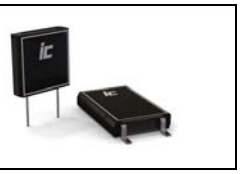
DFC

Flat Battery support Super Capacitors



APPLICATIONS

- Extends battery life up to 3 times
- Handheld devices
- DC motors
- RFID systems
- Pulse power
- Automatic Meter Readers
- GPS
- Medical equipment

FEATURES

- High Capacitance
- Non explosive
- Low ESR
- High current pulses (3A MAX)
- High power density
- High Voltage
- Very fast charge/discharge cycling
- Environmentally friendly
- Compact size

Operating Temperature Range		**-40°C to +70°C**							
Storage Temperature		**-10°C to +40°C, 45 to 75% R.H.**							
Capacitance Tolerance		**+80%/-20% @ 20°C**							
Surge voltage	**WVDC**	**1.4**	**2.1**	**3.5**	**4.2**	**5.5**	**6.3**	**9**	**12**
	SVDC	**1.6**	**2.4**	**4.0**	**4.8**	**6.3**	**7.2**	**10.4**	**13.8**
ESR		See part listing 1 kHz, 25°C							
Leakage Current		See part listing (4 hrs,25°C)							
ESR Change over temperature		150% of nominal at 70°C (typical) 200% of nominal at 70°C (Maximum)							
Life time		1000 hours at 70°C and rated voltage							
	Capacitance change	±30% of initially measured values							
	ESR	<200% of specified maximum value							
	Leakage current	< 200 % of specified maximum value							
Shelf Life		1000 hours at 70C with no voltage applied							
	Capacitance change	±30% of initially measured values							
	ESR	<200% of specified maximum value							
	Leakage current	< 200 % of specified maximum value							
Surge Test		1000 cycles with 115% of rated voltage applied for 10 seconds then short units for 10 seconds							
	Capacitance change	±30% of initially measured values							
	ESR	<200% of specified maximum value							
	Leakage current	<200 % of specified maximum value							
Humidity Test		1000 hours at 70°C and 90-95% RH with no voltage applied							
	Capacitance change	±10% of initially measured values							
	ESR	<150% of specified maximum value							
	Leakage current	<150 % of specified maximum value							

