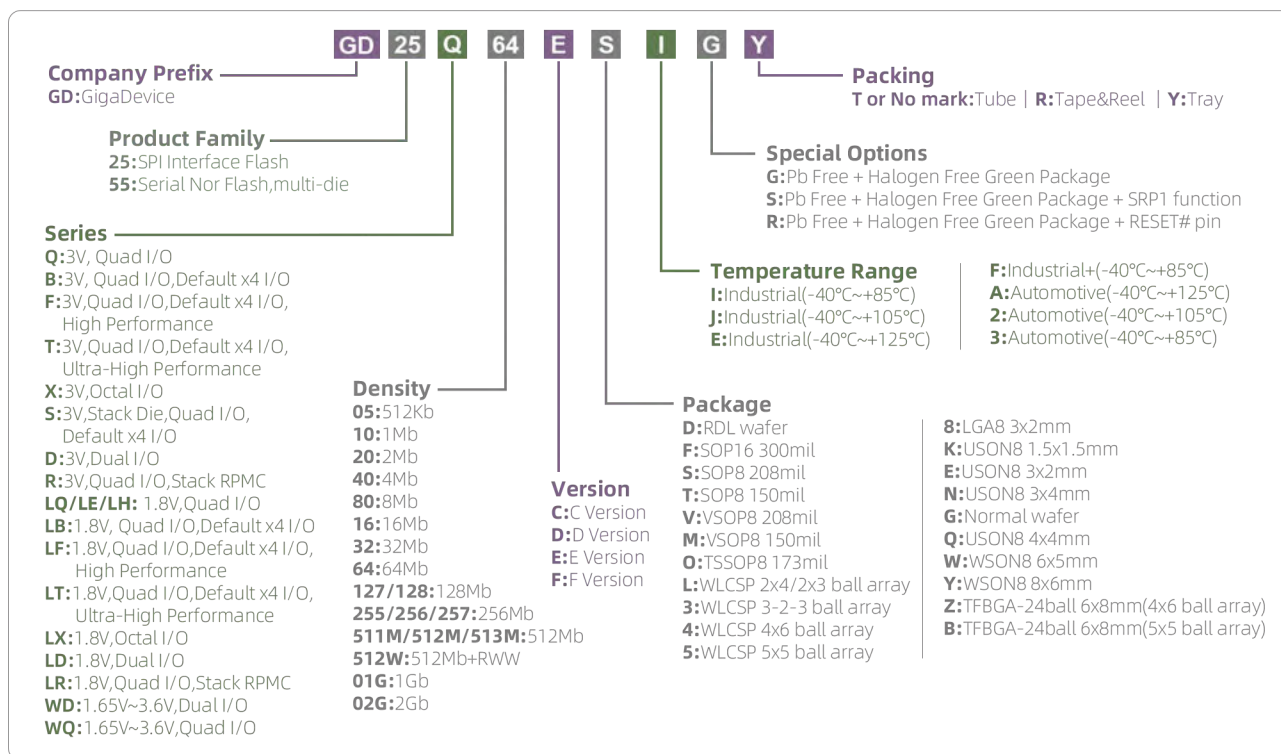
- ◆ **Single Power Supply Voltage**
  - Voltage range: 1.65V~2.0V
- ◆ **High Speed Clock Frequency**
  - Maximum 200MHz for fast read\*
  - Dual I/O Data transfer up to 332Mbit/s
  - Quad I/O Data transfer up to 664Mbit/s
  - QPI Data transfer up to 664Mbit/s
  - DTR Quad I/O Data transfer up to 1600Mbit/s
  - DTR Octal I/O Data transfer up to 3200Mbit/s
  - Continuous read with 8/16/32/64-Byte wrap
- ◆ **Flexible Memory Architecture**
  - Sector size: 4K Bytes
  - Block size: 32/64K Bytes

### 1.65V~3.6V

- ◆ **Single Power Supply Voltage**
  - Voltage range: 1.65V~3.6V
- ◆ **High Speed Clock Frequency**
  - Maximum 104MHz for fast read\*
  - Dual I/O Data transfer up to 208Mbit/s
  - Quad I/O Data transfer up to 416Mbit/s
  - Continuous read with 8/16/32/64-Byte wrap
- ◆ **Flexible Memory Architecture**
  - Sector size: 4K Bytes
  - Block size: 32/64K Bytes

\* Please refer to page 18-23 for details.

# GD SPI NOR Flash Part Number Definition



# GD SPI NOR Flash Feature List

Flash Type	3.0V								1.8V								1.65V-3.6V		
	Q	B	F	X	T	R	S	D	LQ	LB	LF	LE	LX	LT	LR	LH	LD	WQ	WD
Part No.	xxC xxD xxE	xxC xxD xxE	xxE xxF	xxE	xxE	xxC xxD xxE	xxD	xxD	xxC xxD xxE	xxC xxD xxE	xxE	xxC xxD xxE	xxE	xxE	xxC xxD xxE	xxC xxD xxE	xxC	xxE	xxC
Single I/O (1-1-1)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dual Output (1-1-2)	•	*	•			*	•	•	•	*	•	•			*	•	•	•	•
Dual I/O (1-2-2)	•	*	•			*	•	•	•	*	•	•			*	•	•	•	•
Quad Output (1-1-4)	•	•	•			•	•	•	•	•	•	•			•	•	•	•	•
Quad I/O (1-4-4)	•	•	•			•	•	•	•	•	•	•			•	•	•	•	•
Octal Output (1-1-8)				•									•						
Octal I/O (1-8-8)				•									•						
QPI (4-4-4)					•				•	•	•	•		•	•				
OPI (8-8-8)		*			•									•					
H/W Reset (RESET# Pin)	*	*	•	•	•	*	•		*	*	*	*	•	•	*				*
S/W Reset	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•			•
H/W Write Protection (WP# Pin)	•	*		•	•	*		•	•	*		•	•	•	*	•	•	•	•
S/W Write Protection	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Volatile & Non-volatile Status Register Bit	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			•
Output Driver Strength	*	*	•	•	•	*	•		*	*	*	*	•	•	*				*
Security Registers with OTP Locks	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•			•
SFDP Register	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•			•
DTR		*	•	•	•					*	•		•	•					
ECC			*	•	•								•	•					

\* This feature is supported by part of family.

