gf180mcu_12T_TT_3P3_25C.ccs Library

Cell Groups
GF180MCU_OSU_SC_12T_ADDF_1
GF180MCU_OSU_SC_12T_ADDH_1
GF180MCU_OSU_SC_12T_AND2_1
GF180MCU_OSU_SC_12T_AOI21_1
GF180MCU_OSU_SC_12T_BUF_1
GF180MCU_OSU_SC_12T_BUF_2
GF180MCU_OSU_SC_12T_CLKBUF_1
GF180MCU_OSU_SC_12T_DFFN_1
GF180MCU_OSU_SC_12T_DFFSR_1
GF180MCU_OSU_SC_12T_DFF_1
GF180MCU_OSU_SC_12T_DLATN_1
GF180MCU_OSU_SC_12T_DLAT_1
GF180MCU_OSU_SC_12T_INV_1
GF180MCU_OSU_SC_12T_INV_2
GF180MCU_OSU_SC_12T_MUX2_1
GF180MCU_OSU_SC_12T_NAND2_1
GF180MCU_OSU_SC_12T_NOR2_1
GF180MCU_OSU_SC_12T_OAI21_1
GF180MCU_OSU_SC_12T_OR2_1
GF180MCU_OSU_SC_12T_TIEHI
GF180MCU_OSU_SC_12T_TIELO
GF180MCU_OSU_SC_12T_XNOR2_1
GF180MCU_OSU_SC_12T_XOR2_1

GF180MCU_OSU_SC_12T_ADDF_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT			OUTPUT	
A	B	CI	CO	S
0	0	0	0	0
0	0	1	0	1
0	1	0	0	1
0	1	1	1	0
1	0	0	0	1
1	0	1	1	0
1	1	0	1	0
1	1	1	1	1

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_addf_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	A	B	CI	CO	S
gf180mcu_osu_sc_12T_addf_1	0.01544	0.01474	0.01140	1.55550	1.54990

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_addf_1	0.00000	0.00434	0.00459

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_addf_1	A->CO (RR)	0.21226	0.82408	7.28466
	B->CO (RR)	0.21812	0.91123	7.77409
	CI->CO (RR)	0.19568	0.86417	7.27903

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_addf_1	A->CO (FF)	0.23828	0.92549	8.06347
	B->CO (FF)	0.22328	1.00476	8.62006
	CI->CO (FF)	0.18905	0.98678	8.30552

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_addf_1	A->S (-R)	0.41985	1.11247	8.51167
	B->S (-R)	0.40110	1.20380	9.24793
	CI->S (-R)	0.36483	1.14006	8.80527

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_addf_1	A->S (-F)	0.25030	1.06966	9.07279
	B->S (-F)	0.29803	1.03734	8.75645
	CI->S (-F)	0.31935	0.98649	8.32990

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_addf_1	A	0.04921	0.06452	0.36351
	A	0.08872	0.10421	0.40224
	B	0.04907	0.06261	0.32982
	B	0.08985	0.10373	0.37156
	CI	0.03523	0.05326	0.28970
	CI	0.07547	0.09132	0.32645

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_addf_1	A	0.10013	0.11551	0.41358
	A	0.06286	0.07826	0.37677
	B	0.08228	0.09632	0.36674
	B	0.04009	0.05424	0.32534
	CI	0.07548	0.09324	0.33568
	CI	0.04232	0.06015	0.30256

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_addf_1	A	0.02794	0.04881	0.48450
	A	0.11194	0.13335	0.56918
	B	0.03179	0.05786	0.53361
	B	0.11241	0.13909	0.61361
	CI	0.04279	0.07116	0.60594
	CI	0.11978	0.14798	0.68256

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_addf_1	A	0.10703	0.13070	0.57081
	A	0.01965	0.04387	0.48426
	B	0.10848	0.13472	0.61211
	B	0.03149	0.05785	0.53586
	CI	0.11729	0.14523	0.68970
	CI	0.05164	0.07962	0.62457

GF180MCU_OSU_SC_12T_ADDH_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT	
A	B	CO	S
0	0	0	0
0	1	0	1
1	0	0	1
1	1	1	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_addh_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	A	B	CO	S
gf180mcu_osu_sc_12T_addh_1	0.00767	0.00696	1.55628	1.55391

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_addh_1	0.00000	0.00347	0.00375

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_addh_1	A->CO (RR)	0.16043	0.77148	7.36131
	B->CO (RR)	0.14916	0.82604	7.77640

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_addh_1	A->CO (FF)	0.12722	0.81645	7.69113
	B->CO (FF)	0.11494	0.77045	7.25281

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
gf180mcu_osu_sc_12T_addh_1	A->S (RR)	!B	0.16308	0.82233	7.61775
	A->S (FR)	B	0.23110	0.95569	8.21953
	B->S (RR)	!A	0.12932	0.73267	6.99760
	B->S (FR)	A	0.24907	0.93424	7.75742

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
gf180mcu_osu_sc_12T_addh_1	A->S (FF)	!B	0.17256	0.80695	7.50836
	A->S (RF)	B	0.25638	0.79085	6.32892
	B->S (FF)	!A	0.14500	0.86146	8.02549
	B->S (RF)	A	0.24469	0.84875	6.87189

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_addh_1	A	0.04321	0.06732	0.37997
	A	0.06133	0.08566	0.39863
	B	0.04747	0.07111	0.35633
	B	0.05950	0.08305	0.36746

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_addh_1	A	0.05988	0.08760	0.40474
	A	0.04146	0.06935	0.38649
	B	0.05914	0.08243	0.36741
	B	0.04785	0.07126	0.35619

Internal switching power(pJ) to S rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
gf180mcu_osu_sc_12T_addh_1	A	B	0.05992	0.08759	0.40495
	A	B	0.04151	0.06931	0.38660
	A	!B	0.02972	0.06801	0.56744
	A	!B	0.08200	0.12015	0.61823
	B	A	0.05917	0.08233	0.36619
	B	A	0.04788	0.07121	0.35514
	B	!A	0.02040	0.05755	0.49045
	B	!A	0.05848	0.09535	0.52826

Internal switching power(pJ) to S falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
gf180mcu_osu_sc_12T_addh_1	A	B	0.04318	0.06739	0.37910
	A	B	0.06129	0.08573	0.39736
	A	!B	0.07269	0.10824	0.60704
	A	!B	0.02071	0.05627	0.55544
	B	A	0.04737	0.07111	0.35523
	B	A	0.05941	0.08306	0.36673
	B	!A	0.06344	0.10067	0.53310
	B	!A	0.02490	0.06233	0.49494

GF180MCU_OSU_SC_12T_AND2_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	x	0
1	0	0
1	1	1