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DFC Flat Super capacitor

Standard part listing

Cap (F)	VDC	IC PART NUMBER	Max current (A)	ESR AC (mΩ, 1kHz)	Max stored energy (mWh)	LC (µA)	Specific Energy Gravimetric DENSITY (mWh/kg)	Specific Energy Volumetric Density (mWh/l)	Weight (grams)	Volume (mL)	Dims LxHxT (mm)	Lead Spacing (mm)
0.007	6.3	702DFC6R3Z	0.0221	1200	0.0386	4	24.12	0.0757	1.6	0.51	12.5x12x3.4	8
0.008	5.5	802DFC5R5Z	0.022	240	0.0336	4	24	0.0773	1.4	0.435	12.5x12x2.9	8
0.01	4.2	103DFC4R2Z	0.021	720	0.0245	4	18.85	0.0628	1.3	0.39	12.5x12x2.6	8
0.012	3.5	123DFC3R5Z	0.021	600	0.0204	4	15.7	0.0567	1.3	0.36	12.5x12x2.4	8
0.012	6.3	123DFC6R3Z	0.0378	600	0.0662	6	34.82	0.0832	1.9	0.795	12.5x12x5.3	8
0.015	12	153DFC012Z	0.09	445	0.3000	10	46.88	0.1134	6.4	2.646	17.5x28x5.4	11
0.016	5.5	163DFC5R5Z	.044	500	.0672	6	35.38	.0846	1.9	.795	12x12x4.8	8
0.02	4.2	203DFC4R2Z	0.042	360	0.0490	6	30.63	0.0838	1.6	0.585	12.5x12x3.9	8
0.025	3.5	253DFC3R5Z	0.0438	300	0.0425	6	26.6	0.0834	1.6	0.51	12.5x12x3.4	8
0.03	5.5	303DFC5R5Z	0.0825	280	0.1260	8	37.07	0.0883	3.4	1.428	17.5x17x4.8	11
0.035	6.3	353DFC6R3Z	0.1103	23	0.1929	10	36.4	0.1158	5.3	1.666	17.5x28x3.4	11
0.04	4.2	403DFC4R2Z	0.084	180	0.0980	8	29.7	0.0845	3.3	1.1603	17.5x17x3.9	11
0.04	4.2	403DFC4R2ZH28	0.084	170	0.0980	12	23.33	0.1053	4.2	0.931	17.5x28x1.9	11
0.04	5.5	403DFC5R5Z	0.11	200	0.1681	10	35	0.1106	4.8	1.519	17.5x28x3.1	11
0.05	3.5	503DFC3R5Z	0.0875	150	0.0851	8	25.78	0.0841	3.3	1.0115	17.5x17x3.4	11
0.05	4.2	503DFC4R2Z	0.105	150	0.1225	10	27.22	0.0962	4.5	1.274	17.5x28x2.6	11
0.06	3.5	603DFC3R5Z	0.105	130	0.1021	10	23.74	0.0868	4.3	1.176	17.5x28x2.4	11
0.07	6.3	703DFC6R3Z	0.2205	115	0.3859	20	61.3	0.1458	6.3	2.646	17.5x28x5.4	11
0.08	2.1	803DFC2R1Z	0.084	90	0.0490	8	15.3	0.0659	3.2	0.7438	17.5x17x2.5	11
0.08	5.5	803DFC5R5Z	0.22	100	0.3361	20	58.97	0.1429	5.7	2.352	17.5x28x4.8	11
0.1	4.2	104DFC4R2Z	0.21	75	0.2450	20	45.4	0.1282	5.4	1.911	17.5x28x3.9	11
0.12	3.5	124DFC3R5Z	0.21	65	0.2042	20	77.2	0.1225	5.3	1.666	17.5x28x3.4	11
0.12	12	124DFC012Z	0.72	70	2.4000	65	38.52	0.1782	31.1	13.469	30.5x48x9.2	22.3
0.165	9	164DFC009Z	0.7425	50	1.8563	65	73.66	0.1761	25.2	10.541	30.5x48x7.2	22.3
0.245	6.3	244DFC6R3Z	0.7718	35	1.3506	65	62.24	0.1741	21.7	7.7592	30.5x48x5.3	22.3
0.28	5.5	284DFC5R5Z	0.77	30	1.1764	65	55.5	0.1674	21.2	7.0272	30.5x48x4.8	22.3
0.35	4.2	354DFC4R2Z	0.735	25	0.8575	65	42.88	0.1502	20	5.7096	30.5x48x3.9	22.3
0.42	3.5	424DFC3R5Z	0.735	20	0.7146	65	36.65	0.1436	19.5	4.9776	30.5x48x3.4	22.3
0.7	2.1	704DFC2R1Z	0.735	11	0.4288	65	23.18	0.1171	18.5	3.66	30.5x48x2.5	22.3

Flat pin (Gull Wing) versions available upon request. Add V3L to end of part number for Gull wing leads.

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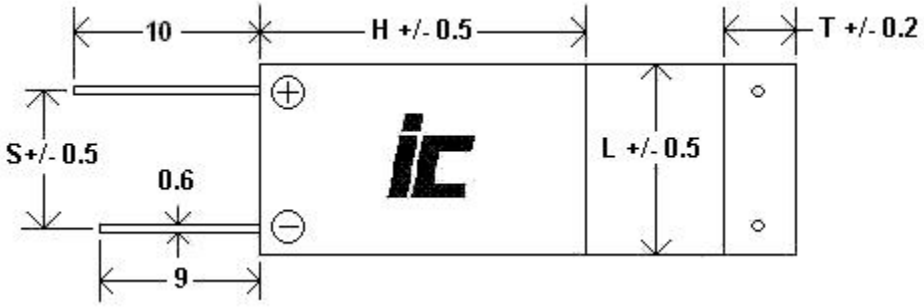
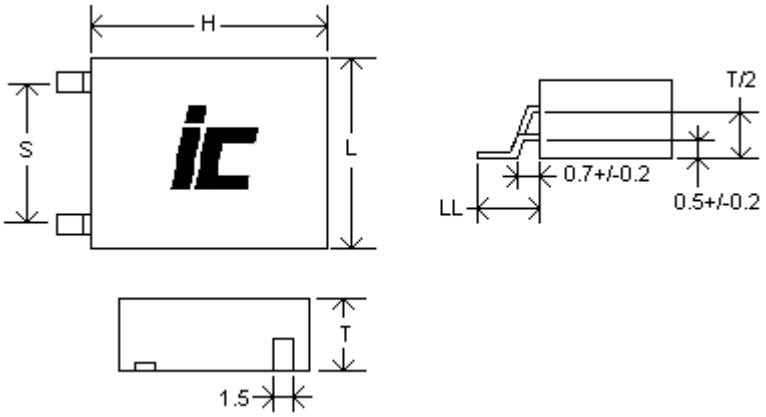
DFC Flat Super capacitor

