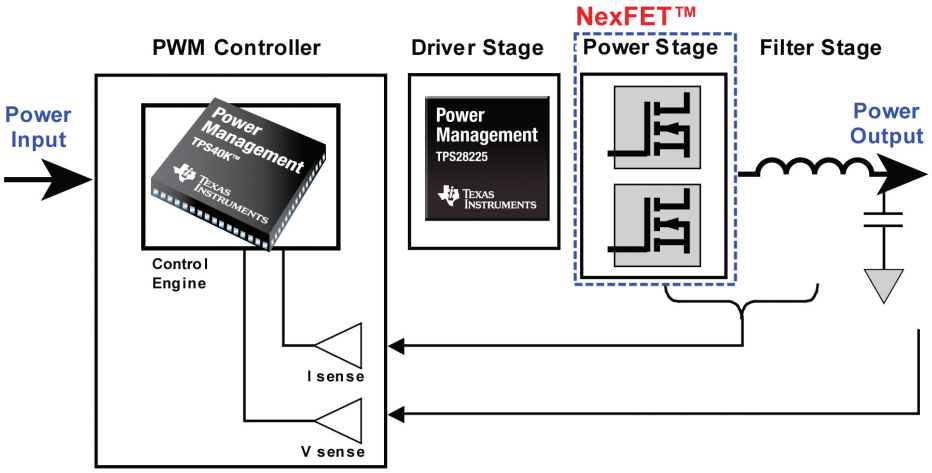
NexFET™ Power MOSFETs Quick Reference Guide

Overview

Today's designers of high-power computing, networking, server systems and power supplies face increasingly stringent energy-efficient requirements. Texas Instruments' acquisition of CICLON Semiconductor Device Corporation expands TI's ability to improve energy efficiency in end-equipment designs.

Adding CICLON's high-frequency, high-efficiency analog power MOSFETs (metal oxide semiconductor field effect transistors) gives system designers access to the most advanced DC/DC power conversion solutions available, enabling TI to deliver on the critical customer requirement of high energy efficiency.

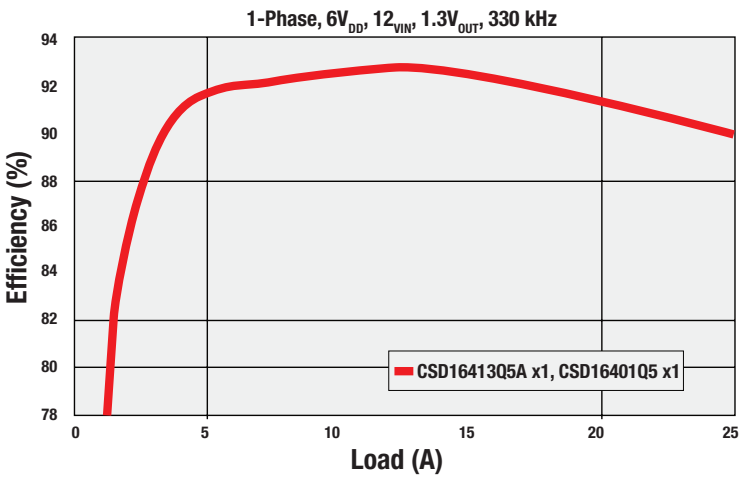


System block diagram of TI electronics in a power system design.

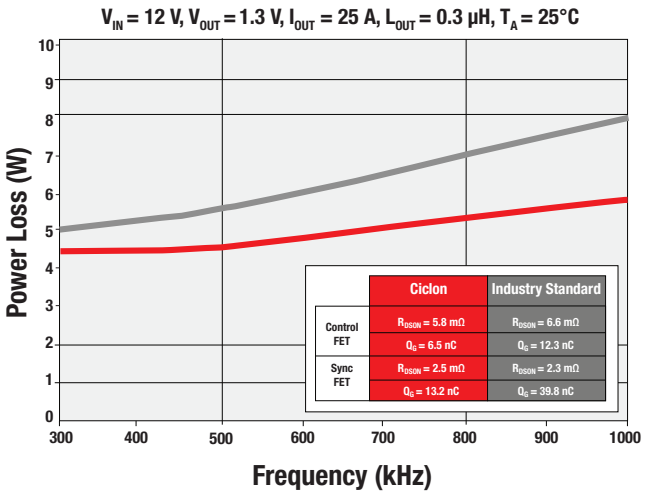
Complementary technologies

CICLON brings to TI its premier power management innovation called NexFET™ technology, which combines vertical current flow with a lateral power MOSFET. It provides a low on resistance and requires an extremely low gate charge with industry-standard package outlines—a combination not previously possible with existing silicon platforms.

