Ordering number: EN 1227C

Thick Film Hybrid IC

STK4332

AF Power Amplifier (5W + 5W min, THD = 1.0%)

Features

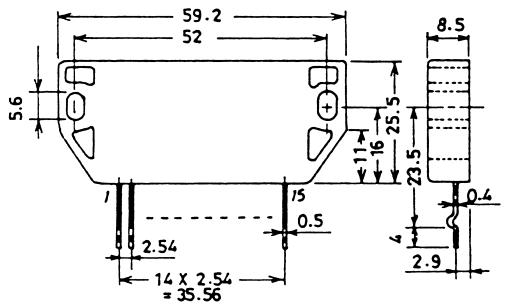
- Small and slim package with 25.5 mm height.
- Capable of guaranteeing substrate temperature 125°C, thereby reducing heat sink.
- Excellent cost performance.

Package Dimensions

unit: mm

4032

[STK4332]



Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max	Pin 4 to 7, 12	32	V
Thermal resistance	θj-c	One power transistor	7	°C/W
Junction temperature	Tj		150	°C
Operating substrate temperature	Tc		125	°C
Storage temperature	Tstg		–30 to +125	°C
Available time for load short-circuit	t_s	V_{CC} = 23V, R_L = 8Ω, P_O = 5W, f = 50Hz	2	s

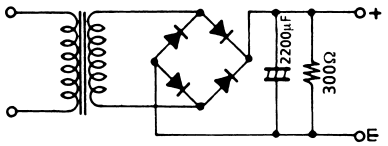
Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		23	V
Load resistance	R_L		8	Ω

Operating Characteristics at Ta = 25°C, V_{CC} = 23V, R_L = 8Ω, Rg = 600Ω, VG = 40 dB, at specified Test Circuit (based on Sample Application Circuit).

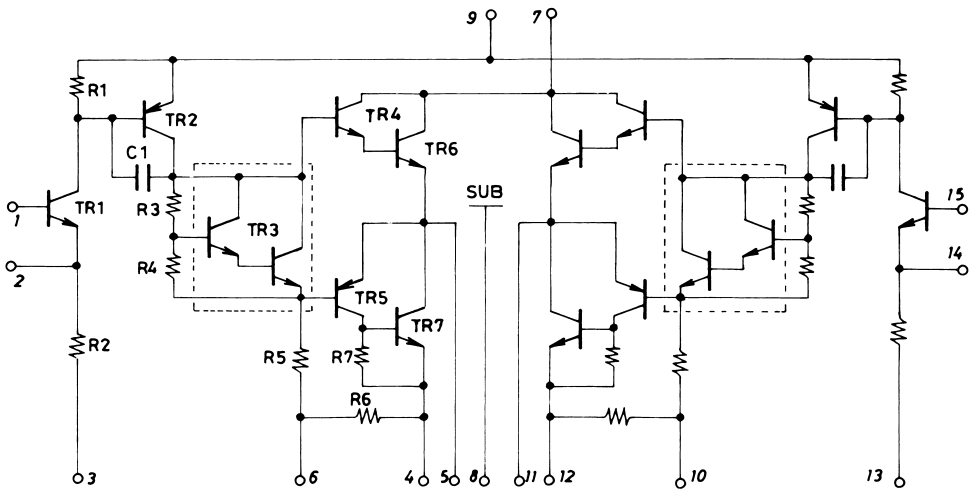
Parameter	Symbol	Conditions	min	typ	max	Unit
Quiescent current	I_{CCO}	V_{CC} = 27V	20	60	120	mA
Output power	P_O (1)	THD = 1.0%, f = 1kHz	5			W
	P_O (2)	THD = 1.0%, f = 60Hz to 10kHz	2.5			W
Total harmonic distortion	THD	P_O = 0.1W, f = 1kHz			0.5	%
Frequency response	f_L, f_H	P_O = 0.1W, $^{+0}_{-3}$dB		50 to 50k		Hz
Input impedance	r_i	P_O = 0.1W, f = 1kHz		110k		Ω
Output noise voltage	V_{NO}	V_{CC} = 27V, Rg = 10kΩ			0.8	mVrms

Notes. Unless otherwise specified for the power supply at the time of test, use the constant voltage power supply.
When testing the available time for load short-circuit and output noise voltage, use the specified transformer as shown right.
The output noise voltage is the peak value on the mean value indicating rms reading (VTVM), and should not involve impulse noise.

