

Statronics Power Supplies

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ISO 9001

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SKT30D01 and SKT30Q01 DC-DC CONVERTERS SPECIFICATIONS

FEATURES:

Specially planned for Distributed Power Applications

Very Low noise

Perfect step load response

Zero Voltage Switching

Controlled Inrush

Wireless load sharing

Nice Overload protection

No External Parts needed

Repairable

Isolated Sync 1 to 1.6MHz

Input-output isolation

Low 1/3inch (6mm) height

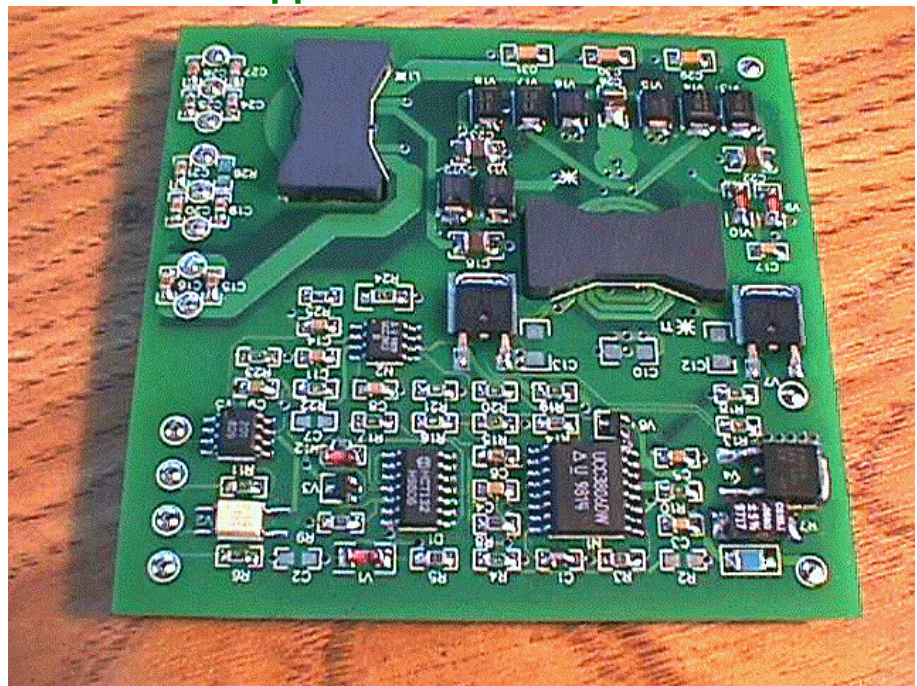
Very high efficiency 90%+

Low Quiescent Power < 1W

Inherent OVP

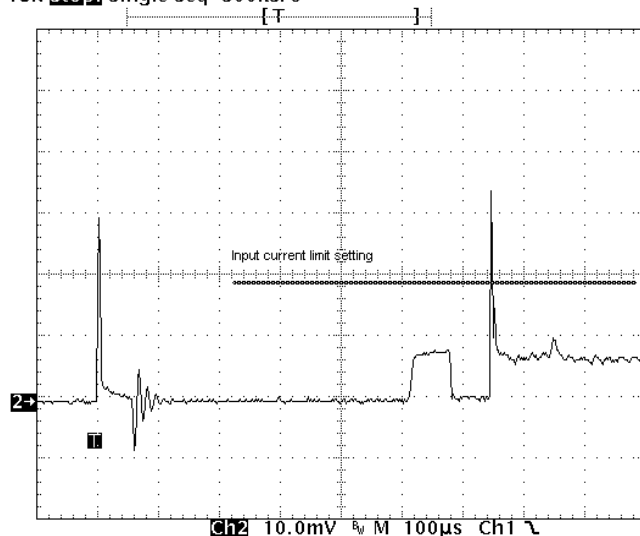
Excellent MTBF (No E-caps!)

5-year warranty



TYPICAL INRUSH CURRENT CHARACTERISTIC

Tek 5100 Single Seq 500kS/s



SKT-series converters are designed for distributed power systems using a 48V fully regulated distribution bus. Input output isolation is provided to eliminate power return ground loops. They can be synchronized between 1MHz and 1.6Mhz and full hot-swap power management is included. The converters are ideally located on sub-rack cards or sub-assemblies. The converters support redundant sub-assembly architecture.