## GD SPI NOR Flash Product List

Part No.	Density	Voltage	Oragnization	I/O Bus	Frequency (MHz)	Package
GD25LD05C	512Kb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25LD10C	1Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25LQ20E	2Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25LE20E	2Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25LD20C	2Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25LQ40E	4Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25LE40E	4Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25LD40C	4Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25LH40C	4Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	USON8 3x2mm
GD25LE80E	8Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	USON8 3x2mm WLCSP (4-4 ball array)
GD25LF80E	8Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm
GD25LH80E	8Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	VSOP8 150mil USON8 3x2mm
GD25LQ80E	8Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm
GD25LD80C	8Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)	SOP8 150mil SOP8 208mil USON8 1.5x1.5mm USON8 3x2mm
GD25LB16E	16Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm WSON8 6x5mm
GD25LE16E	16Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	USON8 3x2mm WLCSP (3-2-3 ball array)
GD25LF16E	16Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm
GD25LH16E	16Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm WSON8 6x5mm
GD25LQ16E	16Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm WSON8 6x5mm WLCSP (3-2-3 ball array)
GD25LB32E	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm USON8 4x4mm WSON8 6x5mm
GD25LE32E	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	USON8 3x2mm USON8 3x4mm USON8 4x4mm WLCSP (4-4 ball array)
GD25LF32E	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm USON8 4x4mm WSON8 6x5mm
GD25LH32E	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 208mil USON8 3x2mm USON8 3x4mm USON8 4x4mm WSON8 6x5mm
GD25LQ32E	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm USON8 4x4mm WSON8 6x5mm WLCSP (4-4 ball array)
GD25LB64E	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil VSOP8 208mil USON8 3x4mm USON8 4x4mm WSON8 6x5mm
GD25LE64E	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x4mm USON8 4x4mm WSON8 6x5mm WLCSP (4-4 ball array)
GD25LF64E	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	SOP8 150mil SOP8 208mil USON8 3x4mm USON8 4x4mm WSON8 6x5mm
GD25LQ64E	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil VSOP8 208mil USON8 3x4mm USON8 4x4mm WSON8 6x5mm WLCSP (4-4 ball array)
GD25LR64E	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 208mil WSON8 6x5mm
GD25LR128E	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 208mil WSON8 6x5mm WSON8 8x6mm
GD25LE128E	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 208mil USON8 4x4mm WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array) WLCSP (4-4 ball array)
GD25LB128E	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil USON8 4x4mm WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25LF128E	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	SOP8 208mil USON8 4x4mm WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25LQ128E	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 208mil VSOP8 208mil SOP16 300mil USON8 4x4mm WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array) WLCSP (4-4 ball array)
GD25LE255E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	WSON8 6x5mm WLCSP (4-4 ball array)
GD25LF255E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	WSON8 6x5mm WLCSP (4-4 ball array)
GD25LQ255E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP16 300mil WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array) WLCSP (4-4 ball array)
GD25LB256E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 104MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array) WLCSP (4-4 ball array) WLCSP (3-2-3 ball array)
GD25LR256E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	104MHz(x1, x4) 60MHz(DTR)	SOP16 300mil WSON8 6x5mm WSON8 8x6mm
GD25LT256E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25LX256E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array) WLCSP (4x6 ball array)
GD55LE511ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	WSON8 6x5mm WSON8 8x6mm
GD55LF511ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	WSON8 6x5mm
GD25LB512ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 90MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array) WLCSP (3-2-3 ball array)
GD25LR512ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	104MHz(x1, x4) 60MHz(DTR)	SOP16 300mil WSON8 8x6mm
GD25LT512ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25LX512ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array) WLCSP (4x6 ball array)
GD55LT512WE	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 166MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55LX512WE	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 166MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55LB01GE	1Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 90MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55LT01GE	1Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55LX01GE	1Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55LB02GE	2Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 90MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD55LT02GE	2Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD55LX02GE	2Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD25D05C	512Kb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil TSSOP8 173mil USON8 1.5x1.5mm USON8 3x2mm
GD25D10C	1Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil TSSOP8 173mil USON8 1.5x1.5mm USON8 3x2mm
GD25Q20E	2Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm
GD25D20C	2Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil SOP8 208mil USON8 1.5x1.5mm USON8 3x2mm
GD25Q40E	4Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 1.5x1.5mm USON8 3x2mm
GD25D40C	4Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil SOP8 208mil USON8 1.5x1.5mm USON8 3x2mm
GD25Q80E	8Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm

Part No.	Density	Voltage	Organization	I/O Bus	Frequency (MHz)	Package
GD25D80C	8Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil SOP8 208mil USON8 1.5x1.5mm USON8 3x2mm
GD25B16E	16Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm USON8 4x4mm WSON8 6x5mm
GD25Q16E	16Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm USON8 4x4mm WSON8 6x5mm
GD25B32E	32Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25Q32E	32Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25R32C	32Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 208mil WSON8 6x5mm
GD25B64E	64Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil USON8 3x4mm USON8 4x4mm WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25R64E	64Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 208mil WSON8 6x5mm WSON8 8x6mm
GD25Q64E	64Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil SOP16 300mil USON8 3x4mm USON8 4x4mm WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25B128E	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil USON8 4x4mm WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25F128E	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4) 104MHz(DTR)	SOP8 208mil SOP16 300mil USON8 4x4mm WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25Q128E	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil USON8 4x4mm WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array) TFBGA24 8x6mm (6x4 ball array)
GD25R128E	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 208mil WSON8 6x5mm WSON8 8x6mm
GD25F128F	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	SOP8 208mil SOP16 300mil WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25R256E	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP16 300mil WSON8 6x5mm WSON8 8x6mm
GD25B256E	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP16 300mil WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25F256F	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	SOP16 300mil WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55F256F	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	SOP8 208mil
GD25Q256E	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP16 300mil WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55F512MF	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	166MHz(x1, x2, x4) 104MHz(DTR)	WSON8 6x5mm
GD25B512ME	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 90MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25R512ME	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	104MHz(x1, x4) 60MHz(DTR)	SOP16 300mil WSON8 8x6mm
GD25T512ME	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25X512ME	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55B01GE	1Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 90MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55T01GE	1Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55X01GE	1Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55B02GE	2Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 90MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD55T02GE	2Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD55X02GE	2Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD25WD05C	512Kb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25WD10C	1Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm
GD25WQ20E	2Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil USON8 3x2mm
GD25WD20C	2Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil USON8 1.5x1.5mm USON8 3x2mm WLCSP (3-3 ball array)
GD25WQ40E	4Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil USON8 3x2mm
GD25WD40C	4Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil TSSOP8 173mil USON8 1.5x1.5mm USON8 3x2mm WLCSP (3-3 ball array)
GD25WQ80E	8Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm
GD25WD80C	8Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)	SOP8 150mil SOP8 208mil USON8 1.5x1.5mm USON8 3x2mm
GD25WQ16E	16Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm
GD25WQ32E	32Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm
GD25WQ64E	64Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 208mil USON8 3x4mm USON8 4x4mm WSON8 6x5mm WLCSP (3-2-3 ball array)
GD25WQ128E	128Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil USON8 4x4mm WSON8 6x5mm WSON8 8x6mm

Product Series

3V

Q: Quad I/O  
 B: Quad I/O, Default x4 I/O  
 F: Quad I/O, Default x4 I/O, High Performance  
 T: Quad I/O, Default x4 I/O, Ultra-High Performance

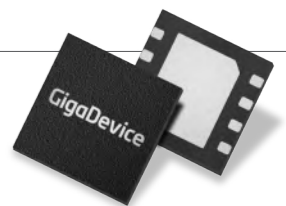
X: Octal I/O  
 D: Dual I/O  
 R: Quad I/O, Stack RPMC

1.8V

LQ/LE/LH: Quad I/O  
 LB: Quad I/O, Default x4 I/O  
 LF: Quad I/O, Default x4 I/O, High Performance  
 LT: Quad I/O, Default x4 I/O, Ultra-High Performance  
 LX: Octal I/O  
 LD: Dual I/O  
 LR: Quad I/O, Stack RPMC

1.65V~3.6V

WD: Dual Output  
 WQ: Quad I/O



## GD SPI NOR Flash (Automotive) Product List

Part No.	Density	Voltage	Organization	I/O Bus	Frequency (MHz)	Package
GD25LQ20C	2Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	USON8 3x2mm
GD25LQ20E	2Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	USON8 3x2mm
GD25LQ40C	4Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil USON8 3x2mm
GD25LQ40E	4Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil USON8 3x2mm
GD25LQ80C	8Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil LGA8 3x2mm
GD25LQ80E	8Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm
GD25LQ16C	16Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x4mm LGA8 3x2mm
GD25LQ16E	16Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x4mm USON8 3x2mm
GD25LQ32E	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm WSON8 6x5mm
GD25LQ64E	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x4mm USON8 4x4mm WSON8 6x5mm
GD25LQ128D	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)	SOP8 208mil WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25LQ128E	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4)	SOP8 208mil WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25LB256E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	133MHz(x1, x4) 84MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25LT256E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25LX256E	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD25LB512ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	133MHz(x1, x4) 84MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25LT512ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25LX512ME	512Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55LB01GE	1Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	133MHz(x1, x4) 84MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55LT01GE	1Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55LX01GE	1Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55LB02GE	2Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	133MHz(x1, x4) 84MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD55LT02GE	2Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 200MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD55LX02GE	2Gb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 200MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD25Q20C	2Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 150mil USON8 3x2mm
GD25Q40C	4Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 150mil USON8 3x2mm
GD25Q80C	8Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm
GD25B16C	16Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm
GD25Q16C	16Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x2mm USON8 3x4mm
GD25B32C	32Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x4mm WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25Q32C	32Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 150mil SOP8 208mil USON8 3x4mm WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25B64C	64Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25Q64C	64Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25B127D	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25Q127C	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	80MHz(x1, x2, x4)	SOP8 208mil SOP16 300mil WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25F128F	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4) 104MHz(DTR)	SOP8 208mil SOP16 300mil WSON8 6x5mm TFBGA24 8x6mm (5x5 ball array)
GD25B257D	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4) 104MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25Q257D	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4) 80MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25F256F	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	133MHz(x1, x2, x4) 104MHz(DTR)	SOP16 300mil WSON8 6x5mm WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25S513MD	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4) 80MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25B512ME	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	133MHz(x1, x4) 84MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25T512ME	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 166MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD25X512ME	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 166MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55B01GE	1Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	133MHz(x1, x4) 84MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55T01GE	1Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 166MHz(DTR)	SOP16 300mil WSON8 8x6mm TFBGA24 8x6mm (5x5 ball array)
GD55X01GE	1Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 166MHz(DTR)	SOP16 300mil TFBGA24 8x6mm (5x5 ball array)
GD55B02GE	2Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	133MHz(x1, x4) 84MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD55T02GE	2Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Quad	166MHz(x1, x4) 166MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)
GD55X02GE	2Gb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Octal	166MHz(x1, x8) 166MHz(DTR)	TFBGA24 8x6mm (5x5 ball array)

**Product Series**

3V

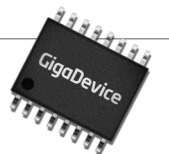
Q: Quad I/O  
 B: Quad I/O, Default x4 I/O  
 F: Quad I/O, Default x4 I/O, High Performance

T: Quad I/O, Default x4 I/O, Ultra-High Performance  
 X: Octal I/O  
 S: Stack Die, Quad I/O, Default x4 I/O

1.8V

LQ: Quad I/O  
 LB: Quad I/O, Default x4 I/O

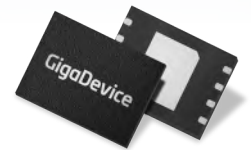
LT: Quad I/O, Default x4 I/O, Ultra-High Performance  
 LX: Octal I/O



