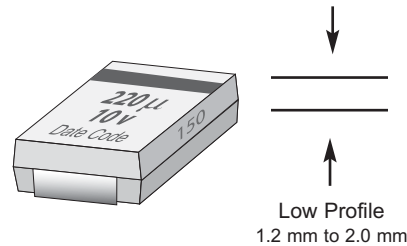


## Low Profile - Low ESR



### FEATURES

- **Lead-free, RoHS compliant**
- Low Profile Heights. Excellent for PCMCIA applications.
- Very Low Equivalent Series Resistance (ESR), Ideal for Power Supplies
- High ripple and surge current capability
- Meets or exceeds EIA 535 BAAC and IECQ standards (QC300801/US0001, IS - 28)
- Pre-conditioned, surge current tested for maximum robustness
- Capacitance range: 1.0  $\mu\text{f}$  to 330  $\mu\text{f}$
- Voltage range: 4 to 20 WVDC
- Operating temperature range -55°C to +125°C, 2/3 x Vr (linear derating) above +85°C
- Precision molded case with flat surfaces for vacuum pick-up
- Laser marking and bold videcon - readable polarity stripe
- Compliant terminations
- Glue pad on underside for bonding to circuit board prior to soldering
- Encapsulant material satisfies the UL 94 VO flammability classification
- MSL (moisture sensitivity level) per IPC/Jedec J-STD-020B is level 1

Nemco LSR (Low Equivalent Series Resistance) surface mount tantalum capacitors are specifically designed for those applications such as POWER SUPPLIES requiring the highest level of robustness available to tantalum capacitor technology. These devices have inherently low ESR due to special manufacturing process and powder technology improvements. They are capable of handling higher ripple currents than standard product. The benefits of using Nemco LSR Series components are its capability to handle higher ripple currents producing lower ripple voltage output and less power dissipation resulting in less heating.

After manufacturing, parts are conditioned by being subjected to an elevated temperature overvoltage burn-in, applied for a minimum of 2 hours. Parts are monitored on a 100% basis for DCL at elevated temperatures. Parts are then subjected to a low impedance surge current. Surge current testing is performed on a 100% basis. Each capacitor is individually monitored. All devices undergo 100% test for capacitance, dissipation factor, DCL, and ESR at 100 kHz to LSR requirements.



Lead Free



RoHS  
compliant

# PART NUMBERS & SPECIFICATIONS

Capacitance $\mu\text{F}$ <small>(microfarads)</small>	Case Size	ESR @ 100Khz max. $\text{m}\Omega$ <small>(milliohms)</small>	Nemco Part No.	DCL $\mu\text{A}$ max. <small>(microamps)</small>	tan $\delta$ max. (%)	Max. Ripple Current @ 100KHz mA <small>(milliamps)</small>		
						25°C	85°C	125°C

## 4 V DC @ 85°C

10.0	XL	3000	LSR10 / 4XL _ 3000	0.5	6	135	122	54
100.0	CL	100	LSR100 / 4CL _ 100	4.0	6	949	854	379
220.0	DL	40	LSR220 / 4DL _ 40	8.8	8	1768	1591	707
220.0	DL	75	LSR220 / 4DL _ 75	8.8	8	1291	1162	516

## 6.3 V DC @ 85°C

2.2	XL	7000	LSR2.2 / 6XL _ 7000	0.5	6	88	79	35
4.7	AL	4000	LSR4.7 / 6AL _ 4000	0.5	6	127	115	51
10.0	XL	1000	LSR10 / 6XL _ 1000	0.6	8	235	211	94
10.0	XL	1500	LSR10 / 6XL _ 1500	0.6	8	191	172	76
10.0	XL	3000	LSR10 / 6XL _ 3000	0.6	8	135	122	49
10.0	BL	1000	LSR10 / 6BL _ 1000	0.6	6	283	255	113
22.0	AL	900	LSR22 / 6AL _ 900	1.4	8	269	242	107
33.0	BL	800	LSR33 / 6BL _ 800	2.1	10	316	285	126
47.0	BL	1200	LSR47 / 6BL _ 1200	2.8	10	258	232	103
68.0	CL	110	LSR68 / 6CL _ 110	4.3	6	905	814	362
68.0	CL	125	LSR68 / 6CL _ 125	4.3	6	849	764	339
68.0	CL	250	LSR68 / 6CL _ 250	4.3	6	600	540	240
100.0	CL	100	LSR100 / 6CL _ 100	6.3	6	949	854	379
100.0	CL	150	LSR100 / 6CL _ 150	6.3	6	775	697	310
100.0	DL	100	LSR100 / 6DL _ 100	6.3	6	1118	1006	447
150.0	DL	40	LSR150 / 6DL _ 40	9.5	6	1768	1591	707
220.0	DL	30	LSR220 / 6DL _ 30	13.2	6	2646	2381	1058
220.0	DL	100	LSR220 / 6DL _ 100	13.9	8	1118	1006	447
220.0	DL	150	LSR220 / 6DL _ 150	13.9	10	913	822	365
330.0	DL	100	LSR330 / 6DL _ 100	20.8	12	1118	1006	447
330.0	DL	150	LSR330 / 6DL _ 150	20.8	12	913	822	365
470.0	DL	150	LSR470 / 6DL _ 150	28.2	20	913	822	365