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_and2_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
gf180mcu_osu_sc_12T_and2_1	0.00405	0.00402	1.54145

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_and2_1	0.00000	0.00146	0.00208

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_and2_1	A->Y (RR)	0.12009	0.76131	7.57945
	B->Y (RR)	0.13115	0.71520	7.19291

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_and2_1	A->Y (FF)	0.09474	0.71311	7.06634
	B->Y (FF)	0.10741	0.76693	7.52062

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_and2_1	A	0.02734	0.07562	0.60267
	A	0.05058	0.09875	0.62581
	B	0.02705	0.07696	0.66141
	B	0.05522	0.10518	0.68909

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_and2_1	A	0.04379	0.09385	0.62096
	A	0.02045	0.07071	0.60403
	B	0.05559	0.10901	0.69514
	B	0.02729	0.08086	0.66733

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_and2_1	(!B * !Y)	-0.01400	-0.01407	-0.01413
	(!B * !Y)	0.00187	0.00188	0.00178

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_and2_1	(!B * !Y)	0.01418	0.01420	0.01418
	(!B * !Y)	-0.00175	-0.00175	-0.00175

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_and2_1	(!A * !Y)	-0.01351	-0.01356	-0.01352
	(!A * !Y)	0.00646	0.00654	0.00646

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_and2_1	(!A * !Y)	0.01374	0.01356	0.01355
	(!A * !Y)	-0.00630	-0.00650	-0.00646

GF180MCU_OSU_SC_12T_AOI21_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT			OUTPUT
A0	A1	B	Y
0	x	0	1
x	x	1	0
1	0	0	1
1	1	x	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_aoi21_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B	Y
gf180mcu_osu_sc_12T_aoi21_1	0.00395	0.00398	0.00405	0.78130

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_aoi21_1	0.00000	0.00095	0.00180

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_aoi21_1	A0->Y (FR)	0.12765	0.93883	8.60718
	A1->Y (FR)	0.10493	0.91262	8.52901
	B->Y (FR)	0.09054	1.03291	9.87220

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_aoi21_1	A0->Y (RF)	0.10183	0.68737	6.15213
	A1->Y (RF)	0.09006	0.79439	7.33025
	B->Y (RF)	0.03990	0.55414	5.35620

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_aoi21_1	A0	0.04880	0.06515	0.28720
	A0	0.01075	0.02710	0.24915
	A1	0.03709	0.05294	0.25783
	A1	0.00406	0.01990	0.22455
	B	0.02543	0.05333	0.30014
	B	0.00293	0.03076	0.27768

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_aoi21_1	A0	0.01642	0.03292	0.23767
	A0	0.05408	0.07074	0.27532
	A1	0.01646	0.03330	0.21206
	A1	0.04910	0.06609	0.24502
	B	-0.00066	0.02430	0.25198
	B	0.02183	0.04705	0.27849

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_aoi21_1	(A1 * B * !Y)	-0.01271	-0.01328	-0.01331
	(A1 * B * !Y)	0.00675	0.00655	0.00651
	(!A1 * B * !Y)	-0.01350	-0.01355	-0.01352
	(!A1 * B * !Y)	0.00647	0.00652	0.00647
	(!A1 * !B * Y)	-0.01350	-0.01356	-0.01352
	(!A1 * !B * Y)	0.00646	0.00655	0.00646

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_aoi21_1	(A1 * B * !Y)	0.01346	0.01328	0.01331
	(A1 * B * !Y)	-0.00648	-0.00648	-0.00649
	(!A1 * B * !Y)	0.01368	0.01357	0.01355
	(!A1 * B * !Y)	-0.00635	-0.00649	-0.00647
	(!A1 * !B * Y)	0.01375	0.01356	0.01355
	(!A1 * !B * Y)	-0.00628	-0.00649	-0.00646

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_aoi21_1	(B * !Y)	-0.01272	-0.01334	-0.01333
	(B * !Y)	0.00673	0.00654	0.00651
	(!A0 * !B * Y)	-0.01403	-0.01407	-0.01413
	(!A0 * !B * Y)	0.00189	0.00189	0.00178

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_aoi21_1	(B * !Y)	0.01337	0.01334	0.01333
	(B * !Y)	-0.00648	-0.00650	-0.00649
	(!A0 * !B * Y)	0.01425	0.01419	0.01418
	(!A0 * !B * Y)	-0.00176	-0.00175	-0.00175

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_aoi21_1	(A0 * A1 * !Y)	-0.00449	-0.00449	-0.00451
	(A0 * A1 * !Y)	0.00777	0.00777	0.00780

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_aoi21_1	(A0 * A1 * !Y)	0.00499	0.00499	0.00463
	(A0 * A1 * !Y)	-0.00736	-0.00742	-0.00779

GF180MCU_OSU_SC_12T_BUF_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_buf_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
gf180mcu_osu_sc_12T_buf_1	0.00404	1.55566

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_buf_1	0.00000	0.00149	0.00149

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_buf_1	A->Y (RR)	0.08075	0.64832	6.93348

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_buf_1	A->Y (FF)	0.08501	0.73231	7.59185

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_buf_1	A	0.01909	0.07938	0.69832
	A	0.04102	0.10118	0.72018

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_buf_1	A	0.04118	0.10239	0.72073
	A	0.01920	0.08051	0.69903

GF180MCU_OSU_SC_12T_BUF_2

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_buf_2	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
gf180mcu_osu_sc_12T_buf_2	0.00404	3.10294

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_buf_2	0.00000	0.00224	0.00239

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_buf_2	A->Y (RR)	0.09345	0.57258	7.01509

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_buf_2	A->Y (FF)	0.09890	0.66906	7.67275

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_buf_2	A	0.04100	0.10073	0.71774
	A	0.06290	0.12226	0.73960

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_buf_2	A	0.06286	0.12251	0.73814
	A	0.04088	0.10073	0.71639

GF180MCU_OSU_SC_12T_CLKBUF_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_clkbuf_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
gf180mcu_osu_sc_12T_clkbuf_1	0.00404	1.55566

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_clkbuf_1	0.00000	0.00149	0.00149

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_clkbuf_1	A->Y (RR)	0.08075	0.64832	6.93348

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_clkbuf_1	A->Y (FF)	0.08501	0.73231	7.59185

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_clkbuf_1	A	0.01909	0.07938	0.69832
	A	0.04102	0.10118	0.72018

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_clkbuf_1	A	0.04118	0.10239	0.72073
	A	0.01920	0.08051	0.69903

GF180MCU_OSU_SC_12T_DFFN_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT	
D	CLKN	Q	QN
0	R	0	1
1	R	1	0
x	x	IQ	IQN