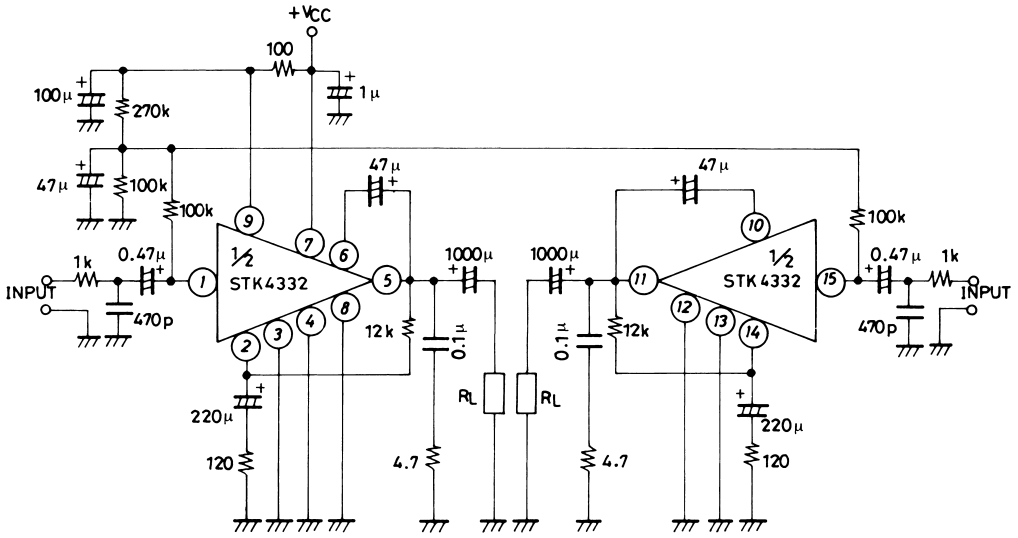


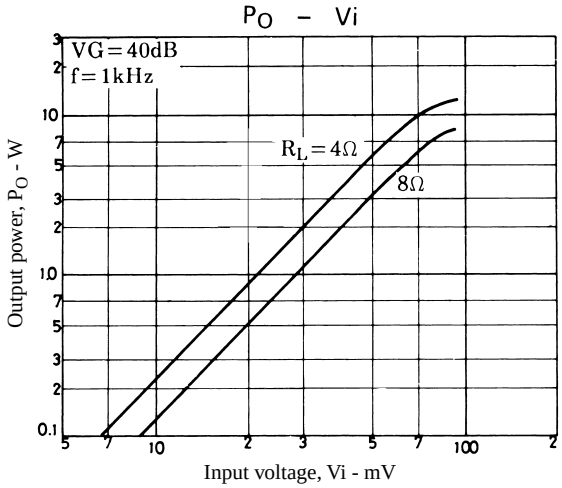
Specified Transformer Power Supply
(Equivalent to RP-22)

