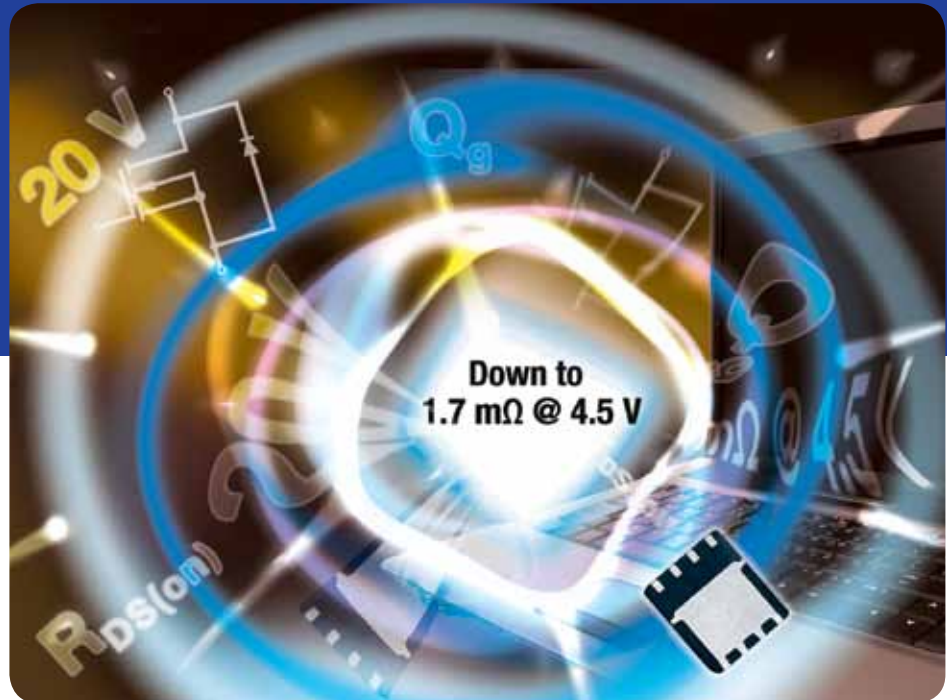




POWER MOSFETs

TrenchFET® Gen III



New Breakthrough Technology Lowers On-Resistance up to 40 % While Improving Gate Charge

KEY FEATURES AND BENEFITS

Low conduction and switching losses enable increased efficiency and reduced power consumption

- Record-breaking maximum on-resistance at $V_{GS} = 4.5\text{ V}$ rating is down to $0.0016\ \Omega$
- Maximum on-resistance at $V_{GS} = 10\text{ V}$ is down to $0.00117\ \Omega$
- Figure of Merit (FOM) of on-resistance times gate charge down to $72\text{ m}\Omega\text{-nC}$
- 12 V to 40 V options

- Package options in SO-8 footprint area include:
 - Thermally advanced PowerPAK® SO-8
 - Standard SO-8
 - PolarPAK® with double-sided cooling
- Also available in the thermally advanced PowerPAK 1212-8, about 1/3 the footprint area of SO-8, and PowerPAK ChipFET®, about 1/5 the footprint area of SO-8

CIRCUIT APPLICATIONS

- Synchronous rectification
- Synchronous buck converter
 - Low-side MOSFET
- OR-ing

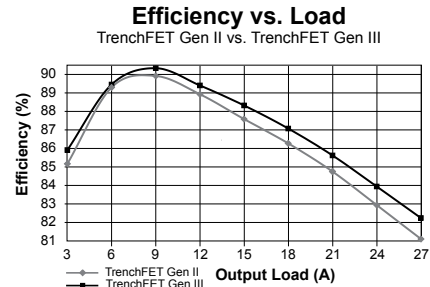
PRODUCT APPLICATIONS

- VRM
- POL
- Servers
- Fixed telecom
- Power supplies



TrenchFET Gen III

TrenchFET[®] Gen III power MOSFETs are ideal for low-side applications, where their low on-resistance minimizes conduction losses and improves efficiency compared to previous-generation MOSFETs. Also, their lower gate charge yields an approximately 1/3 lower FOM in some devices, providing lower switching losses over the previous generation.