# SPI NAND Flash



## GD SPI NAND Flash Features



### 3.3V

- ◆ **Power Supply Voltage:** 2.7V~3.6V
- ◆ **High Speed Clock Frequency:**
  - Up to 133MHz for fast read
  - Quad I/O Data transfer up to 532Mbit/s
- ◆ **Flexible Memory Architecture:**
  - 2KByte/4KByte page for read and program
  - 128KByte/256KByte per block for erase
- ◆ **Enhanced Access Performance:**
  - 2KByte/4KByte cache for fast random read
  - Cache Read and Cache Program
- ◆ **Advanced Feature for SPI NAND:**
  - Internal ECC algorithm
  - Internal data move by page with ECC
  - Promised good block-0 with ECC

### 1.8V

- ◆ **Power Supply Voltage:** 1.7V~2.0V
- ◆ **High Speed Clock Frequency:**
  - Up to 120MHz for fast read
  - Quad I/O Data transfer up to 480Mbit/s
- ◆ **Flexible Memory Architecture:**
  - 2KByte/4KByte page for read and program
  - 128KByte/256KByte per block for erase
- ◆ **Enhanced Access Performance:**
  - 2KByte/4KByte cache for fast random read
  - Cache Read and Cache Program
- ◆ **Advanced Feature for SPI NAND:**
  - Internal ECC algorithm
  - Internal data move by page with ECC
  - Promised good block-0 with ECC

## GD SPI NAND Flash Product List

### 3.3V

Part No.	Density	Frequency	I/O Bus	Page Size	Package
GD5F1GQ5U	1Gb	133MHz	x1/x2/x4	2KB	WS0N8 8*6mm/WS0N8 6*5mm/ TFBGA24(5x5 ball array)
GD5F2GQ5U	2Gb	104MHz	x1/x2/x4	2KB	WS0N8 8*6mm/TFBGA24(5x5 ball array)/TFBGA24(4x6 ball array)
GD5F4GQ6U	4Gb	104MHz	x1/x2/x4	2KB	WS0N8 8*6mm
GD5F4GM5U	4Gb	120MHz	x1/x2/x4	4KB	WS0N8 8*6mm

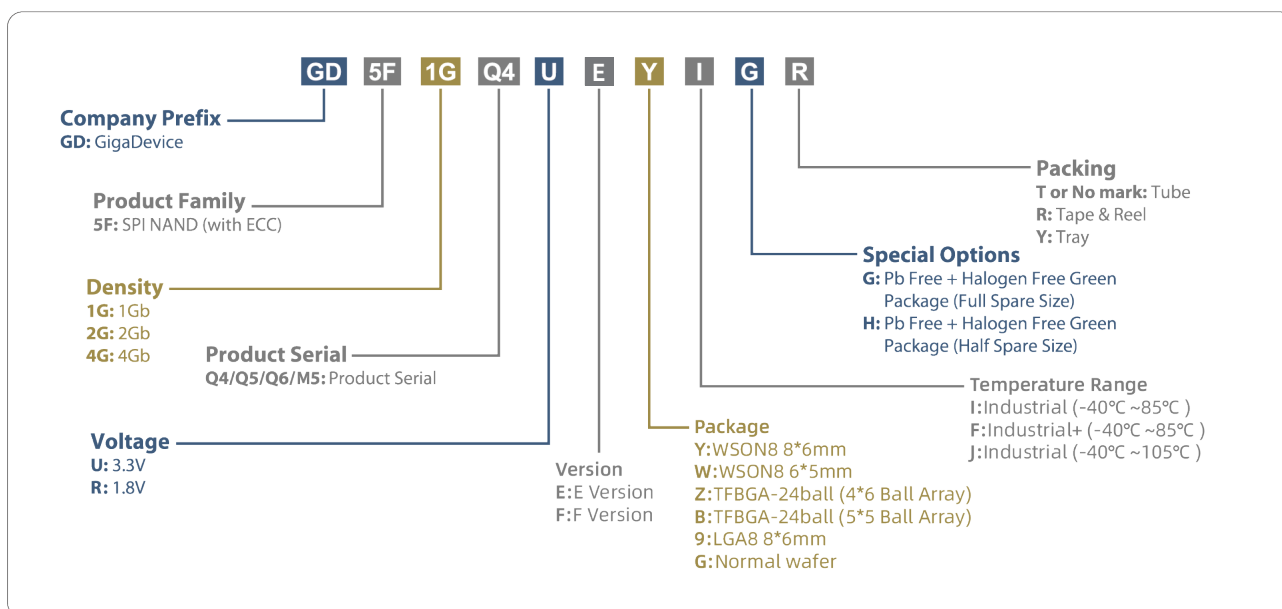
Note: For other part number options, please contact GigaDevice sales.

### 1.8V

Part No.	Density	Frequency	I/O Bus	Page Size	Package
GD5F1GQ5R	1Gb	104MHz	x1/x2/x4	2KB	WS0N8 8*6mm/WS0N8 6*5mm/ TFBGA24(5x5 ball array)
GD5F2GQ5R	2Gb	80MHz	x1/x2/x4	2KB	WS0N8 8*6mm/TFBGA24(5x5 ball array)/TFBGA24(4x6 ball array)
GD5F4GQ6R	4Gb	80MHz	x1/x2/x4	2KB	WS0N8 8*6mm
GD5F4GM5R	4Gb	120MHz	x1/x2/x4	4KB	WS0N8 8*6mm

Note: For other part number options, please contact GigaDevice sales.