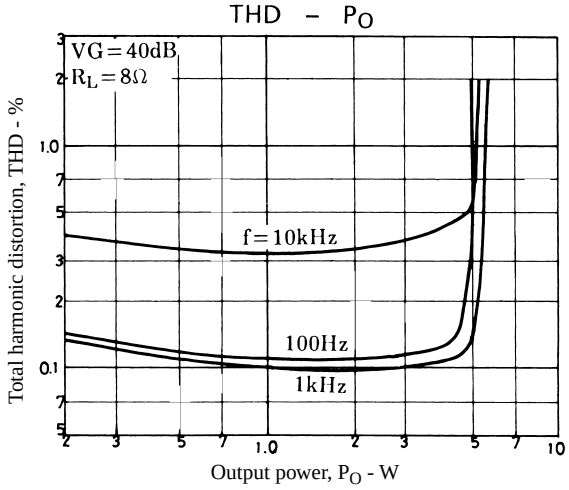
Equivalent Circuit

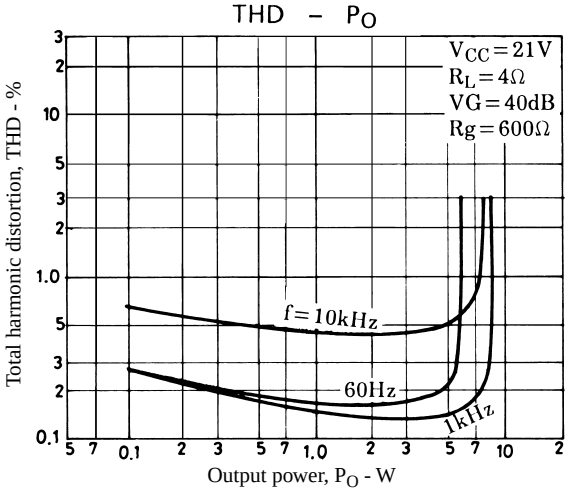


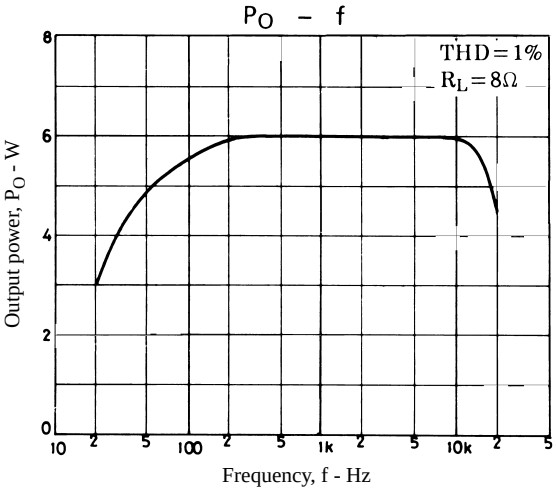
Sample Application Circuit : 5W min 2-channel AF power amplifier