EXAMPLE DEVICES

Part Number	Package	V _{DS} (V)	V _{GS} (V)	R _{DS(ON)} (Ω)		Q _g (nC)		FOM	Samples
				V _{GS} = 10 V	V _{GS} = 4.5 V	V _{GS} = 10 V	V _{GS} = 4.5 V		
Single N-Channel									
SUP85N03-3m6P	TO-220	30	20	0.0036	0.0044	67			Available
SUP90N04-3m3P		40	20	0.0033	0.0041	87			Available
SiE874DF	PolarPAK	20	20	0.00117	0.0016	95	45	72	Available
SiE882DF		25	20	0.0014	0.0018	96	46	82.8	Available
SiE848DF		30	20	0.0016	0.0022	92	43	94.6	Available
SiE864DF		30	20	0.0056	0.0073	25	11.9	86.87	Available
SiE868DF		40	20	0.0023	0.0029	95	45	130.5	Available
SiR494DP	PowerPAK SO-8	12	20	0.0012	0.0017	98	50	85	Available
SiR404DP		20	12	0.0016	0.00175		64.5	112.875	Available
SiR440DP		20	20	0.00155	0.002	100	43.5	87	Available
SiR424DP		20	20	0.0055	0.0074	22	9.6	71.04	Available
SiR438DP		25	20	0.0018	0.0023	70	32.6	74.98	Available
Si7658ADP		30	20	0.0022	0.0028	74	34	95.2	Available
SiR462DP		30	20	0.0079	0.01	20	8.8	88	Available
SiR470DP		40	20	0.0023	0.00265	102	45.5	120.575	Available
SiR426DP		40	20	0.0105	0.0125	20.5	9.3	116.25	Available
Si4136DY		SO-8	20	20	0.002	0.0025	73	34	85
Si4666DY	25		12	0.01	0.011	22.4	10.7	117.7	Available
Si4126DY	30		20	0.00275	0.0034	70	30	102	Available
Si4178DY	30		25	0.021	0.033	7.5	3.7	122.1	Available
Si4154DY	40	20	0.0033	0.0039	70	32.5	126.75	Available	
SiS452DN	PowerPAK 1212-8	12	20	0.00325	0.0048	27	13.5	64.8	Available
SiS454DN		20	20	0.0037	0.0054	35	18.5	99.9	Available
SiS438DN		20	20	0.0095	0.0125	15	7.3	91.25	Available
SiS430DN		25	20	0.0051	0.0069	26.5	13	89.7	Available
SiS456DN		30	20	0.0051	0.0068	36	18.5	125.8	Available
SiS402DN		30	20	0.006	0.008	28	12	96	Available
SiS434DN		40	20	0.0076	0.0092	25	12.5	115	Available
Si5456DU	PowerPAK ChipFET	20	20	0.01	0.0135	20	9.8	132.3	Available
Dual N-Channel									
Si7272DP	PowerPAK SO-8	30	20	0.0093	0.0124	17	8.2	101.68	Available
Si7938DP		40	20	0.0058	0.007	43	21	147	Available
Si7288DP		40	20	0.019	0.022	10	4.9	107.8	Available
Si4204DY	SO-8	20	20	0.0046	0.006	30	14.5	87	Available
Si4228DY		25	12	0.018	0.02	16.5	7.8	156	Available
Si4214DDY		30	20	0.0195	0.023	14.5	7.1	163.3	Available
Si7228DN	PowerPAK 1212-8	30	20	0.02	0.025	8.5	4.1	102.5	Available
Si5906DU	PowerPAK ChipFET	30	20	0.031	0.04	5.7	2.9	116	Available

For a full and latest list of devices visit <http://www.vishay.com/mosfets/trenchfet-gen-iii/>

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