ELECTRICAL SPECIFICATIONS SKT30D01 and SKT30Q01

INPUT	
DC Input Voltage	48.9V Regulated
Reverse Input Protection	Requires external fuse (see below)
Input Fuse	Input current is actively limited to 0.8A, safety regulations may require an external fuse – rating 1A fast blow.
Input Current	Less than 0.8A, inrush limited
Parasitic Inrush Charge	Less than 25 Microcoulombs
Input Ripple Current	Less than 8 mA RMS. 25 mA P-P

CONTROLS

Synchronization	TTL compatible, 2mA load, fully floating, 1MHz to 1.6MHz
Enable	TTL compatible, 2mA load, fully floating

SAFETY and EMI: Complies to following Standards

Safety:	IEC 950, AS 3260, UL 1950, CSA22.2 No. 950
EMI, conducted:	CISPR22 Class A AS3548 Class A FCC Class A VDE Class A

ENVIRONMENT

Operating Temperature	0°C to 50°C, Relative Humidity: 5% to 90% Non-condensing
Cooling	Natural Convection
Shipping and Storage	-40°C to 85°C, Relative Humidity: 5% to 95% Non-condensing
Over Power Protection	Total power 100% to 120% of rating with shutdown, automatic re-start on removal of overload. Constant-Current with time-out.

OUTPUTS SKT30D01

Outputs	O/P-1	O/P-2	Notes
Voltage	5V	3.3V	
Maximum Continuous Load	4.0A	1.2A	Maximum peak total load 40W
Minimum Load	0A	0 A	At no load, 5V output is < 5.9V At 10% load, 5V output is < 5.45V
Ripple & Noise P-P/RMS	50/20mv	10/5mv	At Maximum Load
Load Regulation	± 5% total regulation band for any combination of load 30% to 100% rated		
Step Response (Peak/Dip)	Within above limits 75% to 25% to 75% load step		
Step Response (Recovery)	10 – 30 μSeconds settling time – no over/undershoot		
Efficiency	> 80% at maximum load		
Short Circuit Protection	Short circuit placed on any output causes no damage.		

OUTPUTS SKT30Q01

Outputs	O/P-1	O/P-2	O/P-3	O/P-4	O/P-5	Notes
Voltage	+17.5V	-17.5V	+5V	-5V	+5V	3 separate returns
Maximum Continuous Load	300mA	300mA	700mA	30mA	1A	Maximum peak total load 40W
Minimum Load	0A	0 A	0A	0A	0A	See above model
Ripple & Noise mV P-P/RMS	20/15	20/15	5/3	5/3	50/20	At Max. Load
Load Regulation	± 5% total regulation band for any combination of load 30% to 100% rated					
Step Response (Peak/Dip)	Within above limits 75% to 25% to 75% load step					
Step Response (Recovery)	10 – 2000 μSeconds			Settling time – no over/undershoot		
Efficiency	> 90% at maximum load					
Short Circuit Protection	Short circuit placed on any output causes no damage.					

READILY CUSTOMIZED!

Above are typical examples of custom models.

Typical Test Results

SKT30Q01: 10061, SKT30D01: 10029

Table 1 Output regulation of SKT30Q01 at input voltage = 46.93V

Load	V01 (V)	V01 %error	+V02 (V)	+V02 %error	-V02 (V)	-V02 %error	+V03 (V)	+V03 %error	-V03 (V)	-V03 %error
All Full Load	5.05	1.00	5.11	2.20	-5.04	-0.80	16.94	-3.20	-17.05	2.57
V03 30% load, other full load.	5.07	1.40	5.12	2.40	-5.04	-0.80	17.29	-1.20	-17.31	1.09
V02 30% load, other full load	5.07	1.40	5.35	7.00	-5.14	-2.80	16.94	-3.20	-17.05	2.57
V01 30% load, other full load	5.25	5.00	5.13	2.60	-5.05	-1.00	16.96	-3.09	-17.06	2.51
All 30% Load	5.28	5.60	5.38	7.60	-5.16	-3.20	17.30	-1.14	-17.31	1.09
V03 Full Load, other 30% load	5.27	5.40	5.37	7.40	-5.15	-3.00	16.96	-3.09	-17.07	2.46
V02 Full Load, other 30% load	5.27	5.40	5.14	2.80	-5.06	-1.20	17.31	-1.09	-17.31	1.09
V01 Full Load, other 30% load	5.07	1.40	5.36	7.20	-5.15	-3.00	17.28	-1.26	-17.29	1.20