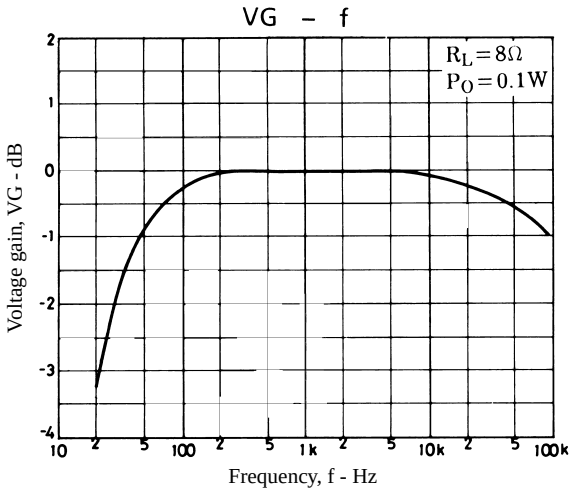


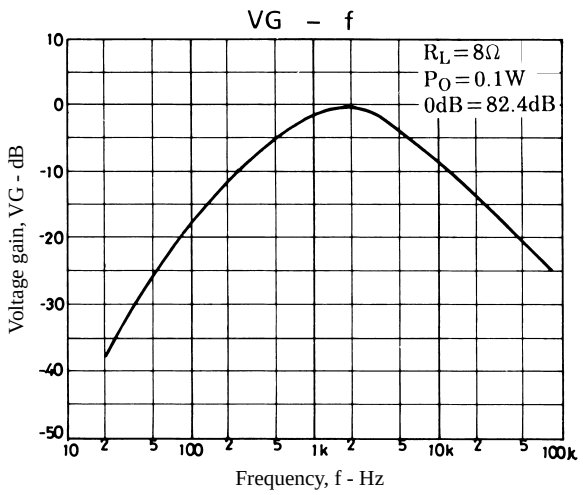


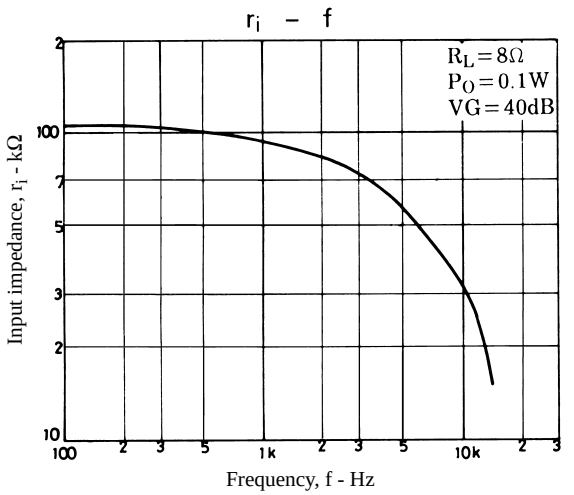


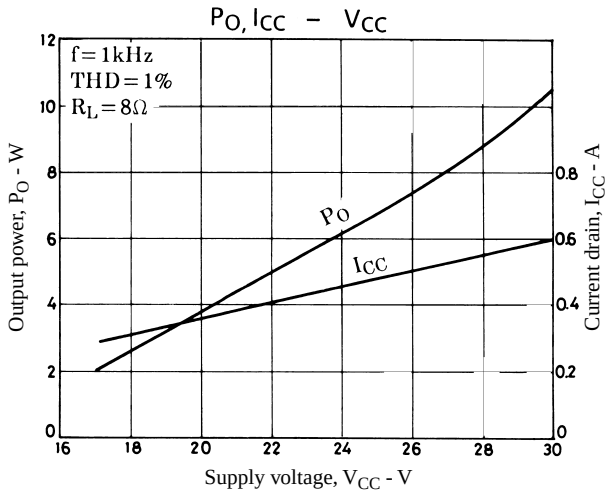


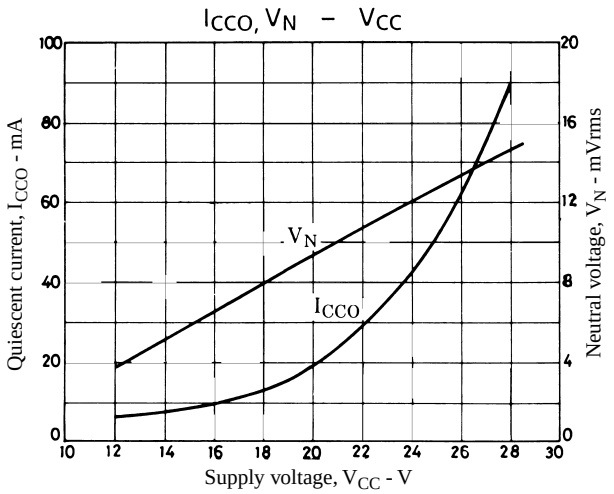


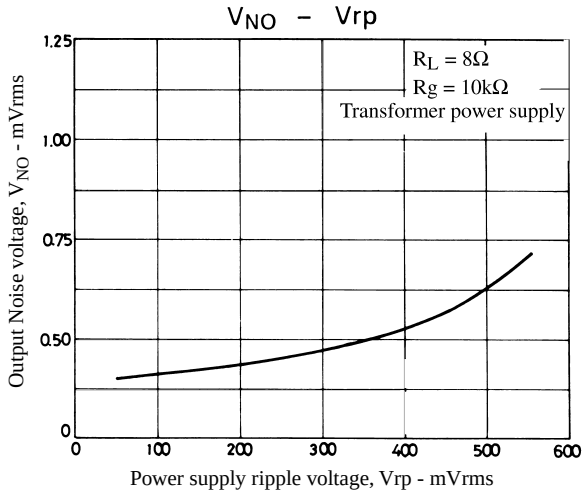

VG – f
$R_L = 8\Omega$
$P_O = 0.1W$
Voltage gain, VG - dB
Frequency, f - Hz

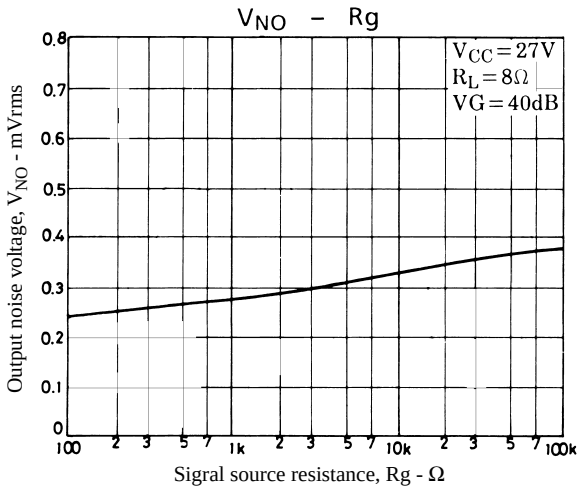

VG – f
$R_L = 8\Omega$
$P_O = 0.1W$
0dB = 82.4dB
Voltage gain, VG - dB
Frequency, f - Hz

