



Analog



GigaDevice currently offers four analog product lines, including power management units, motor drivers, high-performance power ICs, and lithium battery management. GigaDevice analog products are widely used by various electronics manufacturers and are ideal for TWS earphone charging compartment, motor drives, new energy battery charge/discharge management, and wireless communication equipment.

Manufacturers can combine GigaDevice analog products with GD32 MCUs to create robust and synergistic design solutions across a wide variety of applications. GigaDevice plans to expand its GD30 analog products further to provide turnkey solutions to customers looking to accelerate R&D and implementation.

Power
Management
Unit



Motor
Driver



High-
Performance
Power IC



Lithium Battery
Management



Power Management Unit

GD30WS88x5 Series

- ◆ Power management IC for TWS Charging Case
- ◆ Package type: QFN24
- ◆ Ultra-low quiescent current, <5uA in sleep mode
- ◆ Up to 1.5A switching charging current
- ◆ The charging efficiency is as high as 95% while keeping the temperature rise within 10°C under 500mA constant current charging
- ◆ Integrated boost converter supports up to 95% efficiency and up to 1A load current
- ◆ Short circuit protection, high-/low-temperature protection, input overvoltage/overcurrent protection, and overvoltage/undervoltage protection
- ◆ Power path management
- ◆ Built-in 3.3V LDO with up to 80mA output current can supply MCU power



Charging box and earphone management IC for TWS earphones

GD30WS8662 Series

- ◆ TWS earphone charging management IC
- ◆ Package type: WLCSP9
- ◆ The minimum 200nA quiescent current
- ◆ Configurable 8-456mA charging current, charging voltage accuracy $\pm 0.5\%$
- ◆ Maximum overvoltage protection voltage 32V
- ◆ Short circuit protection, high-/low-temperature protection, PCB over-temperature protection, and input overvoltage, undervoltage, and overcurrent protection
- ◆ Built-in 3.3V LDO, support 50mA current

Part No.	Absolute V_{USB} (V)	Control Topology	Charging Current	Load Current	CV Charge Voltage (V)	Quiescent Current (μ A)	LDO	Control interface	12bit ADC	Temperature Operating Range ($^{\circ}$ C)	Package
	Max										
GD30WS8805EU	20	Switch-Mode	Max 1.2A	Max 0.6A	4.1/4.2/4.3/ 4.35/4.4 @ 0.5%	<5	3.3V/50mA	I ² C	●	-20 to +85	QFN24
GD30WS8815EU	20	Switch-Mode	Max 1.5A	Max 1A	4.1/4.2/4.3/ 4.35/4.4 @ 0.5%	<5	3.3V/80mA	I ² C	●	-20 to +85	QFN24
GD30WS8855EU	20	Switch-Mode	Max 1.2A	Max 0.6A	4.1/4.2/4.3/ 4.35/4.4 @ 0.5%	<5	3.3V/50mA	I ² C	●	-20 to +85	QFN24
GD30WS8662DY	35	Linear-Mode	8~456mA (8mA/step)	0.4~3.2A (0.2A/step)	3.6~4.545(15mV/step) @ 0.5%	<0.4	3.3V/50mA	1 ² C		-40 to +85	WLCSP9



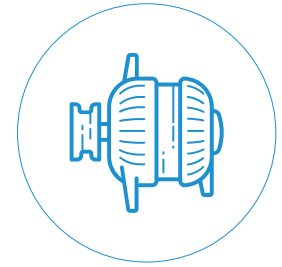
Motor Driver

GD30DR8413 Series

- ◆ 3 phase brushless (BLDC) motor driver
- ◆ 4.5-30V supply voltage
- ◆ integrated triple half-bridge NMOS
- ◆ 3A peak drive current
- ◆ Maximum 50KHz PWM frequency
- ◆ Integrated 5V LDO
- ◆ Integrated comparator
- ◆ Support square wave or FOC

GD30DR8306 Series

- ◆ 3 phase brushless (BLDC) motor driver
- ◆ 4.5-30V supply voltage
- ◆ Programmable drive current, maximum 1A source current, and 1.2A sink current
- ◆ 200kHz PWM input control
- ◆ 2 PWM modes (6x and 3x)
- ◆ Built-in 5V/2A DC-DC buck controller
- ◆ Integrated 5V LDO
- ◆ Support square wave or FOC



3-Phase BLDC and PMSM motors, power tools

Part No.	Supply Voltage (V)		Power MOSFET	Gate Driver Peak Current (A)		Control Interface	PWM Frequency(kHz)	Buck Controller	LDO	Protection Features			Temperature Operating Range (°C)	Package
	Min	Max		Source	Sink					Max	Under Voltage	Over Temperature		
GD30DR8306KU	4.5	30	External	1	1.2	6xPWM 3xPWM	200	5V/2A	5V/40mA	●	●	●	-40 to +105	QFN32

