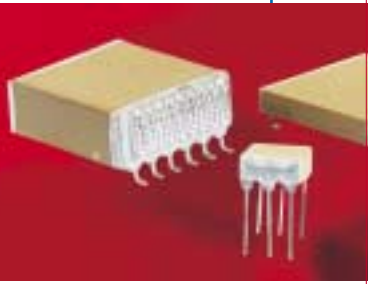




# SWITCH M CAPACITOR ASSEMBLIES

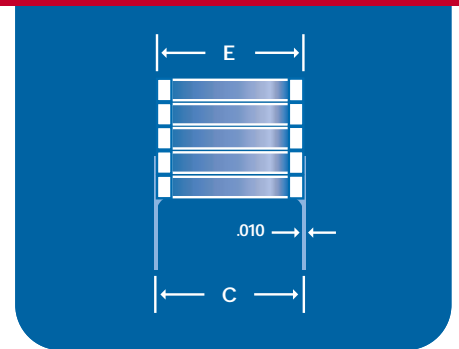
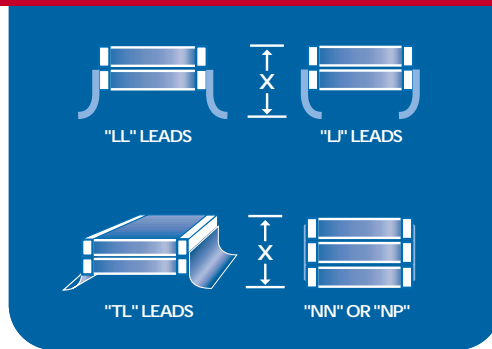
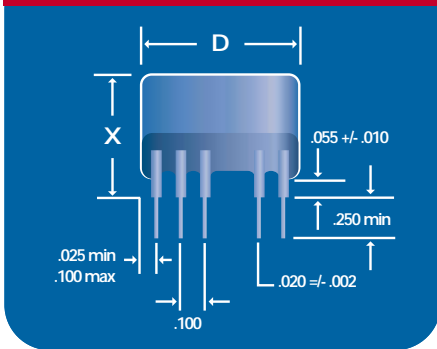


## High capacitance assemblies with low equivalent series resistance

(ESR) and low equivalent series inductance (ESL) are available for use in high power or high frequency applications, as replacement for tantalums and aluminum electrolytics. Uses include input and output filters in switch mode power supplies, high capacitance discharge circuits, and high temperature filtering/decoupling. The leaded configurations safeguard the device against thermal and mechanical stresses, and include thru-hole and surface mount J and L style leads, bonded with high temperature solder. Dielectric characteristics offered are COG, X7R and Y5V. The SM series are tested per DESC drawing 87106. Other sizes and voltage ratings than indicated in the tables are available, consult NOVACAP.

Dielectric characteristics offered are COG, X7R and Y5V. The SM series are tested per DESC drawing 87106. Other sizes and voltage ratings than indicated in the tables are available, consult NOVACAP.

## LEAD CONFIGURATION AND ASSEMBLY OPTIONS



## SWITCH M SERIES (HI REL TESTED) CAPACITANCE & VOLTAGE SELECTION

DIMENSIONS - INCH (MM)					
SIZE	C +/- .025	D +/- .025	E Max	X Max	Leads /Side
ST 1812	.210 (5.33)	.125 (3.18)	.260 (6.60)	.600 (15.2)	2
ST 1825	.210 (5.33)	.250 (6.35)	.260 (6.60)	.600 (15.2)	3
ST 2225	.250 (6.35)	.250 (6.35)	.300 (7.62)	.715 (18.2)	3
ST 3640	.400 (10.2)	.400 (10.2)	.430 (10.9)	.715 (18.2)	4
ST 4540	.480 (12.2)	.400 (10.2)	.530 (13.5)	.715 (18.2)	4
ST 5550	.580 (14.7)	.500 (12.7)	.630 (16.0)	.715 (18.2)	5
ST 7565	.780 (19.8)	.650 (16.5)	.830 (21.1)	.715 (18.2)	6

MAXIMUM CAPACITANCE (FULL STACK OF 6 CHIPS)									
3 Digit Code: See How to Order									
50v	COG			50v	X7R			Y5V	
	100v	200v	500v		100v	200v	500v	50v	100v
184	124	104	273	395	335	185	394	226	106
474	334	224	563	106	685	395	824	396	156
564	394	334	683	106	825	475	105	566	226
125	105	564	154	276	226	126	684		
155	125	684	184	336	276	126	824		
155	125	684	224	396	276	156	475		
335	225	125	474	826	476	276	106		

Dimensions in inches; bracketed dimensions in millimeters.

