



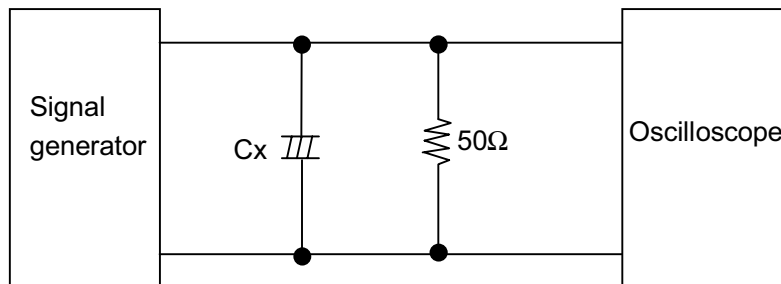
## Special Capabilities

### Excellent noise absorption




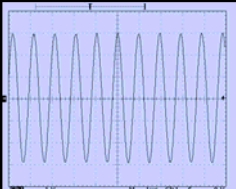
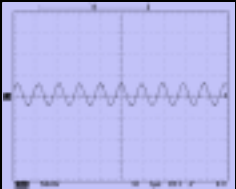
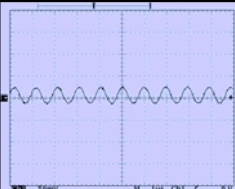
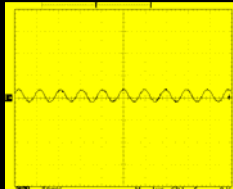
Noise absorption of the SP-Cap compared with other types of capacitors is shown below.

#### Test Circuit

Input voltage: 8Vp-p  
Frequency : 1MHz



Results of comparison obtained when the noise absorption levels are set identical to each other.

Input waveform (1MHz)	Output waveform		
	Aluminum capacitor	Tantalum capacitor	SP-Cap
	1000 $\mu$ F $\times$ 4 	100 $\mu$ F $\times$ 3 	47 $\mu$ F $\times$ 1 
			
8V p-p	54mV p-p	40mV p-p	30mV p-p

The SP-Cap is excellent for noise absorption and capable of reducing the number of parts, thus reducing overall circuit size.

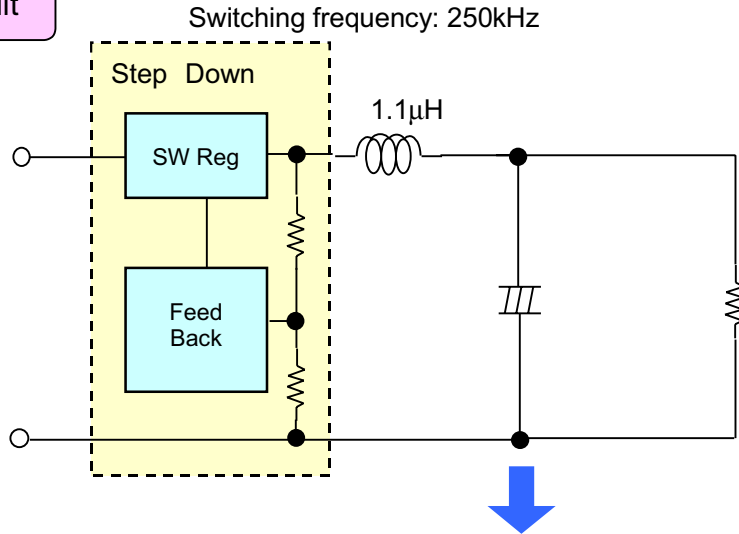




## Excellent ripple voltage reduction

The voltage smoothing capability of the SP-Cap on the switching power supply output side compared with that of other types of capacitors is shown below.

### Test Circuit



Ripple Voltage Reduction Comparison.  
All capacitors valued identically at 220µF.