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_dffn_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CLKN	Q	QN
gf180mcu_osu_sc_12T_dffn_1	0.00393	0.01039	1.56141	1.56075

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_dffn_1	0.00000	0.00595	0.00661

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dffn_1	CLKN->Q (RR)	0.27614	1.59302	16.48390
	QN->Q (FR)	0.03870	0.87385	10.25460

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dffn_1	CLKN->Q (RF)	0.36340	1.62411	16.29670
	QN->Q (RF)	0.03556	0.73591	8.74007

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dffn_1	CLKN->QN (RR)	0.32010	0.89992	6.99720

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dffn_1	CLKN->QN (RF)	0.22879	0.79167	6.16788

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffn_1	hold	CLKN (R)	-0.10900	-0.10020	0.56291
	setup	CLKN (R)	0.19409	0.22822	0.74152

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffn_1	hold	CLKN (R)	-0.18349	-0.44900	-4.93177
	setup	CLKN (R)	0.20933	0.45919	5.16124

Constraints(ns) for CLKN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffn_1	min_pulse_width	CLKN ()	0.14310	0.93384	16.50020
	min_pulse_width	CLKN ()	0.19811	0.93384	16.50020

Constraints(ns) for CLKN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffn_1	min_pulse_width	CLKN ()	0.24624	0.93384	16.50020
	min_pulse_width	CLKN ()	0.16373	0.93384	16.50020

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffn_1	CLKN	0.04906	0.10725	0.64377
	CLKN	0.07710	0.13546	0.67514

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffn_1	CLKN	0.05836	0.09420	0.50368
	CLKN	0.07977	0.11554	0.52377

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffn_1	CLKN	0.05836	0.09428	0.50270
	CLKN	0.07977	0.11562	0.52401

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffn_1	CLKN	0.04898	0.10713	0.64122
	CLKN	0.07702	0.13539	0.67139

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffn_1	CLKN	-0.01310	-0.01340	-0.01335
	CLKN	0.00649	0.00651	0.00649
	(!CLKN * Q * !QN) + (!CLKN * !Q * QN)	0.06053	0.10755	0.71342
	(!CLKN * Q * !QN) + (!CLKN * !Q * QN)	0.09208	0.13919	0.74479

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffn_1	CLKN	0.01355	0.01345	0.01335
	CLKN	-0.00637	-0.00650	-0.00648
	(!CLKN * Q * !QN) + (!CLKN * !Q * QN)	0.09223	0.13971	0.74724
	(!CLKN * Q * !QN) + (!CLKN * !Q * QN)	0.06064	0.10821	0.71567

Passive power(pJ) for CLKN rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffn_1	(D * Q * !QN)	-0.00099	0.05513	0.66646
	(D * Q * !QN)	0.04599	0.10190	0.71314
	(!D * !Q * QN)	-0.00170	0.05557	0.66610
	(!D * !Q * QN)	0.05249	0.10962	0.71997

Passive power(pJ) for CLKN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffn_1	(D * Q * !QN)	0.04613	0.10612	0.71738
	(D * Q * !QN)	-0.00077	0.05941	0.67051
	(D * !Q * QN)	0.12358	0.18261	0.99209
	(D * !Q * QN)	0.08154	0.14092	0.94983
	(!D * Q * !QN)	0.11973	0.22465	1.16805
	(!D * Q * !QN)	0.06278	0.16792	1.11108
	(!D * !Q * QN)	0.05307	0.11084	0.72024
	(!D * !Q * QN)	-0.00126	0.05684	0.66630

GF180MCU_OSU_SC_12T_DFFSR_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT				OUTPUT	
D	RN	SN	CLK	Q	QN
0	1	1	R	0	1
1	1	1	R	1	0
x	0	x	x	0	1
x	1	0	x	1	0
x	1	1	x	IQ	IQN

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_dffsr_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	RN	SN	CLK	Q	QN
gf180mcu_osu_sc_12T_dffsr_1	0.00393	0.00404	0.00801	0.01039	1.54794	1.55977

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_dffsr_1	0.00000	0.00708	0.00862

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dffsr_1	CLK->Q (RR)	0.40037	1.71038	16.45910
	QN->Q (FR)	0.03870	0.87145	10.19690
	RN->Q (RR)	0.29352	1.60204	16.46110
	SN->Q (FR)	0.27896	1.65547	17.32570

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dffsr_1	CLK->Q (RF)	0.45626	1.72211	16.25880
	QN->Q (RF)	0.03556	0.73343	8.68858
	RN->Q (FF)	0.25621	1.65437	17.40650

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dffsr_1	CLK->QN (RR)	0.41217	1.00340	7.09321
	RN->QN (FR)	0.21269	0.93582	8.24101

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dffsr_1	CLK->QN (RF)	0.34895	0.91457	6.28325
	RN->QN (RF)	0.24361	0.80864	6.29256
	SN->QN (FF)	0.22829	0.85997	7.14017

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	hold	CLK (R)	-0.15310	-0.13284	0.54864
	setup	CLK (R)	0.30177	0.33431	0.66572

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	hold	CLK (R)	-0.21855	-0.45708	-5.02529
	setup	CLK (R)	0.25733	0.47364	5.14756

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	hold	CLK (R)	-0.15310	-0.13284	0.54864
	setup	CLK (R)	0.30177	0.33431	0.66572

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	hold	CLK (R)	-0.21855	-0.45708	-5.02529
	setup	CLK (R)	0.25733	0.47364	5.14756

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	recovery	CLK (R)	0.17434	0.23922	1.43976
	removal	CLK (R)	-0.01699	-0.01712	-0.05223
	hold	SN (R)	-0.20252	-0.35858	-0.82960
	setup	SN (R)	0.23792	0.43305	5.19229

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	recovery	CLK (R)	0.17434	0.23922	1.43976
	removal	CLK (R)	-0.01699	-0.01712	-0.05223
	hold	SN (R)	-0.20252	-0.35858	-0.82960
	hold	SN (R)	-0.20313	-0.35858	-0.83258
	setup	SN (R)	0.23436	0.42756	5.01123
	setup	SN (R)	0.23792	0.43305	5.19229

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	min_pulse_width	RN ()	0.15685	0.93384	16.50020
	min_pulse_width	RN ()	0.15685	0.93384	16.50020

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	recovery	CLK (R)	0.07375	0.11677	5.55837
	removal	CLK (R)	-0.03347	-0.06990	-0.61626

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	recovery	CLK (R)	0.07375	0.11677	5.55837
	removal	CLK (R)	-0.03347	-0.06990	-0.61626