Lead styles

Radial Leaded



Flat pin (Gull Wing)



Lead spacing vs. length (mm)			
Length (L)	12.5	17.5	30.5
Lead spacing (S)	8	11	22.3
Lead Length (LL)	2.7	3.7	3.7

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Soldering Requirements

Supercapacitors are not to be exposed to reflowing soldering.

Hand soldering

At no time is the soldering iron to touch the capacitor body.
Soldering iron temperature is to be limited to 360°C
with an exposure time limited to 8 seconds

Wave soldering

The following table has the recommended wave soldering profiles for Lead free and tin/lead wave soldering processes. Wave soldering is only applicable for radial leaded version only.

Profile feature	Sn-Pb system	Pb-free (RoHS) system
Solder melting point	183C	217C to 227C
Peak temperature	235C	260C
Contact (Dwell) time in the solder (includes Chip Wave and Maine Wave)	1.5 – 3.5 sec (2.5 - 3 seconds most common)	1.5 – 3.5 sec (2.5 - 3 seconds most common)
Topside Preheat Temperature	75C -100C	105C – 120C
Bottom side Preheat Temperature	about 35C higher than topside	about 35C higher than topside
Maximum Ramp-up rate of topside (to avoid component damage)	2C/sec	2C/sec
Conveyor speed	0.9 – 1.8 m/min	0.9 – 1.8 m/min
Solder pot temperature	240C – 250C	255C – 265C
Ramp-down rate	4C/sec max.	4C/sec max.

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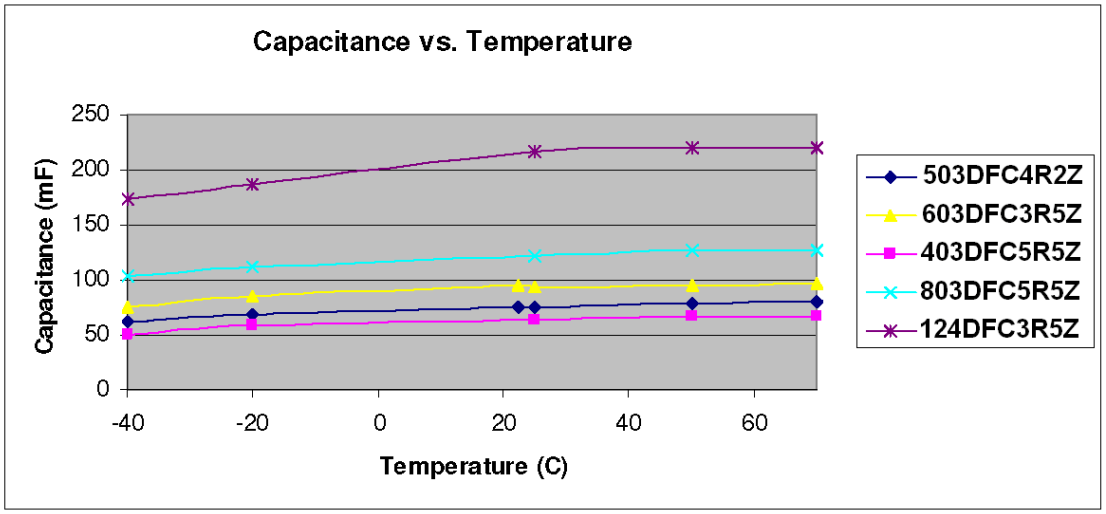