NexFET technology delivers high performance for both N- and P-channel power MOSFET devices. Designers are able to achieve 90-percent power supply efficiencies from light to full loads with high output currents and low duty cycles, representing a breakthrough in discrete designs.



90-percent efficiency from light to full load.



Same power loss, double the frequency.

NexFET™ High-Efficiency MOSFETs

Device	Channel	Vds (V)	Vgs (V)	Typical Rds(on) (mΩ) @ 10V	@ 4.5V	@ 2.5V	@ 1.8V	@ 1.5V	Typical Qg @ 4.5V (nC)	Typical Qgd (nC)
WLP 1x1										
Single										
CSD23201W10	P	12	5	—	66.0	77.0	—	110.0	1.9	0.40
WLP 1x1.5										
Single										
CSD25301W1015	P	20	8	—	62.0	80.0	—	175.0	2.0	0.32
Dual Common Source										
CSD75301W1015	P	20	8	—	80.0	101.0	150.0	—	1.5	0.30
CSD75204W15	P	20	6	—	50.0	65.0	85.0	—	2.8	0.60
CSD75205W1015	P	20	6	—	72.0	99.0	130.0	—	1.7	0.40
SON 2x2										
Single										
CSD25302Q2	P	20	8	—	39.0	56.0	71.0	—	2.3	0.50
CSD16301Q2	N	25	10	—	23.0	—	—	—	2.0	0.40
SON 3x3										
Single										
CSD16411Q3	N	25	16	8.0	12.0	—	—	—	2.9	0.7
CSD16409Q3	N	25	16	6.2	9.5	—	—	—	4.0	1.0
CSD16406Q3	N	25	16	4.2	5.9	—	—	—	5.8	1.5
CSD16323Q3	N	25	10	—	4.4	—	—	—	6.2	1.1
Single										
CSD25401Q3	P	20	12	—	8.7	13.5	—	—	8.8	2.1
SON 5x6										
Single										
CSD16412Q5A	N	25	16	9.0	13.0	—	—	—	2.8	0.7
CSD16410Q5A	N	25	16	6.8	9.6	—	—	—	3.9	1.1
CSD16404Q5A	N	25	16	4.1	5.7	—	—	—	6.5	1.7
CSD16413Q5A	N	25	16	3.1	4.1	—	—	—	9.0	2.5
CSD16403Q5A	N	25	16	2.2	2.9	—	—	—	13.3	3.5
CSD16407Q5	N	25	16	1.8	2.5	—	—	—	13.3	3.5
CSD16408Q5	N	25	16	3.6	5.4	—	—	—	6.7	1.9
CSD16414Q5	N	25	16	1.5	2.1	—	—	—	16.6	4.4
CSD16401Q5	N	25	16	1.3	1.8	—	—	—	21.0	5.2
CSD16322Q5	N	25	10	—	4.6	—	—	—	6.8	1.3
CSD16321Q5	N	25	10	—	2.1	—	—	—	14.0	2.5
CSD16325Q5	N	25	10	—	1.7	—	—	—	18.0	3.5
CSD16325Q5C	N	25	10	—	1.7	—	—	—	18.0	2.9
SON 5x6 DualCool™										
CSD16407Q5C	N	25	16	1.8	2.5	—	—	—	13.3	3.5
CSD16408Q5C	N	25	16	3.7	5.4	—	—	—	6.5	1.9
CSD16322Q5C	N	25	10	—	4.6	—	—	—	6.5	1.2
CSD16321Q5C	N	25	10	—	2.1	—	—	—	14.0	2.5
CSD16325Q5C	N	25	10	—	1.7	—	—	—	18.0	2.9

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