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	min_pulse_width	SN ()	0.21874	0.93384	16.50020
	min_pulse_width	SN ()	0.22217	0.93384	16.50020

Constraints(ns) for CLK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	min_pulse_width	CLK ()	0.20498	0.93384	16.50020
	min_pulse_width	CLK ()	0.23592	0.93384	16.50020

Constraints(ns) for CLK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	min_pulse_width	CLK ()	0.35282	0.93384	16.50020
	min_pulse_width	CLK ()	0.22217	0.93384	16.50020

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	CLK	0.06419	0.11670	0.65038
	CLK	0.08911	0.14188	0.67768
	RN	0.10463	0.14160	0.55926
	RN	0.12141	0.15849	0.57788
	SN	0.09604	0.13487	0.62174
	SN	0.07966	0.11861	0.60644

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	CLK	0.06751	0.10155	0.50899
	CLK	0.09195	0.12595	0.53172
	RN	0.11615	0.15605	0.59300
	RN	0.09937	0.13934	0.57629

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	CLK	0.06744	0.10167	0.50805
	CLK	0.09189	0.12600	0.53208
	RN	0.11612	0.15607	0.59143
	RN	0.09935	0.13914	0.57434

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	CLK	0.06410	0.11656	0.64790
	CLK	0.08902	0.14161	0.67511
	RN	0.10456	0.14121	0.55607
	RN	0.12134	0.15819	0.57349
	SN	0.09599	0.13489	0.61949
	SN	0.07960	0.11867	0.60344

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	CLK	-0.01310	-0.01340	-0.01335
	CLK	0.00649	0.00651	0.00649
	(!CLK * RN * SN * Q * !QN) + (!CLK * RN * SN * !Q * QN)	0.08512	0.12602	0.71637
	(!CLK * RN * SN * Q * !QN) + (!CLK * RN * SN * !Q * QN)	0.11069	0.15166	0.74184
	(!CLK * RN * !SN * Q * !QN)	0.03795	0.07660	0.62199
	(!CLK * RN * !SN * Q * !QN)	0.06963	0.10830	0.65351
	(!CLK * !RN * SN * !Q * QN)	0.03780	0.07680	0.62211
	(!CLK * !RN * SN * !Q * QN)	0.06946	0.10859	0.65366
	(!CLK * !RN * !SN * !Q * QN)	0.03794	0.07660	0.62199
	(!CLK * !RN * !SN * !Q * QN)	0.06962	0.10830	0.65351

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	CLK	0.01355	0.01345	0.01335
	CLK	-0.00637	-0.00650	-0.00648
	(!CLK * RN * SN * Q * !QN) + (!CLK * RN * SN * !Q * QN)	0.10664	0.14960	0.74263
	(!CLK * RN * SN * Q * !QN) + (!CLK * RN * SN * !Q * QN)	0.08102	0.12400	0.71713
	(!CLK * RN * !SN * Q * !QN)	0.04886	0.08863	0.63649
	(!CLK * RN * !SN * Q * !QN)	0.01715	0.05699	0.60486
	(!CLK * !RN * SN * !Q * QN)	0.04898	0.08870	0.63632
	(!CLK * !RN * SN * !Q * QN)	0.01721	0.05696	0.60475
	(!CLK * !RN * !SN * !Q * QN)	0.04886	0.08868	0.63650
	(!CLK * !RN * !SN * !Q * QN)	0.01715	0.05697	0.60486

Passive power(pJ) for RN rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	(CLK * SN * !Q * QN) + (!CLK * !D * SN * !Q * QN)	0.00873	0.06452	0.67565
	(CLK * SN * !Q * QN) + (!CLK * !D * SN * !Q * QN)	0.03086	0.08666	0.69779
	(!CLK * D * SN * !Q * QN)	0.05482	0.11320	0.75218
	(!CLK * D * SN * !Q * QN)	0.07164	0.13000	0.76910

Passive power(pJ) for RN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	(CLK * SN * !Q * QN) + (!CLK * !D * SN * !Q * QN)	0.03656	0.09607	0.70816
	(CLK * SN * !Q * QN) + (!CLK * !D * SN * !Q * QN)	0.01449	0.07390	0.68608
	(!CLK * D * SN * !Q * QN)	0.07803	0.14032	0.78403
	(!CLK * D * SN * !Q * QN)	0.06115	0.12327	0.76718

Passive power(pJ) for SN rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	(CLK * RN * Q * !QN) + (!CLK * D * RN * Q * !QN)	-0.02806	-0.02813	-0.02827
	(CLK * RN * Q * !QN) + (!CLK * D * RN * Q * !QN)	0.00390	0.00388	0.00366
	(!RN * !Q * QN)	-0.02631	-0.02706	-0.02698
	(!RN * !Q * QN)	0.01348	0.01307	0.01302
	(!CLK * !D * RN * Q * !QN)	0.02979	0.06561	0.55614
	(!CLK * !D * RN * Q * !QN)	0.06729	0.10320	0.59362

Passive power(pJ) for SN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	(CLK * RN * Q * !QN) + (!CLK * D * RN * Q * !QN)	0.02845	0.02836	0.02836
	(CLK * RN * Q * !QN) + (!CLK * D * RN * Q * !QN)	-0.00360	-0.00359	-0.00359
	(!RN * !Q * QN)	0.02722	0.02737	0.02698
	(!RN * !Q * QN)	-0.01299	-0.01301	-0.01298
	(!CLK * !D * RN * Q * !QN)	0.06348	0.09620	0.58926
	(!CLK * !D * RN * Q * !QN)	0.02570	0.05851	0.55161

Passive power(pJ) for CLK rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	(D * RN * Q * !QN)	-0.00099	0.05513	0.66646
	(D * RN * Q * !QN)	0.04599	0.10191	0.71314
	(D * !RN * SN * !Q * QN)	0.03501	0.09476	0.73405
	(D * !RN * SN * !Q * QN)	0.07919	0.13883	0.77671
	(D * !RN * !SN * !Q * QN)	0.03487	0.09424	0.73378
	(D * !RN * !SN * !Q * QN)	0.07911	0.13870	0.77637
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00168	0.05556	0.66610
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.05249	0.10962	0.71997
	(!D * RN * !SN * Q * !QN)	0.02397	0.11787	1.15806
	(!D * RN * !SN * Q * !QN)	0.08058	0.17441	1.21437