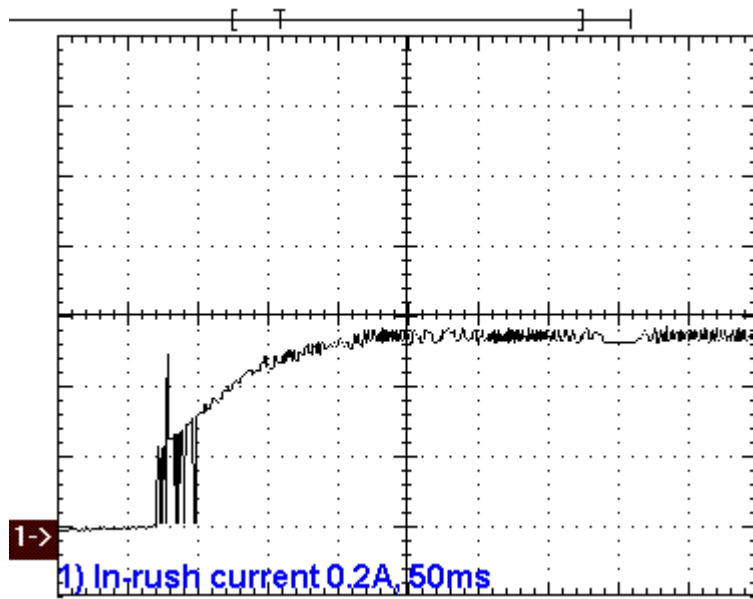
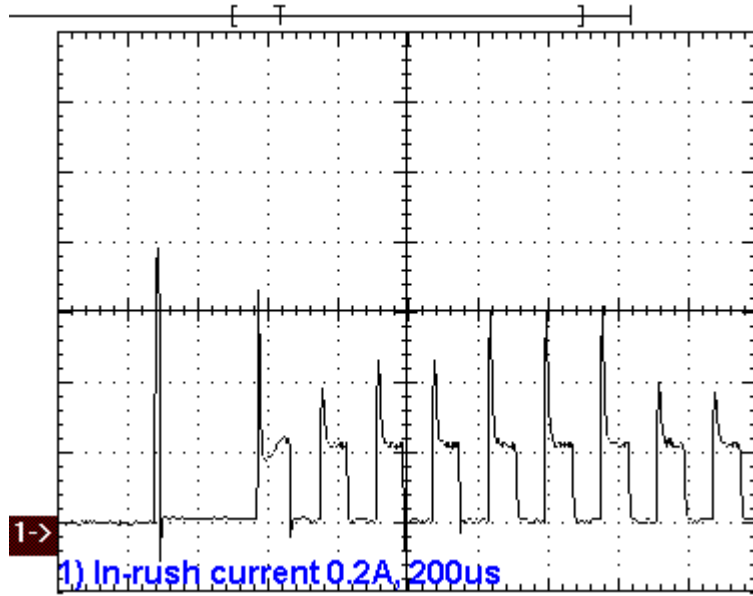
Table 2 Output regulation of SKT30D01 at input voltage = 46.93V

Load	V01(volts)	V01 %error	+V02(volts)	V02 %error
All Full Load	4.80	-4.00	3.29	-0.30
V02 30% Load, V01 Full Load	4.83	-3.40	3.29	-0.30
V01 30% Load, V02 Full Load	4.91	-1.80	3.29	-0.30
All 30% Load	4.95	-1.00	3.29	-0.30