## GD SPI NAND Flash Part Number Definition





# Parallel NAND Flash

## GD Parallel NAND Flash Features

### 3.3V

- ◆ Power Supply: 2.7V ~ 3.6V
- ◆ Density: 1Gb / 2Gb / 4Gb / 8Gb
- ◆ Page Size: 2K+64Byte / 2K+128Byte / 4K+256Byte
- ◆ Flash Array to Register Time: 25us
- ◆ I/O Read Performance: 12ns / 20ns / 25ns
- ◆ Bus Width: x8 / x16 options
- ◆ Temperature Range: -40° C to 85° C / -40° C to 105° C
- ◆ ONFI 1.0 compatible

### 1.8V

- ◆ Power Supply: 1.7V ~ 1.95V
- ◆ Density: 1Gb / 2Gb / 4Gb / 8Gb
- ◆ Page Size: 2K+64Byte / 2K+128Byte / 4K+256Byte
- ◆ Flash Array to Register Time: 25us
- ◆ I/O Read Performance: 25ns / 30ns / 45ns
- ◆ Bus Width: x8 / x16 options
- ◆ Temperature Range: -40° C to 85° C / -40° C to 105° C
- ◆ ONFI 1.0 compatible

## GD Parallel NAND Flash Product List

### 3.3V

Part No.	Density	Sequential Access Time	I/O Bus	Page Size	ECC Requirement	Package
GD9FU1GxF2A	1Gb	25ns	x8/x16	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU1GxF3A	1Gb	25ns	x8/x16	2KB+64B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU1G8F2D	1Gb	12ns	x8	2KB+128B	8bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU1G8F2E	1Gb	12ns	x8	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU2GxF2A	2Gb	20ns	x8/x16	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU2GxF3A	2Gb	20ns	x8/x16	2KB+64B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU4GxF2A	4Gb	20ns	x8/x16	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU4GxF3A	4Gb	20ns	x8/x16	2KB+64B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU4GxF4B	4Gb	25ns	x8/x16	4KB+256B	8bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU8GxE2A	8Gb	20ns	x8/x16	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU8GxE3A	8Gb	20ns	x8/x16	2KB+64B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FU8GxE4B	8Gb	25ns	x8/x16	4KB+256B	8bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9AU2GxF3A*	2Gb	20ns	x8/x16	2KB+64B	Internal 4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9AU4GxF3A*	4Gb	20ns	x8/x16	2KB+64B	Internal 4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9AU8GxE3A*	8Gb	20ns	x8/x16	2KB+64B	Internal 4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm

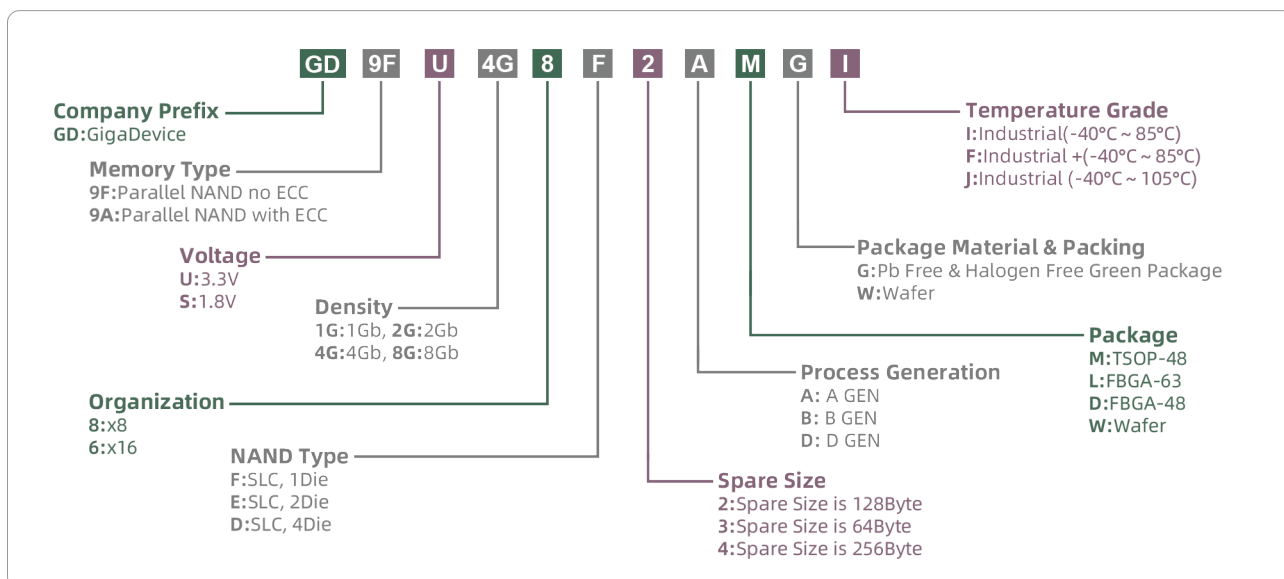
Note: The device has internal 4bit/512B ECC, doesn't need host ECC\*.

## 1.8V


Part No.	Density	Sequential Access Time	I/O Bus	Page Size	ECC Requirement	Package
GD9FS1GxF2A	1Gb	45ns	x8/x16	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS1GxF3A	1Gb	45ns	x8/x16	2KB+64B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS1G8F2D	1Gb	20ns	x8	2KB+128B	8bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS1G8F2E	1Gb	20ns	x8	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS2GxF2A	2Gb	25ns	x8/x16	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS2GxF3A	2Gb	25ns	x8/x16	2KB+64B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS4GxF2A	4Gb	25ns	x8/x16	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS4GxF3A	4Gb	25ns	x8/x16	2KB+64B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS4GxF4B	4Gb	30ns	x8/x16	4KB+256B	8bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS8GxE2A	8Gb	25ns	x8/x16	2KB+128B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS8GxE3A	8Gb	25ns	x8/x16	2KB+64B	4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9FS8GxE4B	8Gb	30ns	x8/x16	4KB+256B	8bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9AS2GxF3A*	2Gb	25ns	x8/x16	2KB+64B	Internal 4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9AS4GxF3A*	4Gb	25ns	x8/x16	2KB+64B	Internal 4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm
GD9AS8GxE3A*	8Gb	25ns	x8/x16	2KB+64B	Internal 4bit/512B	TSOP48 20*12mm/ BGA63 9*11mm

Note: The device has internal 4bit/512B ECC, doesn't need host ECC\* .