Passive power(pJ) for CLK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dffsr_1	(D * RN * SN * !Q * QN)	0.14851	0.20738	1.00237
	(D * RN * SN * !Q * QN)	0.10040	0.15976	0.95592
	(D * RN * Q * !QN)	0.04604	0.10609	0.71738
	(D * RN * Q * !QN)	-0.00069	0.05939	0.67051
	(D * !RN * SN * !Q * QN)	0.09268	0.15874	0.79676
	(D * !RN * SN * !Q * QN)	0.04823	0.11449	0.75327
	(D * !RN * !SN * !Q * QN)	0.09294	0.15882	0.79678
	(D * !RN * !SN * !Q * QN)	0.04843	0.11437	0.75318
	(!D * RN * SN * Q * !QN)	0.13420	0.23481	1.17447
	(!D * RN * SN * Q * !QN)	0.08327	0.18403	1.12334
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.05306	0.11084	0.72024
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00126	0.05684	0.66631
	(!D * RN * !SN * Q * !QN)	0.06789	0.16608	1.20685
	(!D * RN * !SN * Q * !QN)	0.01127	0.10948	1.15038

GF180MCU_OSU_SC_12T_DFF_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT	
D	CLK	Q	QN
0	R	0	1
1	R	1	0
x	x	IQ	IQN

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_dff_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CLK	Q	QN
gf180mcu_osu_sc_12T_dff_1	0.00393	0.01039	1.56141	1.56075

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_dff_1	0.00000	0.00595	0.00661

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dff_1	CLK->Q (RR)	0.27614	1.59302	16.48390
	QN->Q (FR)	0.03870	0.87385	10.25460

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dff_1	CLK->Q (RF)	0.36340	1.62411	16.29670
	QN->Q (RF)	0.03556	0.73591	8.74007

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dff_1	CLK->QN (RR)	0.32010	0.89992	6.99720

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dff_1	CLK->QN (RF)	0.22879	0.79167	6.16788

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dff_1	hold	CLK (R)	-0.10900	-0.10020	0.56291
	setup	CLK (R)	0.19409	0.22822	0.74152

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dff_1	hold	CLK (R)	-0.18349	-0.44900	-4.93177
	setup	CLK (R)	0.20933	0.45919	5.16124

Constraints(ns) for CLK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dff_1	min_pulse_width	CLK ()	0.14310	0.93384	16.50020
	min_pulse_width	CLK ()	0.19811	0.93384	16.50020

Constraints(ns) for CLK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dff_1	min_pulse_width	CLK ()	0.24624	0.93384	16.50020
	min_pulse_width	CLK ()	0.16373	0.93384	16.50020

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dff_1	CLK	0.04906	0.10725	0.64377
	CLK	0.07710	0.13546	0.67514

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dff_1	CLK	0.05836	0.09420	0.50368
	CLK	0.07977	0.11554	0.52377

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dff_1	CLK	0.05836	0.09428	0.50270
	CLK	0.07977	0.11562	0.52401

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dff_1	CLK	0.04898	0.10713	0.64122
	CLK	0.07702	0.13539	0.67139

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dff_1	CLK	-0.01310	-0.01340	-0.01335
	CLK	0.00649	0.00651	0.00649
	(!CLK * Q * !QN) + (!CLK * !Q * QN)	0.06053	0.10755	0.71342
	(!CLK * Q * !QN) + (!CLK * !Q * QN)	0.09208	0.13919	0.74479

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dff_1	CLK	0.01355	0.01345	0.01335
	CLK	-0.00637	-0.00650	-0.00648
	(!CLK * Q * !QN) + (!CLK * !Q * QN)	0.09223	0.13971	0.74724
	(!CLK * Q * !QN) + (!CLK * !Q * QN)	0.06064	0.10821	0.71567

Passive power(pJ) for CLK rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dff_1	(D * Q * !QN)	-0.00099	0.05513	0.66646
	(D * Q * !QN)	0.04599	0.10190	0.71314
	(!D * !Q * QN)	-0.00170	0.05557	0.66610
	(!D * !Q * QN)	0.05249	0.10962	0.71997

Passive power(pJ) for CLK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dff_1	(D * Q * !QN)	0.04613	0.10612	0.71738
	(D * Q * !QN)	-0.00077	0.05941	0.67051
	(D * !Q * QN)	0.12358	0.18261	0.99209
	(D * !Q * QN)	0.08154	0.14092	0.94983
	(!D * Q * !QN)	0.11973	0.22465	1.16805
	(!D * Q * !QN)	0.06278	0.16792	1.11108
	(!D * !Q * QN)	0.05307	0.11084	0.72024
	(!D * !Q * QN)	-0.00126	0.05684	0.66630

GF180MCU_OSU_SC_12T_DLATN_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT
D	CLKN	Q
x	0	IQ
0	1	0
1	1	1

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_dlatn_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	D	CLKN	Q
gf180mcu_osu_sc_12T_dlatn_1	0.00395	0.00812	1.56358

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_dlatn_1	0.00000	0.00418	0.00475

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dlatn_1	CLKN->Q (RR)	0.26090	0.87728	6.94335
	D->Q (RR)	0.29877	0.87120	6.96558

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dlatn_1	CLKN->Q (RF)	0.33130	0.83553	6.22097
	D->Q (FF)	0.32699	0.95979	7.70570

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	hold	CLKN (F)	-0.16621	-0.30289	-2.23211
	setup	CLKN (F)	0.18020	0.39261	6.70473

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	hold	CLKN (F)	-0.16419	-0.17052	0.12605
	setup	CLKN (F)	0.17764	0.17738	-0.12613

Constraints(ns) for CLKN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	min_pulse_width	CLKN ()	0.14310	0.93384	16.50020
	min_pulse_width	CLKN ()	0.19123	0.93384	16.50020

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	CLKN	0.09114	0.19958	1.13079
	CLKN	0.13583	0.24422	1.17570
	D	0.09050	0.13865	0.75443
	D	0.11820	0.16638	0.78214

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	CLKN	0.11159	0.17138	0.81578
	CLKN	0.13814	0.19783	0.84295
	D	0.12926	0.17730	0.79445
	D	0.10091	0.14913	0.76670

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	!CLKN	-0.01331	-0.01343	-0.01345
	!CLKN	0.00647	0.00646	0.00647

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	!CLKN	0.01366	0.01355	0.01345
	!CLKN	-0.00631	-0.00646	-0.00646

Passive power(pJ) for CLKN rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	(D * Q)	-0.00154	0.05746	0.67099
	(D * Q)	0.03289	0.09203	0.70541
	(!D * !Q)	-0.00175	0.05793	0.67094
	(!D * !Q)	0.03603	0.09585	0.70871

Passive power(pJ) for CLKN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlatn_1	(D * Q)	0.03341	0.09570	0.70878
	(D * Q)	-0.00106	0.06108	0.67426
	(!D * !Q)	0.03668	0.09803	0.70996
	(!D * !Q)	-0.00127	0.05998	0.67209

