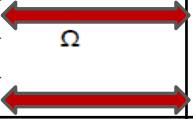
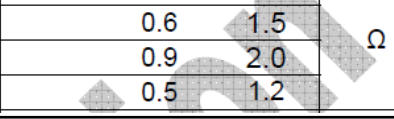


TPS51116 vs. TPS51216 Comparison

	TPS51116	TPS51216	Comments																
Package	4x4mm- 24 pin, 0.5mm pitch	3x3 mm- 20pin, 0.4mm pitch	TPS51216 higher power density																
Switching Frequency	DCAP, 400kHz	DCAP: 300kHz/400kHz	TPS51216: more flexible design																
VTTLDO	2 x 10uF decoupling	1 x 10uF decoupling	TPS51216: lower output cap count, lower BOM cost																
Voltage Feedback	Resistor divider of output voltage	Voltage reference divider	Less jitter, voltage dynamic change support																
Gate Drive	<table><tr><td>3</td><td>6</td></tr><tr><td>0.9</td><td>3</td></tr><tr><td>3</td><td>6</td></tr><tr><td>0.9</td><td>3</td></tr></table> 	3	6	0.9	3	3	6	0.9	3	<table><tr><td>1.7</td><td>3.0</td></tr><tr><td>0.6</td><td>1.5</td></tr><tr><td>0.9</td><td>2.0</td></tr><tr><td>0.5</td><td>1.2</td></tr></table> 	1.7	3.0	0.6	1.5	0.9	2.0	0.5	1.2	Higher efficiency, scalable to higher-current designs
3	6																		
0.9	3																		
3	6																		
0.9	3																		
1.7	3.0																		
0.6	1.5																		
0.9	2.0																		
0.5	1.2																		
Zero Cross Detection	+/-6mV max comparator offset	Auto zero comparator	Quicker detection of light load, quicker entry into Eco Mode, more power savings																

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TPS51216 & TPS51916 – Feature Differences

TPS51216	TPS51916	Resistance between MODE and GND	Control Mode for VDDQ	Frequency	Discharge Mode
yes	Yes	200k Ω	D-CAP™	400kHz	Tracking Discharge
Yes	Yes	100k Ω		300kHz	
Yes	Yes	68k Ω		300kHz	Non-tracking Discharge
Yes	Yes	47k Ω		400kHz	
No	Yes	33k Ω	D-CAP2™	500kHz	Non-tracking Discharge
No	Yes	22k Ω		670kHz	
No	Yes	12k Ω		670kHz	Tracking Discharge
No	Yes	1k Ω		500kHz	

D-CAP™ mode provides fast transient response with appropriate amount of equivalent series resistance (ESR) on the output capacitors.

D-CAP2™ mode is dedicated for a configuration with very low ESR output capacitors such as Multi-Layer Ceramic Capacitors (MLCCs).

DDR Core Voltage Regulators & VTT Terminators

	TPS51916	TPS51216	TPS51116	TPS51206	TPS51100	TPS51200	TPS53317
General Description	Complete DDR2, DDR3 and DDR3L Power Solution	Complete DDR2, DDR3 and DDR3L Power Solution	Complete DDR2, DDR3 Power Solution	2-A Peak Sink/Source DDR Termination Regulator	Source-Sink DDR Termination Regulator 3A Source, 3.5A Sink	Source-Sink DDR Termination Regulator	Source-Sink 6A Integrated FET Switching DDR Termination Regulator
VIN	3V to 28V	3V to 28V	3V to 28V	3.3V to 5V	4.75V to 5.25V	0.3V to 3.6V	1V to 6V
# outputs	4, VDDQ, VTT, VTTREF and 1P8VREF	4, VDDQ, VTT, VTTREF and 1P8VREF	3, VDDQ, VTT and VTTREF	2, VTT and VTTREF	1 VTT	1 VTT	1 VTT
Fsw (kHz)	300/400/500/670	300/400	400	N/A	N/A	N/A	600kHz and 1MHz
Control topology	D-CAP and D-CAP2	D-CAP	D-CAP and D-CAP+	LDO	LDO	LDO	D-CAP
Compensation	No comp is required.	No comp is required.	Internal and external comp	N/A	N/A	N/A	No comp is required.
DDR compatibility	DDR2, DDR3 and LPDDR3	DDR2, DDR3 and LPDDR3	DDR1, DDR2, DDR3	DDR, DDR2, DDR3, and low-power DDR3/DDR4 VTT Memory Termination	DDR, DDR2 VTT Memory Termination	DDR, DDR2, DDR3, and low-power DDR3/DDR4 VTT Memory Termination	DDR, DDR2, DDR3, and DDR4 VTT Memory Termination
VTT referencing scheme	Reference to VTTREF and trim option to 1/2*VDDQ	Reference to VTTREF and trim option to 1/2*VDDQ	Fixed reference to VTTREF		Integrated Divider Tracks 0.5 VDDQSNS for VTT and VTTREF	REFIN Input Allows for Flexible Input Tracking Either Directly or Through Resistor Divider	2R Divider from Vddq to form 1/2*VDDQ
VTT output cap	1 x 10uF or 2 x 10uF	1 x 10uF or 2 x 10uF	2 x 10uF	N/A	N/A	N/A	3 x 47uF
VTT current	+/-1A TDC and +/-2A for OCL	+/-1A TDC and +/-2A for OCL	+/-2A TDC and +/-3A for OCL	N/A	N/A	N/A	-/-6A
VTT accruacy	0A, +/-15mV to VTTREF; +/-1A, +/-20mV to VTTREF	0A, +/-15mV to VTTREF; +/-1A, +/-20mV to VTTREF	0A, +/-20mV to VTTREF; +/-1A, +/-30mV to VTTREF; +/-2A, +/-40mV to VTTREF	N/A	N/A	N/A	+/- 1%
S3/S5 support	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PGOOD	Yes	Yes	Yes	No	No	Yes	Yes
FCCM	Yes	Yes	No	N/A	N/A	N/A	Yes
Power save	Auto skip	Auto skip	Auto skip	N/A	N/A	N/A	Yes
Support all ceramic	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SS method	REFIN control	REFIN control	Two step OCL limit	N/A	N/A	N/A	Internally Set 1.6ms
Bootstrap support	10ohm Internal switch	10ohm Internal switch	Internal diode	N/A	N/A	N/A	
OVP/UVF	Yes	Yes	Yes	N/A	N/A	N/A	Yes
Package	20pin 3x3mm RUK, 0.4mm pitch and 0.75mm height	20pin 3x3mm RUK, 0.4mm pitch and 0.75mm height	20pin TSSOP	2mm x 2mm SON10 PowerPAD	MSOP 10 with PowerPad	3mm x 3mm SON10	3.5mm x 4mm 20 pin QFN