## GD Parallel NAND Flash Part Number Definition



# Flash Package Options


T		SOP8 150mil	
		Length(Normal)	4.90
		Width(Normal)	6.00
		Thickness(Max)	1.75
		Pitch(Normal)	1.27
			mm


Z		TFBGA-24ball 6*8mm (4*6ball array)	
		Length(Normal)	6.00
		Width(Normal)	8.00
		Thickness(Max)	1.20
		Pitch(Normal)	1.00
			mm


S		SOP8 208mil	
		Length(Normal)	5.23
		Width(Normal)	7.90
		Thickness(Max)	2.16
		Pitch(Normal)	1.27
			mm


B		TFBGA-24ball 6*8mm (5*5ball array)	
		Length(Normal)	6.00
		Width(Normal)	8.00
		Thickness(Max)	1.20
		Pitch(Normal)	1.00
			mm


M		VSOP8 150mil	
		Length(Normal)	4.90
		Width(Normal)	6.00
		Thickness(Max)	0.90
		Pitch(Normal)	1.27
			mm


8		LGA8 3*2mm	
		Length(Normal)	3.00
		Width(Normal)	2.00
		Thickness(Max)	0.50
		Pitch(Normal)	0.50
			mm


M		TSOP48	
		Length(Normal)	12.0
		Width(Normal)	20.0
		Thickness(Max)	1.20
		Pitch(Normal)	0.50
			mm

9		LGA8 8*6mm	
		Length(Normal)	8.00
		Width(Normal)	6.00
		Thickness(Max)	0.80
		Pitch(Normal)	1.27
			mm

V		VSOP8 208mil	
		Length(Normal)	5.28
		Width(Normal)	7.90
		Thickness(Max)	1.00
		Pitch(Normal)	1.27
			mm


K		USON8 1.5*1.5mm	
		Length(Normal)	1.50
		Width(Normal)	1.50
		Thickness(Max)	0.50
		Pitch(Normal)	0.40
			mm


F		SOP16 300mil	
		Length(Normal)	10.30
		Width(Normal)	10.35
		Thickness(Max)	2.75
		Pitch(Normal)	1.27
			mm


E		USON8 3*2mm (0.45mm)	
		Length(Normal)	3.00
		Width(Normal)	2.00
		Thickness(Max)	0.50
		Pitch(Normal)	0.50
			mm


## Note:


1. The values provided are the normal values for length, width and pitch, as well as the max values for thickness.
2. The pictures are for reference only. Please always verify your selection with the product data sheet.


N		<b>USON8 3*4mm</b>	
		Length(Normal)	3.00
		Width(Normal)	4.00
		Thickness(Max)	0.60
		Pitch(Normal)	0.80
		mm	

Y		<b>WSON8 8*6mm</b>	
		Length(Normal)	8.00
		Width(Normal)	6.00
		Thickness(Max)	0.80
		Pitch(Normal)	1.27
		mm	

Q		<b>USON8 4*4mm</b>	
		Length(Normal)	4.00
		Width(Normal)	4.00
		Thickness(Max)	0.50
		Pitch(Normal)	0.80
		mm	

L		<b>WLCSP</b>	
		Depends on specific product	

W		<b>WSON8 6*5mm</b>	
		Length(Normal)	6.00
		Width(Normal)	5.00
		Thickness(Max)	0.80
		Pitch(Normal)	1.27
		mm	

L		<b>FBGA63</b>	
		Length(Normal)	9.00
		Width(Normal)	11.0
		Thickness(Max)	1.00
		Pitch(Normal)	0.80
		mm	

# Capacitive Touchscreen Controller



## GD Capacitive Touchscreen Controller Features

- ◆ Outstanding anti RF, LCD and power supply interference
- ◆ Detect up to 10 fingers
- ◆ Panel thickness: glass up to 2.5mm, plastic up to 1.2mm
- ◆ I2C compatible slave mode 400KHz
- ◆ I/O interface: 1.8V /3.3V compatible