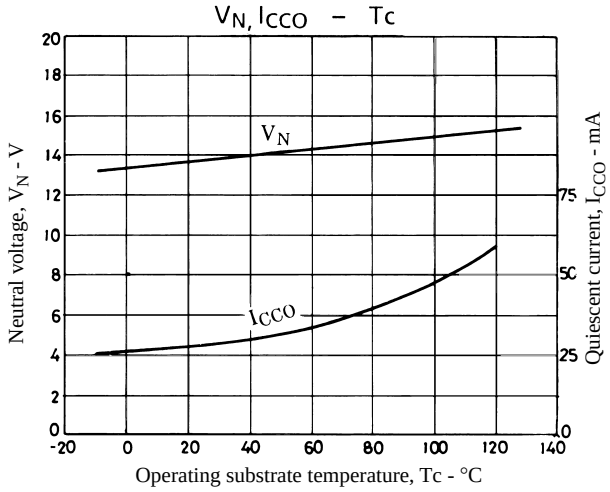

r_i – f
$R_L = 8\Omega$
$P_O = 0.1W$
VG = 40dB
Input impedance, r_i - kΩ
Frequency, f - Hz

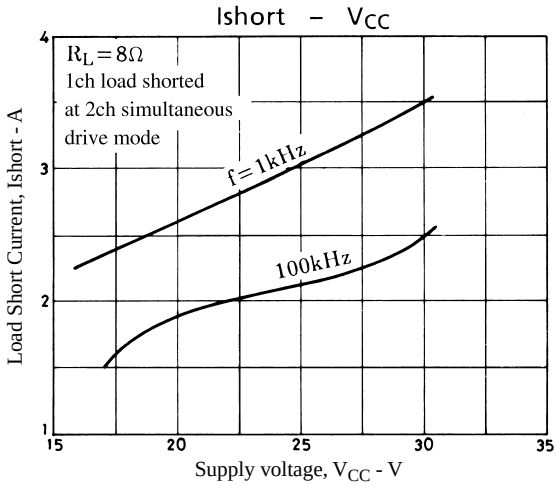

P_O, I_{CC} – V_{CC}
f = 1kHz
THD = 1%
$R_L = 8\Omega$
P_O
I_{CC}
Output power, P_O - W
Current drain, I_{CC} - A
Supply voltage, V_{CC} - V

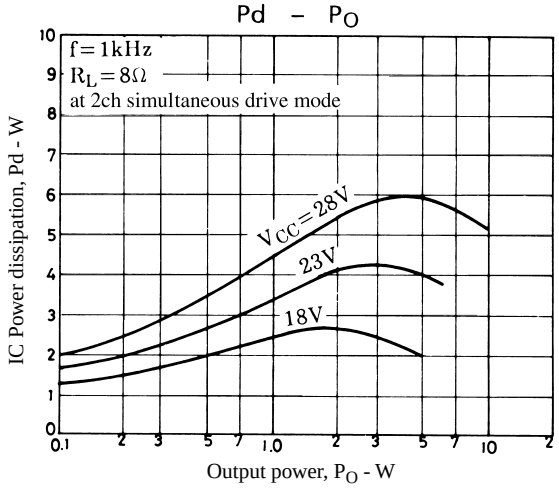

I_{CCO}, V_N – V_{CC}
V_N
I_{CCO}
Quiescent current, I_{CCO} - mA
Neutral voltage, V_N - mVrms
Supply voltage, V_{CC} - V