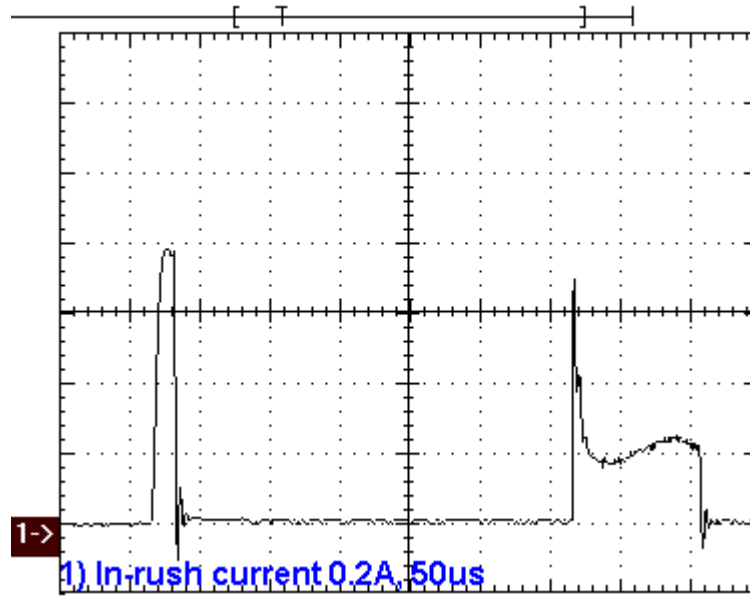
Table 3 Temperature rise in components of

SKT30Q01				SKT30D01			
Part name	components	temp	temp rise	Part name	components	temp	temp rise
N1	controller IC	57	34	N1	controller IC	58	35
N2	hot-swap IC	56	33	N2	hot-swap IC	59	36
T1	transformer	74	51	N3	3V3 regulator	77	54
R1	bias resistor	73	50	T1	transformer	72	49
R7	sense resistor	60	37	R1	bias resistor	73	50
V4	hot-swao FET	55	32	R7	sense resistor	61	38
V7	switching FET	58	35	V4	hot-swap FET	53	30
V8	switching FET	64	41	V7	switching FET	58	35
V17	17V diode	64	41	V8	switching FET	64	41
V18	17V diode	63	40	V9	output diode	74	51
V13	17V diode	56	33	L1	Inductor	62	39
V14	17V diode	59	36				
V11	5 analogue diode	68	45				
V12	5 analogue diode	66	43				
V9	-5 analogue diode	53	30				
V10	-5 analogue diode	55	32				
V15	5 digital diode	63	40				
V16	5 digital diode	66	43				
V20	-5 zener	54	31				
L1	inductor	59	36				