Part No.	Supply Voltage (V)		Power MOSFET	Drive Current (A)	Control Interface	PWM Frequency (kHz)	LDO	Protection Features			Temperature Junction Range (°C)	Package
	Min	Max						Under Voltage	Over Temperature	Fault diagnostics		
GD30DR8413EU	4.5	30	Internal	3	3xPWM	50	5V/20mA	●	●	●	-40 to +125	QFN24

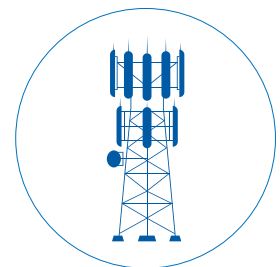


High-performance Power IC

GD30LD330x Series

- ◆ High-performance power regulator (LDO)
- ◆ Input voltage range:
 - With BIAS: 1.1V to 6.5V
 - Without BIAS: 1.4V to 6.5V
- ◆ Output voltage setting
 - External resistor configuration
 - Pin-setting, no external resistor

- ◆ High accuracy, ultra-high PSRR, excellent noise immunity
- ◆ Ultra-low dropout voltage: maximum 180mV at 3A with BIAS



High-performance power regulator (LDO)

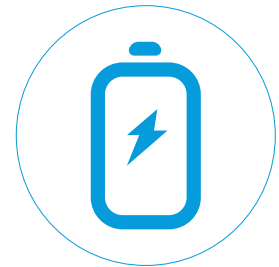
Part No.	V _{in} (V)		V _{out} (V)		Output Current (A)	Dropout Voltage @3A with BIAS (mV)	PSRR @10kHz (db)	Output Voltage Noise (µVRMS)		Ground Current (mA)	Protection Features			Temperature Junction Range (°C)	Package
	With BIAS	Without BIAS	Pin-selectable	Set by a Resistor Divider				Max	0.8V Output		5V Output	Current Limiting	Over Temperature		
GD30LD3300FU	1.1~6.5	1.4~6.5	0.5~2.075	0.5~5.2	3	180	42	5.9	9.8	3	●	●	●	-40 to +125	QFN20
GD30LD3301FU	1.1~6.5	1.4~6.5	0.8~3.95	0.8~5.2	3	180	42	5.9	9.8	3	●	●	●	-40 to +125	QFN20



Lithium Battery Management

GD30BC2501 Series

- ◆ Lithium battery charge and discharge management IC
- ◆ Wide input voltage range 18~32V, charge 4/6 cell Li-ion battery packs
- ◆ Supports complete charge cycle, non-synchronous switching charge current up to 5A
- ◆ Support cycle-by-cycle overcurrent protection, overvoltage/ undervoltage protection, and high-/low-temperature protection for batteries
- ◆ Charging efficiency up to 95%
- ◆ Fixed switching frequency 500KHz



Lithium battery charge and discharge management IC

Part No.	Series Cells	Input Operation Voltage (V)		Control Topology	Charging Current (A)		Charging Efficiency (%)	CV Charge Voltage for Per cell (V)	LDO	Control interface	Protection Features				Temperature Operating Range (°C)	Package
		Min	Max		Max	Max					Over Voltage	Under Voltage	Over Current	Battery Over/ Under Temperature		
GD30BC2501LR	4,6	18	32	Buck	5	95	4.1/4.2/4.3/4.35@1%	3.3V/25mA	I ² C	●	●	●	●	-40 to +85	QFN16	

GD30 PMU Supporting Development board

Combine with a GD32 MCU to provide a one-stop solution

Board type	Board model	Onboard chip model
PMIC Evaluation Board	GD30WS8805-EVAL	GD30WS8805EU
TWS charging bin charge and discharge management development board	GD30WS8805-TWS01	GD30WS8805EU + GD32E230F8V6
TWS charging bin charge and discharge management development board	GD30WS8805-TWS02	GD30WS8805EU + GD32E230G8U6
Motor Driver Development Board	GD30DR8306-FOC01	GD30DR8306KU + GD32E230C8T6
Motor Driver Development Board	GD30DR8413-SERVO01	GD30DR8413EU + GD32E230C8T6
LDO Evaluation Board	GD30LD3301-EVAL	GD30LD3301FU
Lithium battery management evaluation board	GD30BC2501-EVAL	GD30BC2501LR
Four-cell lithium battery charge management development board	GD30BC2501-BC01	GD30BC2501LR + GD32E230F4V6

Package Options

QFN32 (5*5mm)	QFN24 (4*4mm)	QFN20 (3.5*3.5mm)	QFN16 (4*4mm)	WLCSP9 (1.75*1.75mm)