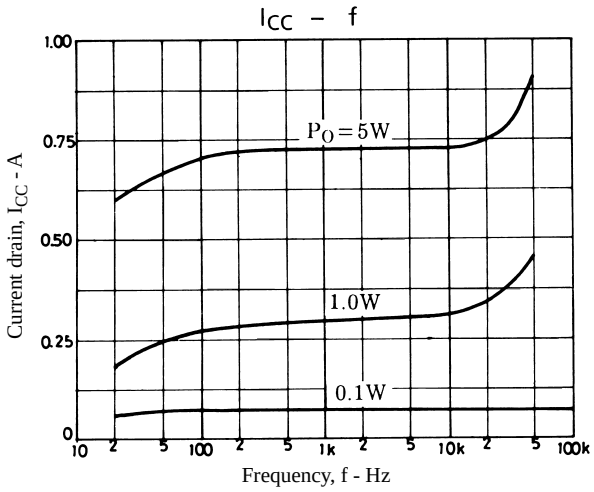

V_{NO} – Vrp
$R_L = 8\Omega$
Rg = 10kΩ
Transformer power supply
Output Noise voltage, V_{NO} - mVrms
Power supply ripple voltage, Vrp - mVrms

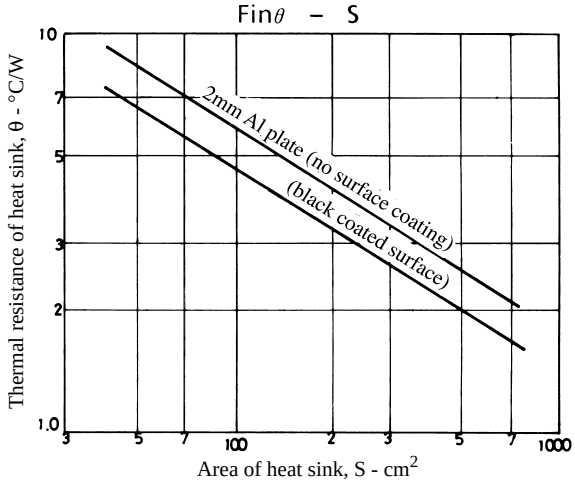

VNO – Rg
VCC=27V
RL=8Ω
VG=40dB
Output noise voltage, VNO - mVrms
Sigral source resistance, Rg - Ω


VN, ICCO – Tc
VN
ICCO
Neutral voltage, VN - V
Quiescent current, ICCO - mA
Operating substrate temperature, Tc - °C

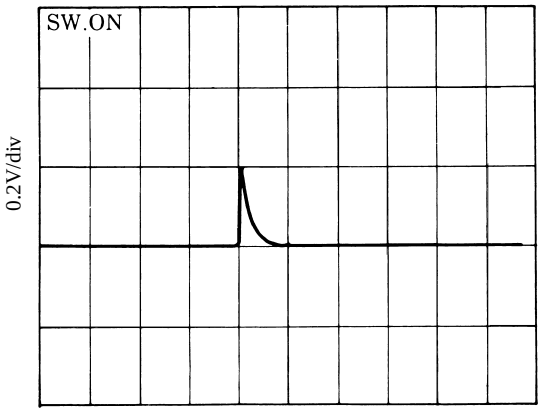

Ishort – VCC
RL=8Ω
1ch load shorted
at 2ch simultaneous
drive mode
f=1kHz
100kHz
Load Short Current, Ishort - A
Supply voltage, VCC - V


Pd – PO
f=1kHz
RL=8Ω
at 2ch simultaneous drive mode
VCC=28V
23V
18V
IC Power dissipation, Pd - W
Output power, PO - W


ICC – f
PO=5W
1.0W
0.1W
Current drain, ICC - A
Frequency, f - Hz

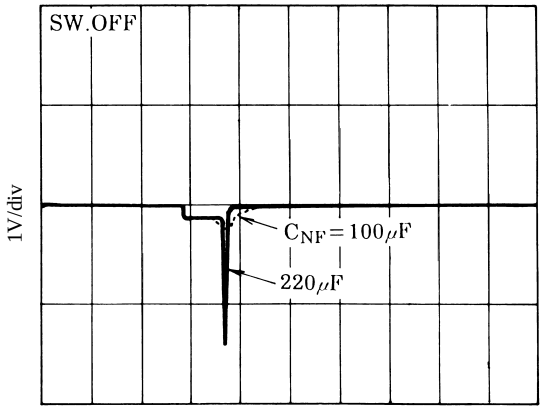

Finθ – S
2mm Al plate (no surface coating)
(black coated surface)
Thermal resistance of heat sink, θ - °C/W
Area of heat sink, S - cm2

Shock Noise Wave Form



0.5s/div

Shock Noise Wave Form



0.5s/div

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