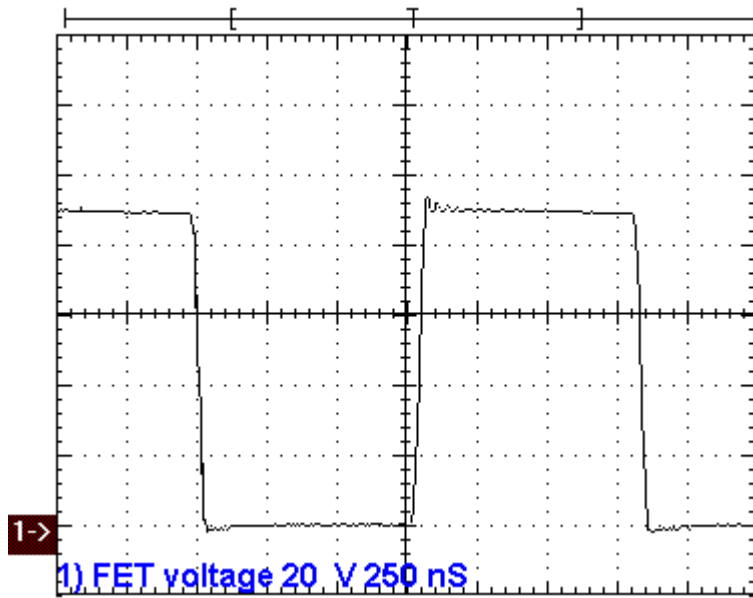
INRUSH CURRENT



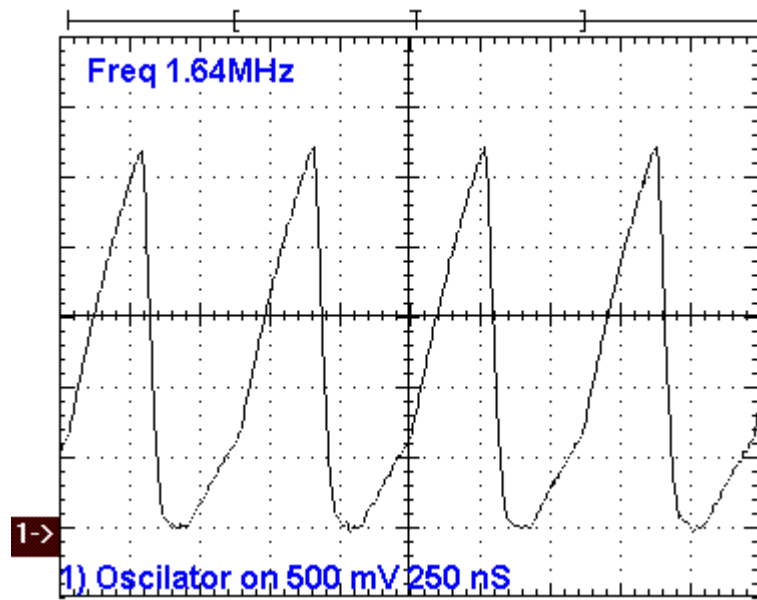
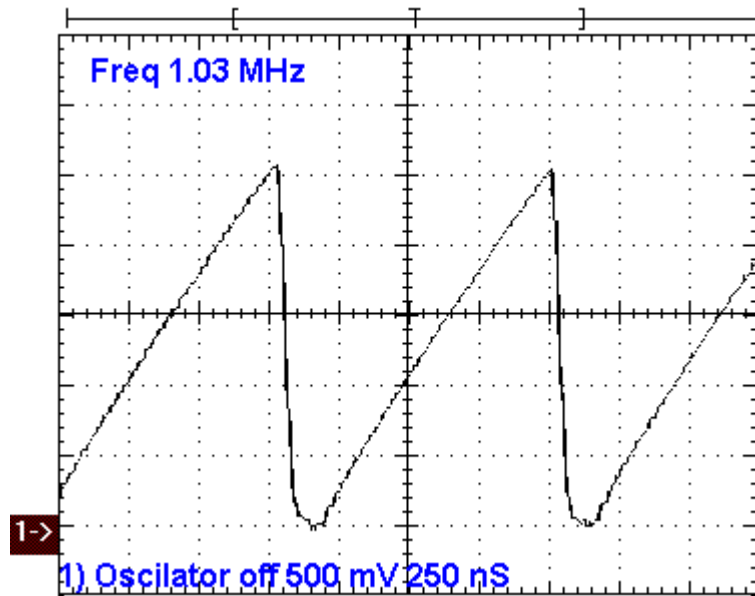
INRUSH CURRENT