GF180MCU_OSU_SC_12T_DLAT_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT
D	CLK	Q
x	0	IQ
0	1	0
1	1	1

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_dlat_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	D	CLK	Q
gf180mcu_osu_sc_12T_dlat_1	0.00395	0.00812	1.56358

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_dlat_1	0.00000	0.00418	0.00475

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dlat_1	CLK->Q (RR)	0.26090	0.87728	6.94335
	D->Q (RR)	0.29877	0.87120	6.96558

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_dlat_1	CLK->Q (RF)	0.33130	0.83553	6.22097
	D->Q (FF)	0.32699	0.95979	7.70570

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dlat_1	hold	CLK (F)	-0.16621	-0.30289	-2.23211
	setup	CLK (F)	0.18020	0.39261	6.70473

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dlat_1	hold	CLK (F)	-0.16419	-0.17052	0.12605
	setup	CLK (F)	0.17764	0.17738	-0.12613

Constraints(ns) for CLK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
gf180mcu_osu_sc_12T_dlat_1	min_pulse_width	CLK ()	0.14310	0.93384	16.50020
	min_pulse_width	CLK ()	0.19123	0.93384	16.50020

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlat_1	CLK	0.09114	0.19958	1.13079
	CLK	0.13583	0.24422	1.17570
	D	0.09050	0.13865	0.75443
	D	0.11820	0.16638	0.78214

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlat_1	CLK	0.11159	0.17138	0.81578
	CLK	0.13814	0.19783	0.84295
	D	0.12926	0.17730	0.79445
	D	0.10091	0.14913	0.76670

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlat_1	!CLK	-0.01331	-0.01343	-0.01345
	!CLK	0.00647	0.00646	0.00647

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlat_1	!CLK	0.01366	0.01355	0.01345
	!CLK	-0.00631	-0.00646	-0.00646

Passive power(pJ) for CLK rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlat_1	(D * Q)	-0.00154	0.05746	0.67099
	(D * Q)	0.03289	0.09203	0.70541
	(!D * !Q)	-0.00175	0.05793	0.67094
	(!D * !Q)	0.03603	0.09585	0.70871

Passive power(pJ) for CLK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_dlat_1	(D * Q)	0.03341	0.09570	0.70878
	(D * Q)	-0.00106	0.06108	0.67426
	(!D * !Q)	0.03668	0.09803	0.70996
	(!D * !Q)	-0.00127	0.05998	0.67209

GF180MCU_OSU_SC_12T_INV_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_inv_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
gf180mcu_osu_sc_12T_inv_1	0.00404	1.50748

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_inv_1	0.00000	0.00075	0.00090

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_inv_1	A->Y (FR)	0.03870	0.86351	10.02570

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_inv_1	A->Y (RF)	0.03556	0.72479	8.53517

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_inv_1	A	0.02076	0.04882	0.25366
	A	-0.00114	0.02696	0.23179

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_inv_1	A	-0.00164	0.02297	0.21052
	A	0.02024	0.04495	0.23249

GF180MCU_OSU_SC_12T_INV_2

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_inv_2	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
gf180mcu_osu_sc_12T_inv_2	0.00808	2.98498

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_inv_2	0.00000	0.00149	0.00180

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_inv_2	**A->Y (FR)**	0.03321	0.73900	9.96233

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_inv_2	**A->Y (RF)**	0.03057	0.59983	8.47737

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_inv_2	A	0.04109	0.10534	0.51097
	A	-0.00254	0.06157	0.46711

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_inv_2	A	-0.00367	0.05313	0.42288
	A	0.04006	0.09727	0.46704

GF180MCU_OSU_SC_12T_MUX2_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage
3.30, Temp 25.00

Truth Table

INPUT			OUTPUT
A	B	Sel	Y
0	0	x	0
0	1	0	0
x	1	1	1
1	x	0	1
1	0	1	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_mux2_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A	B	Sel	Y
gf180mcu_osu_sc_12T_mux2_1	0.24485	0.24485	0.00808	0.24039

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_mux2_1	0.00000	0.00201	0.00207

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
gf180mcu_osu_sc_12T_mux2_1	A->Y (RR)	-	0.02530	0.14622	0.80157
	B->Y (RR)	-	0.02784	0.14765	0.80245
	Sel->Y (RR)	(!A * B)	0.06591	0.26948	0.84092
	Sel->Y (FR)	(A * !B)	0.04690	0.38499	2.58659

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
gf180mcu_osu_sc_12T_mux2_1	A->Y (FF)	-	0.02924	0.15906	0.84003
	B->Y (FF)	-	0.02645	0.15728	0.83896
	Sel->Y (FF)	(!A * B)	0.07399	0.39136	2.08689
	Sel->Y (RF)	(A * !B)	0.04306	0.27709	1.46441

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
gf180mcu_osu_sc_12T_mux2_1	A	-	-0.03048	-0.03048	-0.03049
	A	-	0.01298	0.01300	0.01300
	B	-	-0.02380	-0.02386	-0.02388
	B	-	0.02373	0.02381	0.02378
	Sel	(A * !B)	0.01015	0.07295	0.68712
	Sel	(A * !B)	0.00765	0.07032	0.68458
	Sel	(!A * B)	-0.01859	0.03959	0.65235
	Sel	(!A * B)	0.05098	0.10953	0.72483

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
gf180mcu_osu_sc_12T_mux2_1	A	-	0.03048	0.03048	0.03054
	A	-	-0.01298	-0.01299	-0.01300
	B	-	0.02380	0.02386	0.02390
	B	-	-0.02373	-0.02377	-0.02378
	Sel	(A * !B)	0.01503	0.07476	0.68925
	Sel	(A * !B)	0.01755	0.07779	0.69450
	Sel	(!A * B)	0.05918	0.11931	0.73129
	Sel	(!A * B)	-0.01030	0.04973	0.66226

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_mux2_1	(B * Sel * Y) + (!B * Sel * !Y)	-0.00715	-0.00721	-0.00714
	(B * Sel * Y) + (!B * Sel * !Y)	0.00472	0.00475	0.00470

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_mux2_1	(B * Sel * Y) + (!B * Sel * !Y)	0.00715	0.00721	0.00714
	(B * Sel * Y) + (!B * Sel * !Y)	-0.00472	-0.00475	-0.00470

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_mux2_1	(A * !Sel * Y) + (!A * !Sel * !Y)	-0.00845	-0.00851	-0.00842
	(A * !Sel * Y) + (!A * !Sel * !Y)	0.00409	0.00411	0.00407

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_mux2_1	(A * !Sel * Y) + (!A * !Sel * !Y)	0.00845	0.00851	0.00842
	(A * !Sel * Y) + (!A * !Sel * !Y)	-0.00409	-0.00411	-0.00407

