

GF55: 5V GPIO



Libraries

Name	Process	Form Factor
RGO_GF55_25V5_LPX_30C	LPX	staggered
RGO_GF55_25V5_LPX_50C	LPX	Inline
RGO_GF55_25V5_LPX_30C_FT	LPX	staggered
RGO_GF55_25V5_LPX_50C_FT	LPX	Inline
RGO_GF55_25V5_LPX_30C_OSC	LPX	staggered
RGO_GF55_25V5_LPX_50C_OSC	LPX	Inline

Summary

The 5V General Purpose I/O library provides bidirectional I/O, isolated analog I/O, and a full complement of power cells along with corner and spacer cells to assemble a complete pad ring by abutment. An included rail splitter allows multiple power domains to be isolated in the same pad ring while maintaining continuous VDD/VSS for robust ESD protection.

- Programmable bidirectional GPIO
- Fault-tolerant programmable bidirectional GPIO
- Input-only buffer
- Isolated analog I/O
- Full complement of power, corner, and spacer cells
- Oscillators

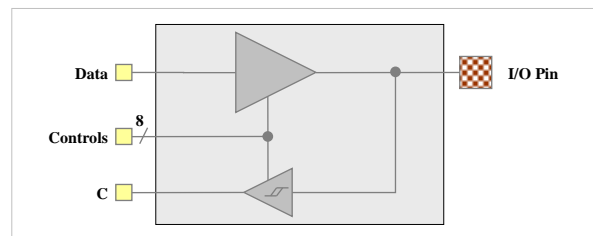
ESD Protection:

- JEDEC compliant
 - 2KV ESD Human Body Model (HBM)
 - 200 V ESD Machine Model (MM)
 - 500 V ESD Charge Device Model (CDM)

Latch-up Immunity:

- JEDEC compliant
 - Tested to I-Test criteria of $\pm 100\text{mA}$ @ 125°C

SRx_BI_SDS_5V_STB / FRx_BI_SDS_5V_STB



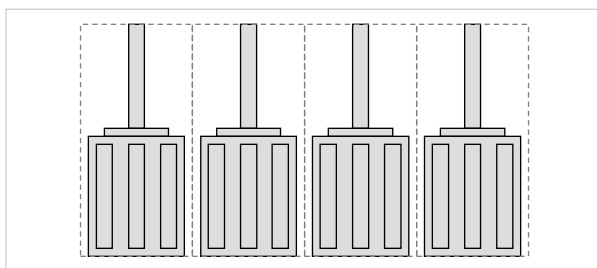
Bidirectional GPIO Driver Features

- 5V operation
- LVCMOS / LVTTTL input with selectable hysteresis
- Programmable drive strength (rated 2mA to 12mA)
- Selectable output slew rate
- Optimized for EMC with SSO factor of 8
- Open-drain output mode
- Programmable input options (pull-up/pull-down/repeater)
- Power sequencing independent design with Power-On Control

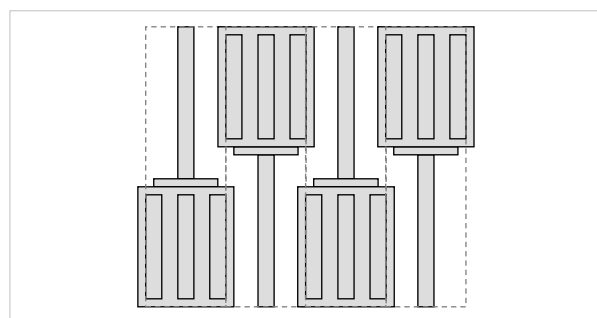
In full-drive mode, this driver can operate to frequencies in excess of 100MHz with 15pF external load and 125 MHz with 10pF load. Actual frequency limits are load and system dependent. A maximum of 200 MHz can be achieved under small capacitive loads.

Cell Sizes & Form Factor

Inline (core-limited) – 50 μm x 153 μm



Staggered (pad-limited) – 35 μm x 232 μm



Recommended operating conditions

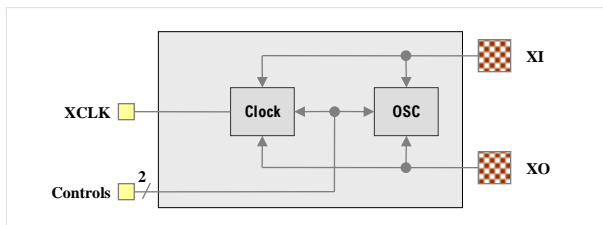
Description	Min	Nom	Max	Units
V_{DD} Core supply voltage	0.81	0.9	0.99	V
	0.90	1.0	1.10	V
	1.08	1.2	1.32	V
V_{DVDD} I/O supply voltage	4.50	5	5.50	V
T_J Junction temperature	-40	25	125	°C
V_{PAD} Voltage at PAD	-0.3	-	$V_{DVDD} + 0.3$	V

Characterization Corners

Nominal VDD	Model	VDD	DVDD ^[1]	Temperature
0.9 / 1.0 / 1.2	FF	+10%	+10%	-40°C
	FFF ^[1]	+10%	+10%	125°C
	FFF ^[1]	+10%	+10%	150°C
0.9 / 1.0 / 1.2	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C
	SS	-10%	-10%	150°C

[1] The FFF requirement is for leakage only. Aragio cannot guarantee that the AC/DC specifications will be met for the FFF model corner

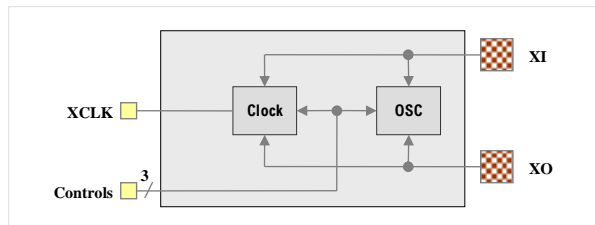
OSx_BI_032_12V



32 KHz RTC Oscillator Features

- Designed to use a 32.786 kHz external crystal for Real Time Clock applications.
- Optimized for low power, stability and minimum jitter
- Characterized with crystal loading capacitors ranging from 4 pF to 25 pF.
- Power-down and bypass modes
- Speed-up circuitry for fast startup
- Low power (1.5 μ W typ)
- Operates on core power only (VDD/VSS cells embedded)

OSx_BI_100_12V



100 MHz Programmable Oscillator Features

- Programmable drive strength for wider frequency range – 1 MHz to > 100 MHz using industry standard external crystals.
- Optimized for low power, stability and minimum jitter
- Power-down mode and bypass capability
- Operates on core power only (VDD/VSS cells embedded)

Oscillator libraries are shipped separately.

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