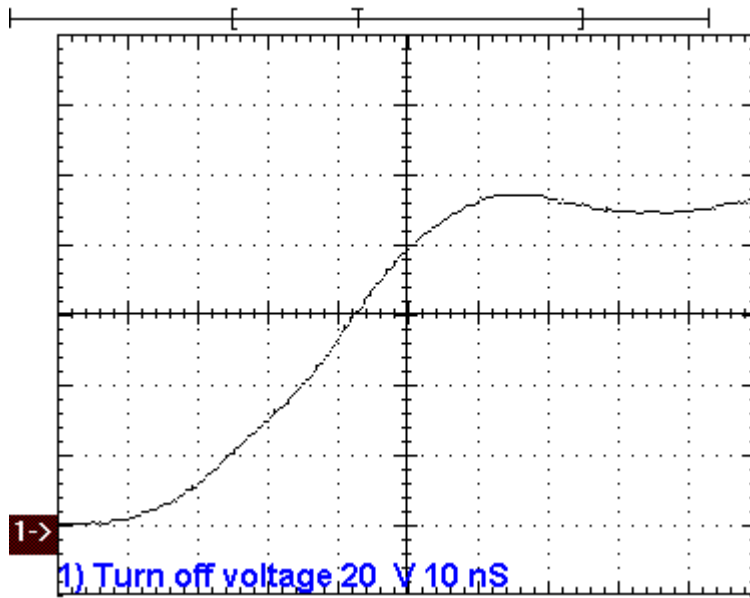
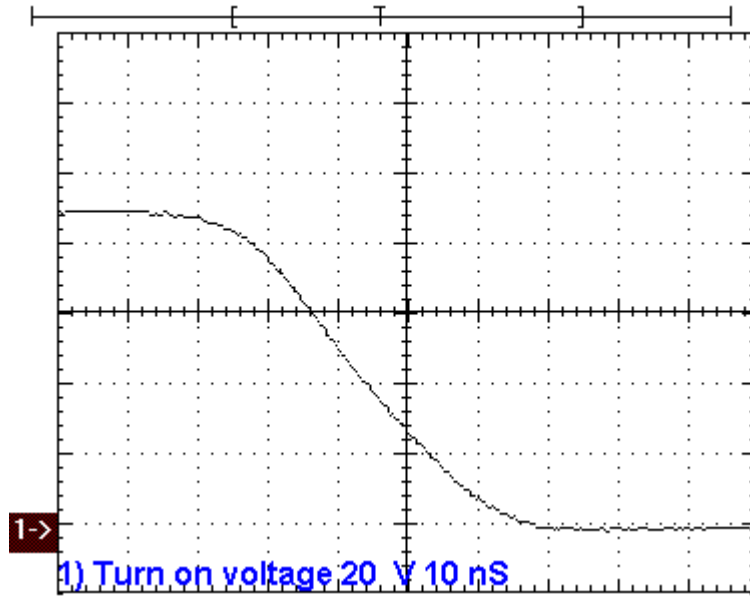
FUNCTIONALITY



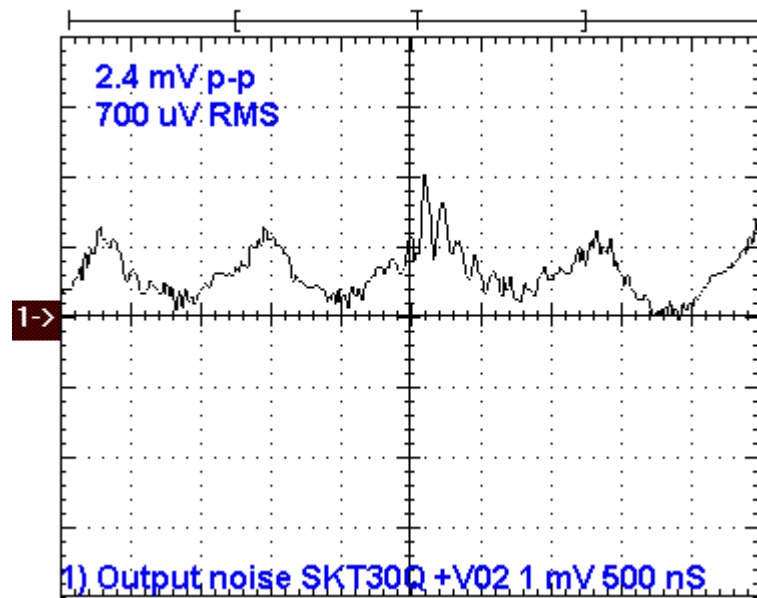
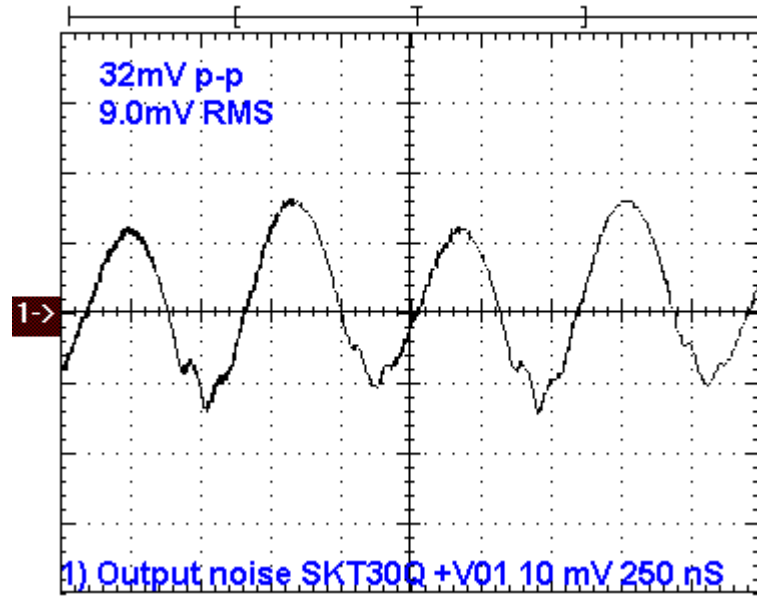
FUNCTIONALITY