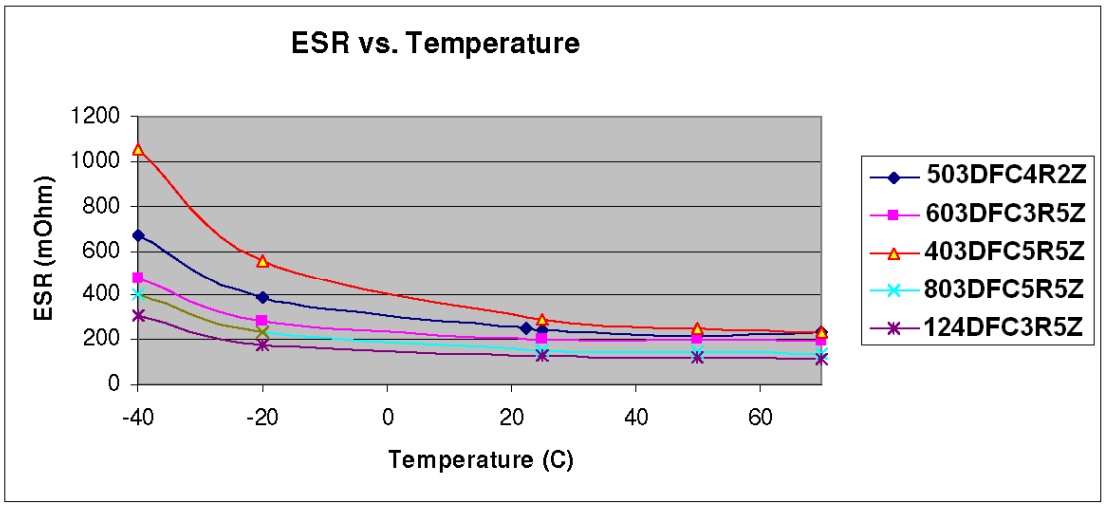

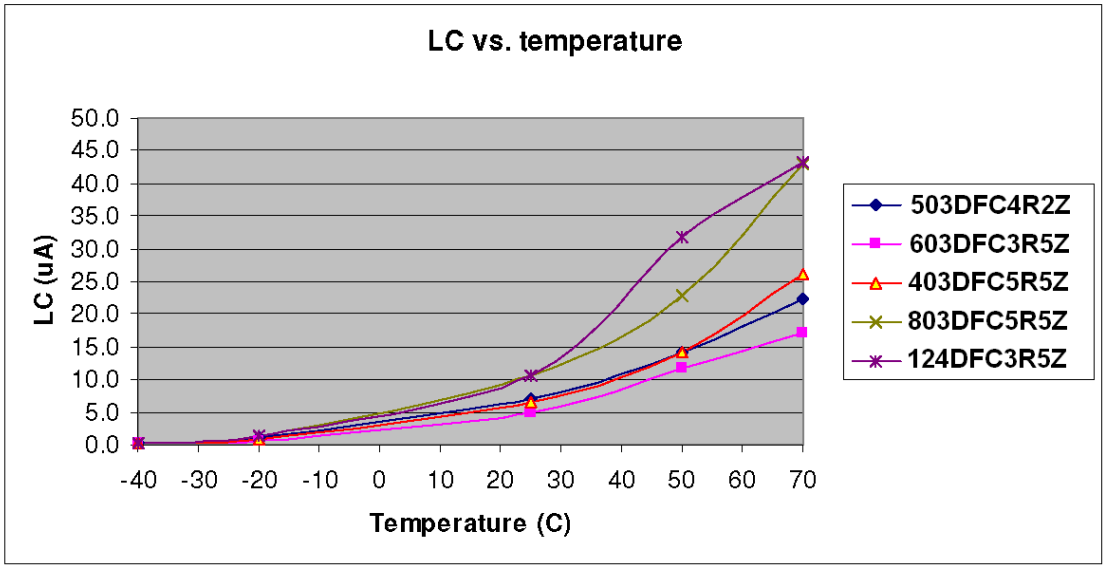

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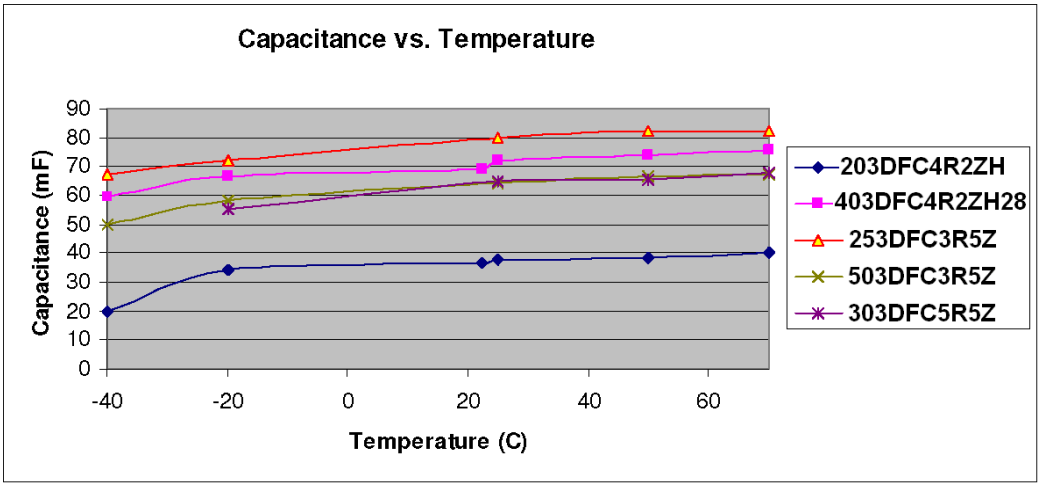