SP-Cap	Polymer tantalum	Low ESR tantalum
2.5V 220µF	2.5V 220µF	6.3V 220µF
ESR=10mΩ at 100kHz	ESR=25mΩ at 100kHz	ESR=50mΩ at 100kHz
Ripple voltage:50mVp-p	Ripple voltage:125mVp-p	Ripple voltage:265mVp-p

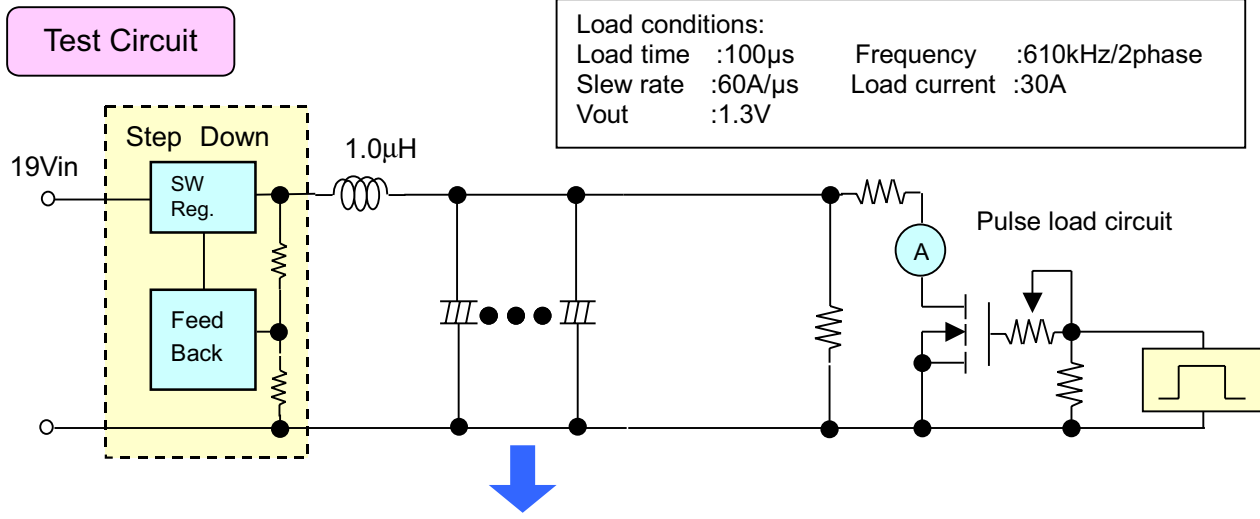
To reduce ripple voltage, an SP-Cap with a very low ESR is more suitable. For the same capacitance, an SP-Cap allows the ripple voltage to be reduced to approximately 1/3 that of a polymer tantalum capacitor and approximately 1/5 that of a low ESR tantalum capacitor.

Special Capabilities



## Excellent transient response

The transient response of the SP-Cap as the load varies in a high speed condition compared with that of other types of capacitors is shown below.



Results of comparisons obtained when variable output voltages are identical to each other.

Specialty Polymer <b>Aluminum</b> (SP-Cap)		Specialty Polymer <b>Tantalum</b>	
2V 270 $\mu$ F x5 pcs	2V 220 $\mu$ F x8 pcs	4V 470 $\mu$ F x5 pcs	2.5V 330 $\mu$ F x8 pcs
Total Cap. = <b>1350</b> $\mu$ F at 120Hz	Total Cap. = <b>1760</b> $\mu$ F at 120Hz	Total Cap. = <b>2350</b> $\mu$ F at 120Hz	Total Cap. = <b>2640</b> $\mu$ F at 120Hz
ESR=3m $\Omega$ max.at 100kHz	ESR=1.9m $\Omega$ max.at 100kHz	ESR=3m $\Omega$ max.at 100kHz	ESR=1.9m $\Omega$ max.at 100kHz

Because the SP-Cap provides a very low ESR, the same transient response can be obtained with less capacitance. To obtain the same transient response with polymer tantalum, higher capacitance is required than with the polymer aluminum.

Special Capabilities