Passive power(pJ) for Sel rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_mux2_1	(A * B * Y)	-0.00192	0.05763	0.67095
	(A * B * Y)	0.03594	0.09545	0.70871
	(!A * !B * !Y)	-0.00172	0.05730	0.67087
	(!A * !B * !Y)	0.03261	0.09175	0.70522

Passive power(pJ) for Sel falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_mux2_1	(A * B * Y)	0.03656	0.09773	0.70976
	(A * B * Y)	-0.00136	0.05975	0.67191
	(!A * !B * !Y)	0.03301	0.09486	0.70857
	(!A * !B * !Y)	-0.00139	0.06044	0.67424

GF180MCU_OSU_SC_12T_NAND2_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	x	1
1	0	1
1	1	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_nand2_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
gf180mcu_osu_sc_12T_nand2_1	0.00404	0.00402	1.04725

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_nand2_1	0.00000	0.00079	0.00118

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_nand2_1	A->Y (FR)	0.04661	0.76188	7.95705
	B->Y (FR)	0.05740	0.77716	7.99777

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_nand2_1	A->Y (RF)	0.06063	0.85879	9.03370
	B->Y (RF)	0.07170	0.75525	7.88183

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nand2_1	A	0.02317	0.04568	0.23835
	A	-0.00006	0.02245	0.21361
	B	0.03472	0.05914	0.26647
	B	0.00648	0.03081	0.23683

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nand2_1	A	0.00552	0.02724	0.21421
	A	0.02868	0.05038	0.23791
	B	0.00516	0.02711	0.23854
	B	0.03335	0.05548	0.26777

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nand2_1	(!B * Y)	-0.01407	-0.01407	-0.01414
	(!B * Y)	0.00189	0.00189	0.00178

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nand2_1	(!B * Y)	0.01422	0.01420	0.01418
	(!B * Y)	-0.00176	-0.00175	-0.00175

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nand2_1	(!A * Y)	-0.01353	-0.01355	-0.01352
	(!A * Y)	0.00648	0.00652	0.00648

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nand2_1	(!A * Y)	0.01374	0.01357	0.01355
	(!A * Y)	-0.00629	-0.00650	-0.00647

GF180MCU_OSU_SC_12T_NOR2_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	1
x	1	0
1	x	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_nor2_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
gf180mcu_osu_sc_12T_nor2_1	0.00398	0.00404	0.78121

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_nor2_1	0.00000	0.00084	0.00180

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_nor2_1	A->Y (FR)	0.09557	0.91792	8.71519
	B->Y (FR)	0.06748	1.00784	9.85004

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_nor2_1	A->Y (RF)	0.05443	0.57655	5.37174
	B->Y (RF)	0.04073	0.54919	5.29400

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nor2_1	A	0.03530	0.05753	0.32284
	A	0.00329	0.02544	0.29057
	B	0.02536	0.04910	0.26848
	B	0.00281	0.02661	0.24589

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nor2_1	A	0.01116	0.03320	0.25578
	A	0.04294	0.06499	0.29150
	B	-0.00010	0.02165	0.21929
	B	0.02240	0.04417	0.24590

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nor2_1	(B * !Y)	-0.01246	-0.01342	-0.01336
	(B * !Y)	0.00718	0.00656	0.00651

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nor2_1	(B * !Y)	0.01350	0.01342	0.01336
	(B * !Y)	-0.00649	-0.00652	-0.00649

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nor2_1	(A * !Y)	-0.00453	-0.00459	-0.00451
	(A * !Y)	0.00780	0.00789	0.00780

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_nor2_1	(A * !Y)	0.00486	0.00485	0.00460
	(A * !Y)	-0.00752	-0.00757	-0.00780

GF180MCU_OSU_SC_12T_OAI21_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT			OUTPUT
A0	A1	B	Y
0	0	x	1
x	1	0	1
x	1	1	0
1	x	0	1
1	x	1	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_oai21_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B	Y
gf180mcu_osu_sc_12T_oai21_1	0.00395	0.00402	0.00404	0.77902

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_oai21_1	0.00000	0.00097	0.00152

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_oai21_1	A0->Y (FR)	0.13171	0.94115	8.59380
	A1->Y (FR)	0.10406	1.03145	9.74633
	B->Y (FR)	0.04602	0.69576	6.75524

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_oai21_1	A0->Y (RF)	0.10609	0.68875	6.13624
	A1->Y (RF)	0.07865	0.65359	6.04630
	B->Y (RF)	0.09051	0.80231	7.41956

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_oai21_1	A0	0.04825	0.06570	0.28834
	A0	0.01006	0.02745	0.25008
	A1	0.03839	0.05744	0.23966
	A1	0.00980	0.02873	0.21166
	B	0.02271	0.05047	0.30431
	B	-0.00044	0.02710	0.28053

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_oai21_1	A0	0.01824	0.03485	0.23887
	A0	0.05618	0.07292	0.27682
	A1	0.00643	0.02371	0.20627
	A1	0.03527	0.05253	0.23499
	B	0.00554	0.03154	0.27437
	B	0.02878	0.05468	0.29751

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_oai21_1	(A1 * B * !Y)	-0.01242	-0.01345	-0.01338
	(A1 * B * !Y)	0.00713	0.00655	0.00651
	(A1 * !B * Y)	-0.01310	-0.01341	-0.01336
	(A1 * !B * Y)	0.00654	0.00656	0.00651
	(!A1 * !B * Y)	-0.01350	-0.01356	-0.01352
	(!A1 * !B * Y)	0.00648	0.00652	0.00645

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_oai21_1	(A1 * B * !Y)	0.01353	0.01347	0.01338
	(A1 * B * !Y)	-0.00647	-0.00653	-0.00649
	(A1 * !B * Y)	0.01350	0.01341	0.01336
	(A1 * !B * Y)	-0.00648	-0.00652	-0.00649
	(!A1 * !B * Y)	0.01361	0.01360	0.01355
	(!A1 * !B * Y)	-0.00629	-0.00650	-0.00645

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_oai21_1	(A0 * B * !Y)	-0.00453	-0.00459	-0.00451
	(A0 * B * !Y)	0.00779	0.00788	0.00780
	(!B * Y)	-0.01320	-0.01336	-0.01331
	(!B * Y)	0.00657	0.00660	0.00651

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_oai21_1	(A0 * B * !Y)	0.00483	0.00486	0.00460
	(A0 * B * !Y)	-0.00747	-0.00755	-0.00780
	(!B * Y)	0.01332	0.01336	0.01331
	(!B * Y)	-0.00650	-0.00653	-0.00649