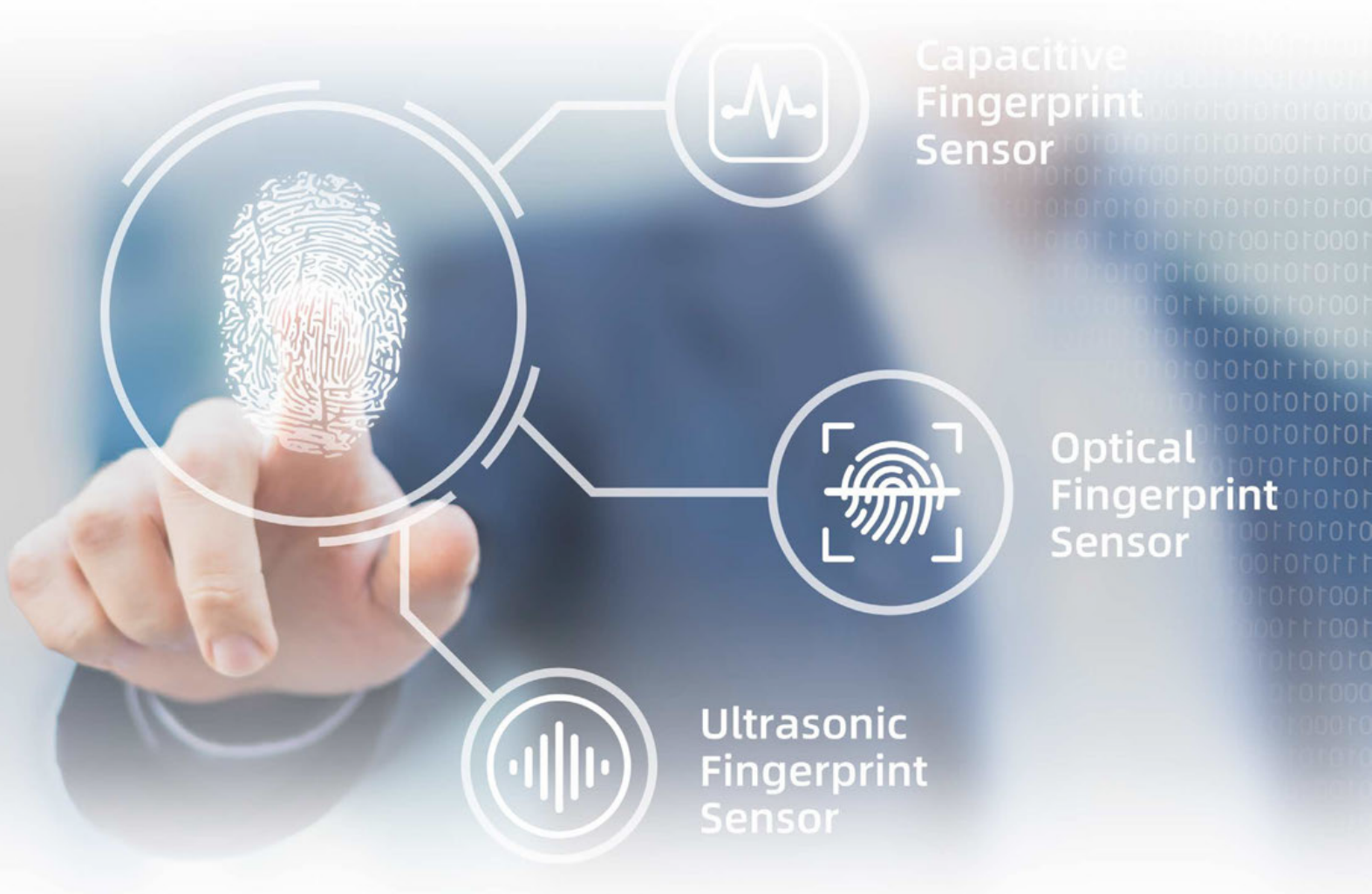
## Recommended Capacitive Touch IC for Mobile

Part No.	TP Type Supported	Channel Number	Recommended Dimensions
GSL1691F	Single layer multi-point (including double end pin, silver paste jumper), traditional DITO, silver paste free DITO, all ITO, SITO	18 x 12	< 6 inch
GSL915	Single layer multi-point (including double end pin, silver paste jumper), traditional DITO, silver paste free DITO, single-layer bridge building process	26 x 14	< 5 inch
GSL968	Single layer multi-point (including double end pin, silver paste jumper), traditional DITO, silver paste free DITO, single-layer bridge building process	17 x 10	4 inch
GSL2038	Two points of single-layer partition (with silver paste, all ITO)	25	< 4 inch
GSL2232	Two points of single-layer partition (with silver paste, all ITO)	32	3.5 ~ 4.5 inch
GSL2338	Two points of single-layer partition (with silver paste, all ITO)	40	4 ~ 6 inch

## Recommended Capacitive Touch IC for Tablet Panel

Part No.	TP Type Supported	Channel Number	Recommended Dimensions
GSL1680F	Traditional DITO (including dual-mode GFF), silver-free DITO, single-layer bridge	16 x 10	7 inch
GSL1686F	Single-layer multi-point (all ITO), single-layer multi-point double-terminal PIN, sliver jumper, traditional DITO, sliver free DITO, SITO	16 x 10	7 inch
GSL2681C	Traditional DITO (including dual-mode GFF), silver-free DITO, single-layer bridge	23 x 12	7 ~ 7.85 inch
GSL3670D	Single-layer multi-point (all ITO), single-layer multi-point double-terminal PIN, sliver jumper, traditional DITO, sliver free DITO, SITO	26 x 14	7.85 ~ 9 inch
GSL3676	Single-layer multi-point (all ITO), single-layer multi-point double-terminal PIN, sliver jumper, traditional DITO, sliver free DITO, SITO	28 x 18	9 ~ 10.1 inch
GSL3680	Single-layer multi-point (all ITO), single-layer multi-point double-terminal PIN, sliver jumper, traditional DITO, sliver free DITO, SITO	31 x 20	9 ~ 10.1 inch
GSL3692	Single-layer multi-point (all ITO), single-layer multi-point double-terminal PIN, sliver jumper, traditional DITO, sliver free DITO, SITO	32 x 24	9.7 ~ 12 inch
GSL5680	Single-layer multi-point (all ITO), single-layer multi-point double-terminal PIN, sliver jumper, traditional DITO, sliver free DITO, SITO	42 x 30	9.7 ~ 15 inch

# Fingerprint Sensor



Capacitive  
Fingerprint  
Sensor

Optical  
Fingerprint  
Sensor

Ultrasonic  
Fingerprint  
Sensor

## GD Capacitive Fingerprint Sensor Features

- ◆ Diverse shapes: round, square, rectangular etc.
- ◆ All kinds of typical sizes: different diameters, different side lengths, especially ultra-slim
- ◆ Front/Back/Side-Mounted package sensor type
- ◆ Supports different surface materials: matte / glossy coating, ceramic / glass cover
- ◆ High sensitivity, high SNR, high quality image
- ◆ 256 true gray scale values, 8 bits per pixel
- ◆ Support standard SPI bus interface
- ◆ Resolution: 508 DPI
- ◆ Adaptive calibration: automatically adjusts the sensor configuration according to the different types of fingerprint
- ◆ Adaptive for many kinds of algorithm includes finger pattern and feature points
- ◆ Getting the high definition fingerprint image without a metal ring module
- ◆ Smart wake-up feature



## Electrical Properties

- ◆ Supply voltage: 2.6V ~ 3.6V
- ◆ VDDIO voltage: 1.8V ~ AVDD
- ◆ Power consumption:
  - Image scan mode (frame rate>20F/s or custom): 8.5mA (configurable)
  - Sleep mode (before awaken): 100μA (typically)
  - Deep sleep mode: 30~100μA