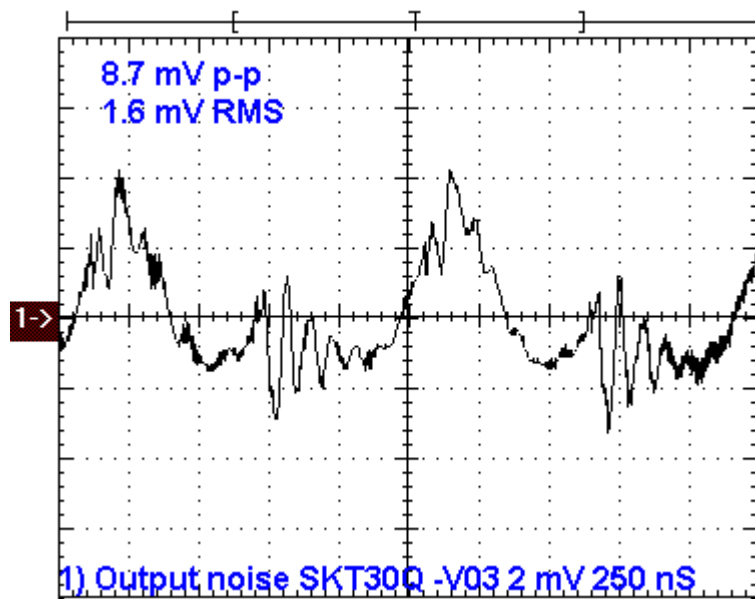
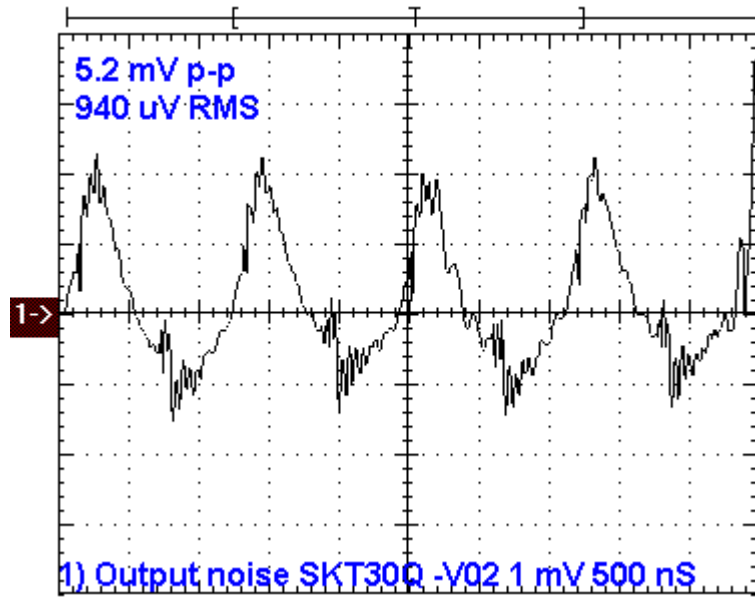
FUNCTIONALITY