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_oai21_1	(!A0 * !A1 * Y)	-0.01401	-0.01401	-0.01413
	(!A0 * !A1 * Y)	0.00195	0.00195	0.00179

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_oai21_1	(!A0 * !A1 * Y)	0.01424	0.01425	0.01418
	(!A0 * !A1 * Y)	-0.00177	-0.00176	-0.00175

GF180MCU_OSU_SC_12T_OR2_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	0
x	1	1
1	x	1

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_or2_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
gf180mcu_osu_sc_12T_or2_1	0.00404	0.00398	1.55634

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_or2_1	0.00000	0.00166	0.00239

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_or2_1	A->Y (RR)	0.08757	0.61332	6.27342
	B->Y (RR)	0.10623	0.68829	6.87422

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
gf180mcu_osu_sc_12T_or2_1	A->Y (FF)	0.12789	0.86654	8.44438
	B->Y (FF)	0.15600	0.81682	7.98435

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_or2_1	A	0.02072	0.06586	0.55597
	A	0.04329	0.08836	0.57669
	B	0.03243	0.08192	0.66201
	B	0.06431	0.11364	0.69352

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_or2_1	A	0.04735	0.09262	0.57924
	A	0.02479	0.07007	0.55677
	B	0.05730	0.10269	0.68093
	B	0.02528	0.07072	0.64951

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_or2_1	(B * Y)	-0.00455	-0.00459	-0.00451
	(B * Y)	0.00780	0.00789	0.00780

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_or2_1	(B * Y)	0.00483	0.00486	0.00460
	(B * Y)	-0.00748	-0.00756	-0.00780

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_or2_1	(A * Y)	-0.01255	-0.01345	-0.01338
	(A * Y)	0.00719	0.00655	0.00651

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
gf180mcu_osu_sc_12T_or2_1	(A * Y)	0.01342	0.01348	0.01338
	(A * Y)	-0.00648	-0.00653	-0.00649

GF180MCU_OSU_SC_12T_TIEHI

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_tiehi	0.00000

Pin Capacitance Information

Cell Name	Max Cap(pf)
	Y
gf180mcu_osu_sc_12T_tiehi	3.44214

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
gf180mcu_osu_sc_12T_tiehi	0.00000	0.00000	0.00000

GF180MCU_OSU_SC_12T_TIELO

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_tielo	0.00000

Pin Capacitance Information

Cell Name	Max Cap(pf)
	Y
gf180mcu_osu_sc_12T_tielo	5.16285

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
gf180mcu_osu_sc_12T_tielo	0.00000	0.00000	0.00000

GF180MCU_OSU_SC_12T_XNOR2_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT
A	**B**	**Y**
0	**0**	**1**
0	**1**	**0**
1	**0**	**0**
1	**1**	**1**

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_xnor2_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**B**	**Y**
gf180mcu_osu_sc_12T_xnor2_1	0.00806	0.00799	0.78925

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
gf180mcu_osu_sc_12T_xnor2_1	0.00000	0.00288	0.00353

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
gf180mcu_osu_sc_12T_xnor2_1	A->Y (RR)	B	0.15349	0.82989	6.49144
	A->Y (FR)	!B	0.11210	1.04590	9.84618
	B->Y (RR)	A	0.12394	0.81005	6.65943
	B->Y (FR)	!A	0.13552	0.95139	8.68525

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
gf180mcu_osu_sc_12T_xnor2_1	A->Y (FF)	B	0.15824	0.82608	6.42840
	A->Y (RF)	!B	0.08027	0.65720	6.11426
	B->Y (FF)	A	0.11894	0.78069	6.37809
	B->Y (RF)	!A	0.11244	0.70178	6.21650

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
gf180mcu_osu_sc_12T_xnor2_1	A	B	0.03096	0.08932	0.70846
	A	B	0.06398	0.12223	0.74078
	A	!B	0.06120	0.13943	0.94275
	A	!B	0.01721	0.09517	0.89852
	B	A	0.01295	0.07228	0.69052
	B	A	0.05333	0.11279	0.73084
	B	!A	0.07080	0.14989	0.99091
	B	!A	0.01717	0.09605	0.93700

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
gf180mcu_osu_sc_12T_xnor2_1	A	B	0.07711	0.13721	0.75300
	A	B	0.04572	0.10585	0.72262
	A	!B	0.02490	0.10126	0.89953
	A	!B	0.06847	0.14508	0.94320
	B	A	0.06342	0.12479	0.74101
	B	A	0.02280	0.08410	0.70118
	B	!A	0.03613	0.11303	0.93352
	B	!A	0.08912	0.16600	0.98716

GF180MCU_OSU_SC_12T_XOR2_1

gf180mcu_12T_TT_3P3_25C.ccs
Cell Library: Process , Voltage 3.30, Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

Footprint

Cell Name	Area
gf180mcu_osu_sc_12T_xor2_1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
gf180mcu_osu_sc_12T_xor2_1	0.00799	0.00801	0.79014

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
gf180mcu_osu_sc_12T_xor2_1	0.00000	0.00288	0.00329

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
gf180mcu_osu_sc_12T_xor2_1	A->Y (RR)	!B	0.12409	0.81054	6.66700
	A->Y (FR)	B	0.13798	0.95263	8.69415
	B->Y (RR)	!A	0.16233	0.84804	6.70185
	B->Y (FR)	A	0.10889	0.91746	8.60272

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
gf180mcu_osu_sc_12T_xor2_1	A->Y (FF)	!B	0.11888	0.78109	6.38493
	A->Y (RF)	B	0.11029	0.70148	6.22156
	B->Y (FF)	!A	0.12795	0.77707	6.17699
	B->Y (RF)	A	0.09997	0.80980	7.40536

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
gf180mcu_osu_sc_12T_xor2_1	A	B	0.07603	0.15509	0.99711
	A	B	0.02744	0.10627	0.94818
	A	!B	0.01149	0.07093	0.68920
	A	!B	0.05271	0.11216	0.73024
	B	A	0.06352	0.14111	0.96462
	B	A	0.01965	0.09723	0.92084
	B	!A	0.02694	0.08551	0.70278
	B	!A	0.06321	0.12068	0.73883

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
gf180mcu_osu_sc_12T_xor2_1	A	B	0.03000	0.10698	0.92722
	A	B	0.07943	0.15635	0.97732
	A	!B	0.06470	0.12603	0.74265
	A	!B	0.02348	0.08475	0.70283
	B	A	0.03026	0.10613	0.90318
	B	A	0.07461	0.15056	0.94742
	B	!A	0.06960	0.13096	0.74752
	B	!A	0.03232	0.09374	0.71044