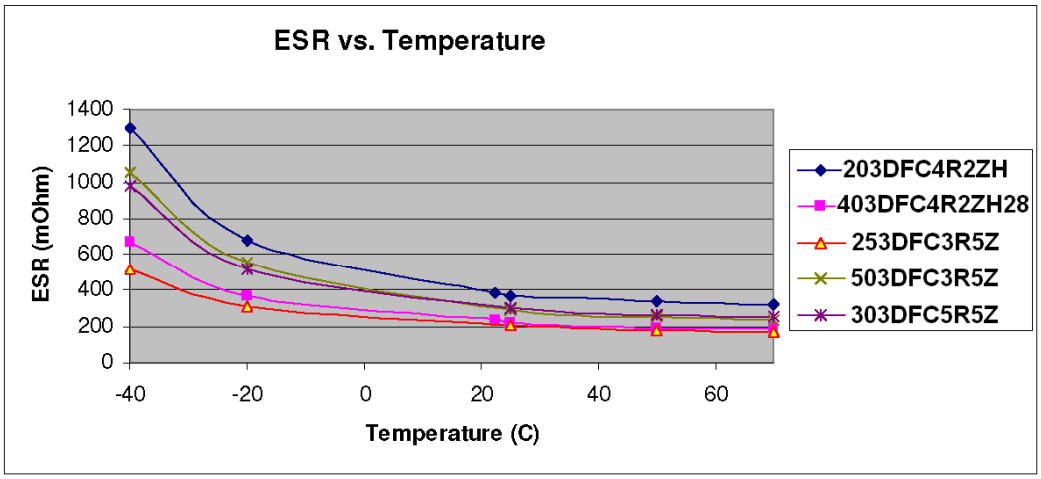

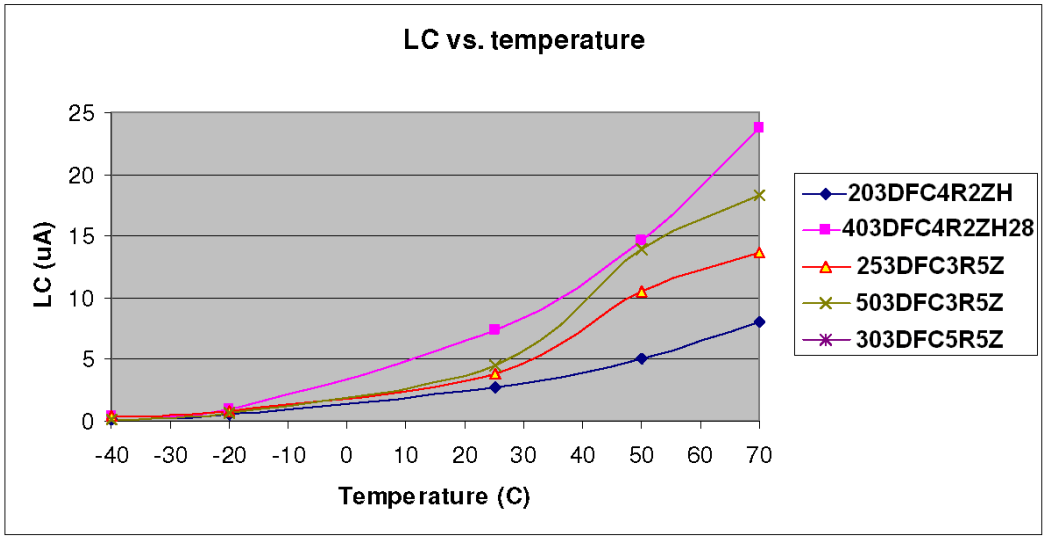