## 10 V DC @ 85°C

1.0	XL	9000	LSR1 / 10XL _ 9000	0.5	4	78	70	31
3.3	BL	1500	LSR3.3 / 10BL _ 1500	0.5	6	231	208	92
4.7	XL	3000	LSR4.7 / 10XL _ 3000	0.5	6	135	122	54
4.7	XL	5000	LSR4.7 / 10XL _ 5000	0.5	6	105	94	42
6.8	BL	1800	LSR6.8 / 10BL _ 1800	0.7	6	211	189	84
10.0	BL	1000	LSR10 / 10BL _ 1000	1.0	6	283	254	113
10.0	BL	2000	LSR10 / 10BL _ 2000	1.0	6	200	180	80
15.0	BL	1200	LSR15 / 10BL _ 1200	1.5	8	258	232	103
22.0	BL	800	LSR22 / 10BL _ 800	2.2	8	316	284	126
33.0	CL	350	LSR33 / 10CL _ 350	3.3	6	507	456	203
47.0	CL	125	LSR47 / 10CL _ 125	4.7	6	849	764	339
47.0	CL	150	LSR47 / 10CL _ 150	4.7	6	775	697	310
47.0	CL	250	LSR47 / 10CL _ 250	4.7	6	600	540	240
68.0	CL	100	LSR68 / 10CL _ 100	6.8	6	949	854	379
68.0	CL	150	LSR68 / 10CL _ 150	6.8	6	775	697	310
68.0	DL	100	LSR68 / 10DL _ 100	6.8	6	1118	1006	447
68.0	DL	200	LSR68 / 10DL _ 200	6.8	6	791	712	316
100.0	CL	150	LSR100 / 10CL _ 150	10.0	6	775	697	310
100.0	DL	45	LSR100 / 10DL _ 45	15.0	8	2160	1944	864
100.0	DL	100	LSR100 / 10DL _ 100	10.0	6	1118	1006	447
100.0	DL	150	LSR100 / 10DL _ 150	10.0	6	913	822	365
100.0	DL	200	LSR100 / 10DL _ 200	10.0	6	791	712	316
150.0	DL	100	LSR150 / 10DL _ 100	15.0	6	1118	1006	447
150.0	DL	150	LSR150 / 10DL _ 150	15.0	6	913	822	365
150.0	DL	200	LSR150 / 10DL _ 200	15.0	6	791	712	316
220.0	DL	150	LSR220 / 10DL _ 150	15.0	10	912	822	364
220.0	DL	200	LSR220 / 10DL _ 200	15.0	10	791	712	316

\_ Insert tolerance M ( $\pm 20\%$ ) or K ( $\pm 10\%$ ) to complete the Nemco part number

**PART NUMBERS & SPECIFICATIONS**

Capacitance μF (microfarads)	Case Size	ESR @ 100Khz max. mΩ (milliohms)	Nemco Part No.	DCL μA max. (microamps)	tan δ max. (%)	Max. Ripple Current @ 100kHz mA (milliamps)		
						25°C	85°C	125°C

**16 V DC @ 85°C**

2.2	BL	2000	LSR2.2 / 16BL _ 2000	0.5	6	200	180	80
10.0	BL	800	LSR10 / 16BL _ 800	1.6	8	316	284	126
10.0	BL	1000	LSR10 / 16BL _ 1000	1.6	8	283	255	113
10.0	CL	500	LSR10 / 16CL _ 500	1.6	6	424	382	170
10.0	CL	600	LSR10 / 16CL _ 600	1.6	6	387	349	155
22.0	CL	500	LSR22 / 16CL _ 500	3.5	6	424	382	170
33.0	CL	140	LSR33 / 16CL _ 140	5.3	6	802	722	321
33.0	CL	175	LSR33 / 16CL _ 175	5.3	6	717	646	287
33.0	CL	250	LSR33 / 16CL _ 250	5.3	6	600	540	240
33.0	CL	400	LSR33 / 16CL _ 400	5.3	6	474	427	189
33.0	CL	500	LSR33 / 16CL _ 500	5.3	6	424	381	169
33.0	DL	300	LSR33 / 16DL _ 300	5.3	6	645	580	258
33.0	DL	400	LSR33 / 16DL _ 400	5.3	6	559	503	224
47.0	CL	200	LSR47 / 16CL _ 200	7.5	6	671	604	268
47.0	DL	250	LSR47 / 16DL _ 250	7.5	6	707	636	283
68.0	DL	150	LSR68 / 16DL _ 150	10.9	6	913	822	365
68.0	DL	200	LSR68 / 16DL _ 200	10.8	6	791	712	316
68.0	DL	250	LSR68 / 16DL _ 250	10.8	6	707	636	283
100.0	DL	100	LSR100 / 16DL _ 100	16.0	8	1118	1006	447
100.0	DL	150	LSR100 / 16DL _ 150	16.0	8	913	822	365
100.0	DL	200	LSR100 / 16DL _ 200	16.0	8	791	712	316
150.0	DL	200	LSR150 / 16DL _ 200	24.0	15	791	712	316

**20 V DC @ 85°C**

1.0	XL	6000	LSR1 / 20XL _ 6000	0.5	4	96	86	38
1.0	AL	6000	LSR1 / 20AL _ 6000	0.5	4	104	93	42
1.0	BL	2000	LSR1 / 20BL _ 2000	0.5	4	200	180	80
10.0	CL	500	LSR10 / 20CL _ 500	2.0	6	424	382	170

**25 V DC @ 85°C**

1.0	XL	2500	LSR1 / 25XL _ 2500	0.5	4	148	133	59
1.0	XL	4000	LSR1 / 25XL _ 4000	0.5	4	117	106	47
33.0	DL	200	LSR33 / 25DL _ 200	8.3	6	791	712	316

**35 V DC @ 85°C**

10.0	DL	250	LSR10 / 35DL _ 250	3.5	6	707	636	283
15.0	DL	250	LSR15 / 35DL _ 250	5.3	6	707	636	283
22.0	DL	200	LSR22 / 35DL _ 200	7.7	6	791	712	316

\_ Insert tolerance M (±20%) or K(±10%) to complete the Nemco part number