## Reliability

- ◆ Sensor ESD performance:
  - Air discharge: ±15.0 kV
  - Direct discharge: ±8.0 kV
- ◆ Sensor Latch-up performance: ±400.00mA

## Capacitive Fingerprint

Part No.	Type	Position	LGA Square Size	LGA Round Size	Sensing Area	Pixel Array
GSL6157N	Matte /Glossy Coating	Side (ultra-slim)	14.3*2.4mm		8 x 1.8mm	160 x 36
GSL6159N	Matte / Glossy Coating	Side (ultra-slim)	13.5*2.12mm		8 x 1.6mm	160 x 32
GSL6150N	Matte / Glossy Coating	Back-Mounted	Max: 12x12mm Min: 7.5x7.5mm	Max: φ12mm Min: φ8.5mm	4.0 x 3.2mm	80 x 64
GSL6135N	Matte / Glossy Coating	Back-Mounted	Max: 12x12mm Min: 7.5x7.5mm	Max: φ12mm Min: φ8.5mm	3.2 x 3.2mm	64 x 64
GSL6156E	Matte /Glossy Coating	Side	Max: 16.4x6.9mm Min: 12x2.9mm	—————	6.8 x 2.4mm	192 x 68
GSL6182E	Matte / Glossy Coating	Smart door lock/ Laptop	Max: 16x16mm Min: 13x13mm	Max: φ16mm Min: φ13mm	8 x 8mm	160 x 160
GSL6182G	Matte / Glossy Coating	Smart door lock/ Laptop	Max: 16x16mm Min: 13x13mm	Max: φ16mm Min: φ13mm	5.7 x 6.6mm	114 x 132
GSL6275E	Ceramic /Glass Cover	Front-Mounted	Max: 16.4x6.9mm Min: 12.5x4.0mm	—————	8.8 x 3.2mm	176 x 64
GSL6250N	Ceramic / Glass Cover	Back-Mounted	Max: 12x12mm Min: 7.5x7.5mm	Max: φ12mm Min: φ8.5mm	4.0 x 3.2mm	80 x 64
GSL6257N	Ceramic / Glass Cover	Side (ultra-slim)	14.3*2.4mm		8 x 1.8mm	160 x 36

## GD Optical Fingerprint Sensor Features

- ◆ All kinds of OLED type supported (both rigid and flexible OLED)
- ◆ FRR ≤ 1.5%@FAR ≤ 1/50,000
- ◆ Enroll times ≤ 12 times
- ◆ All 360 degrees can be identified





## CCM Sensor

- ◆ Large size pixel design for low-light under display fingerprint application
- ◆ Advanced single-chip architecture
- ◆ Optimized lens design matching pixel array
- ◆ No flash supported
- ◆ Firstly introduce CSP (Chip Scale Package) in under-display fingerprint application

## Optical Fingerprint under OLED

Part No.	Position	Finger Sensing Area	Chip Sensing Area	Pixel Array	Supported Under Screen Height
GSL7000A	CCM	6.0 x 6.0mm	2.0 x 2.0mm	320 x 320	3.5 ~ 3.9mm
GSL7001A	CCM	6.0 x 6.0mm	2.0 x 2.0mm	250 x 250	3.5 ~ 3.9mm
GSL7002A	CCM	7.0 x 7.0mm	1.5 x 1.5mm	200 x 200	3.5 ~ 3.9mm
GSL7001F	CSM	6.0 x 6.0mm	2.0 x 2.0mm	250 x 250	3.5 ~ 3.9mm

## GD Ultrasonic Fingerprint Sensor Features

- ◆ High resolution 3D fingerprint image with epidermal and dermal skin
- ◆ Advanced ultrasonic sensor design in fingerprint application
- ◆ Better identification with water, cream, lotion fingerprint
- ◆ Capacitive smart wake-up supported
- ◆ Ultrathin thickness design (0.3mm supported)
- ◆ Under Flexible OLED supported
- ◆ Under different materials like cover-glass/metal/plastic etc.



## Ultrasonic Fingerprint under OLED

Part No.	Position	Finger Sensing Area	Chip Sensing Area	Pixel Array	Supported Under Screen Height	Transmission Thickness
GSL8165A	Ultrathin	4.8 x 4.8mm	4.8 x 4.8mm	80 x 80	0.3 ~ 1mm	1mm glass/metal/OLED/etc

# ToF (Time-of-Flight) Sensor



## GD 3D ToF Sensor Features

- ◆ It can support both the 1350nm~1550nm long wavelength and the 940nm wavelength at the same time, meeting the needs of hiding ToF under the OLED display
- ◆ Excellent ambient light resistance, excellent ranging performance in both indoor and outdoor
- ◆ Much higher sensitivity can improve the 3D sensing performance and also reduce the overall system power consumption
- ◆ Safer for the human eyes, reducing the risk of visual impairment due to the absorption of short-wavelength laser light in the retina

## 3D ToF

Part No.	Operating Range	Accuracy	Interface	Power Consumption @1m	Power Supply	Resolution	Operation Wavelength	Application
GSLT9001	0.2 ~ 4m	1%	MIPI D-PHY I2C	< 230mW	3.3/1.8/1.2V	240*180	940nm/ 1350nm/ 15550nm	Photography/ Auto focus/ Bokeh, Face ID/ Authentication, AR/ Robotics/SLAM, Gesture, Industry/ 3D scan



# Healthcare



## GD Healthcare Solution Features

- ◆ New ultrasound principle blood pressure non-invasive detection solution
- ◆ Achieve continuous detection, ultra-low power consumption
- ◆ Ultra-high accuracy < 5mmHg
- ◆ Strong subcutaneous penetration ability, up to 1cm
- ◆ Strong ability to resist external environment

## Ultrasonic Blood Pressure Monitoring

Part No.	Position	Dimensions	Operating Range	Accuracy	Samlpe Rate
GSL8011	wrist	6.4 x 6.4 x 0.5mm	Up to 1cm	< 5mmHg	Up to 1000 samples/sec

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