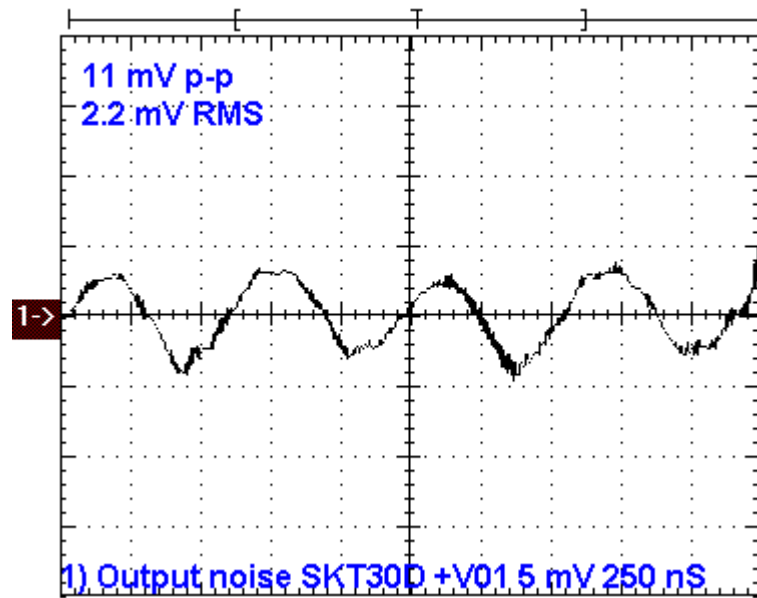
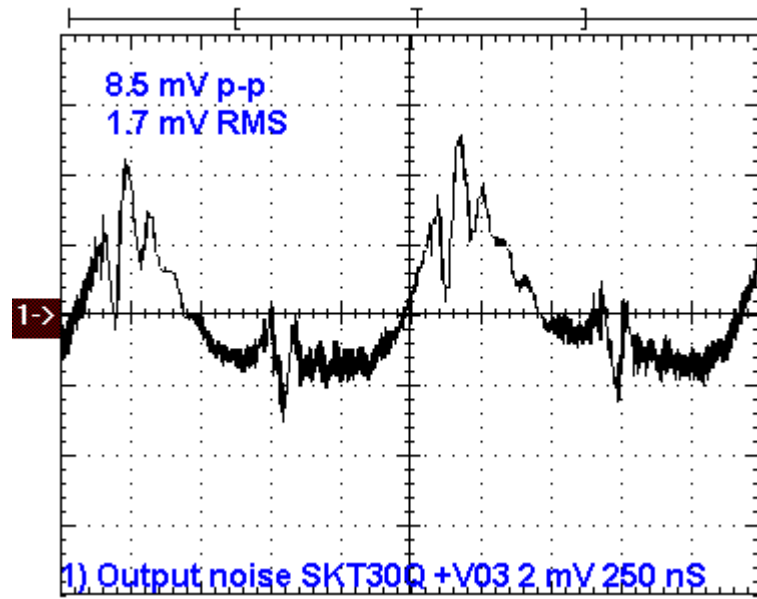
OUTPUT RIPPLE AND NOISE



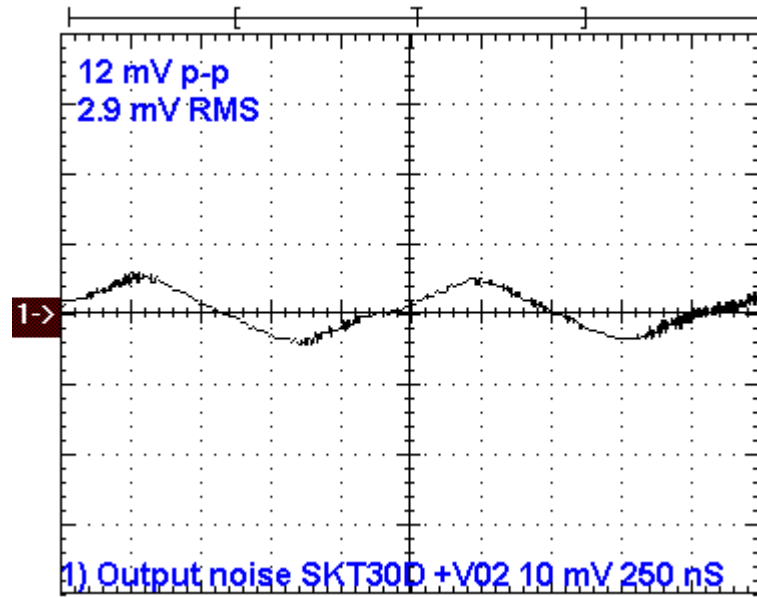
OUTPUT RIPPLE AND NOISE



OUTPUT RIPPLE AND NOISE



OUTPUT RIPPLE AND NOISE



INPUT NOISE