## COG DIELECTRIC CHARACTERISTICS

OPERATING TEMPERATURE RANGE:	-55 C to 125 C
TEMPERATURE COEFFICIENT:	0 +/- 30 ppm/ C
DISSIPATION FACTOR @ 25 C:	.001(0.1%) max
INSULATION RESISTANCE, 25 C	>100G or >1000 F
125 C	>10G or >100 F
DIELECTRIC WITHSTANDING VOLTAGE:	< 200V, 250%
*WHICHEVER IS GREATER	201-500V, 150% or 500V*
AGING RATE:	0% per decade
TEST PARAMETERS 25 C:	1KHz, 1.0 +/- 0.2 VRMS, 25 C
	1MHZ for Capacitance <100pF

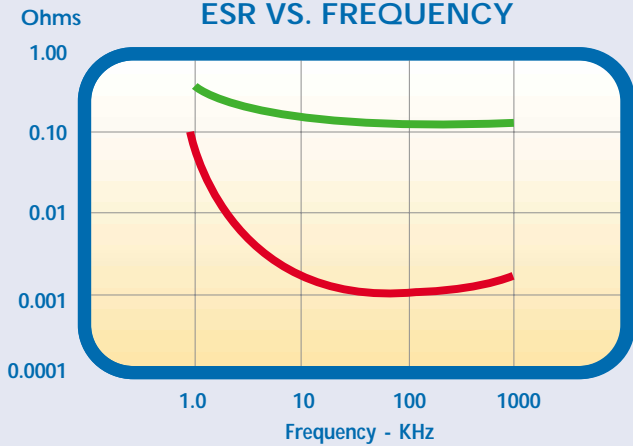
## X7R DIELECTRIC CHARACTERISTICS

OPERATING TEMPERATURE RANGE:	-55 C to 125 C
TEMPERATURE COEFFICIENT:	+/-15% tC Max.
DISSIPATION FACTOR @ 25 C:	2.5% max @ >25V
	3.5% max @ 25V
INSULATION RESISTANCE, 25 C	>100G or >1000 F
125 C	>10G or >100 F
DIELECTRIC WITHSTANDING VOLTAGE:	< 200V, 250%
*WHICHEVER IS GREATER	201-500V, 150% or 500V*
AGING RATE:	< 2.0% per decade
TEST PARAMETERS 25 C:	1KHz, 1.0 +/- 0.2 VRMS

## Y5V DIELECTRIC CHARACTERISTICS

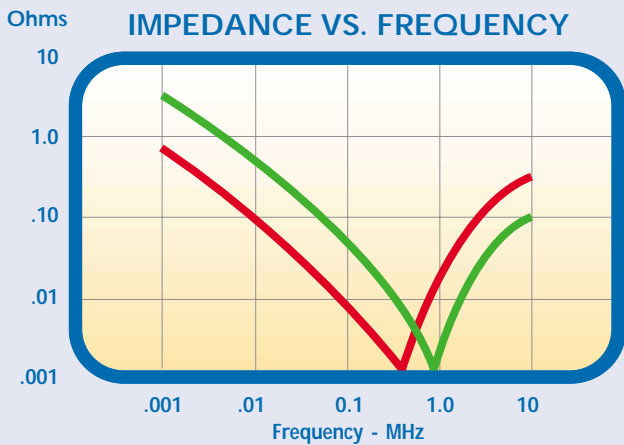
OPERATING TEMPERATURE RANGE:	-30 C to 85 C
TEMPERATURE COEFFICIENT:	+22% -82% tC Max.
DISSIPATION FACTOR @ 25 C:	5.0% max @ >25V
	7.0% max @ 25V
INSULATION RESISTANCE, 25 C	>10G or >100 F
125 C	N/A
DIELECTRIC WITHSTANDING VOLTAGE:	< 200V, 250%
*WHICHEVER IS GREATER	201-500V, 150% or 500V*
AGING RATE:	< 2.0% per decade
TEST PARAMETERS 25 C:	1KHz, 0.5 +/- 0.2 VRMS

### ESR VS. FREQUENCY



Typical Tantalum  
 Typical 30 F X7R MLC

### IMPEDANCE VS. FREQUENCY



Typical 30 F MLC  
 Typical 150 F MLC

## HOW TO ORDER

SM	4540	B	106	M	201	LJ	X	W	M
<b>STYLE</b> SM= Switch Mode	<b>SIZE</b> See Chart	<b>DIELECTRIC</b> N = COG B = X7R Y = Y5V	<b>CAPACITANCE</b> Value in Picofarads Two significant figures, followed by number of zeros: 106 = 10,000,000 pF (10.0 mF)	<b>TOLERANCE</b> B = 0.10 pF C = 0.25 pF D = 0.50 pF F = +/- 1.0 % G = +/- 2.0 % H = +/- 3.0 % J = +/- 5.0 % K = +/- 10 % M = +/- 20 % Z = +80% -20% P = +100% -0%	<b>VOLTAGE-VDCW</b> Two significant figures, followed by number of zeros: 201 = 200V	<b>LEAD STYLE</b> LN = Straight LL = L Lead LJ = J Lead TL = L Tab TJ = J Tab NN = Nickel NP = Pd/Ag	<b>OPTION</b> Specify Standoff dimension (X) if less than max.	<b>PACKING OPTION</b> W=Waffle T=Reeled	<b>OPTION</b> M=Marked