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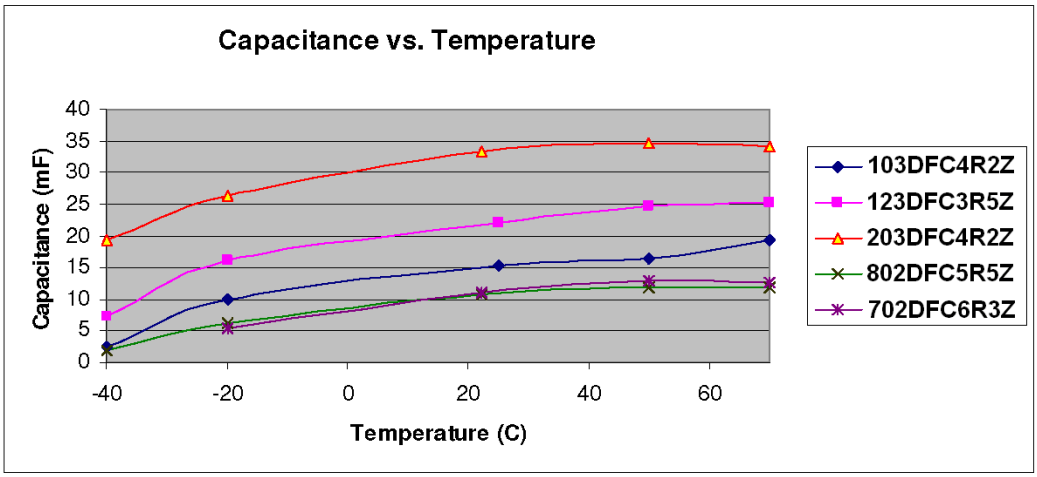

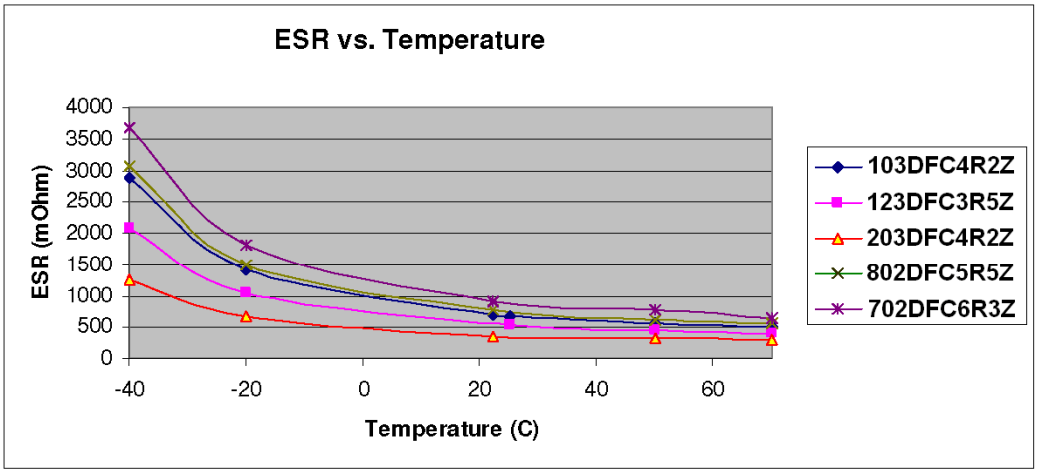

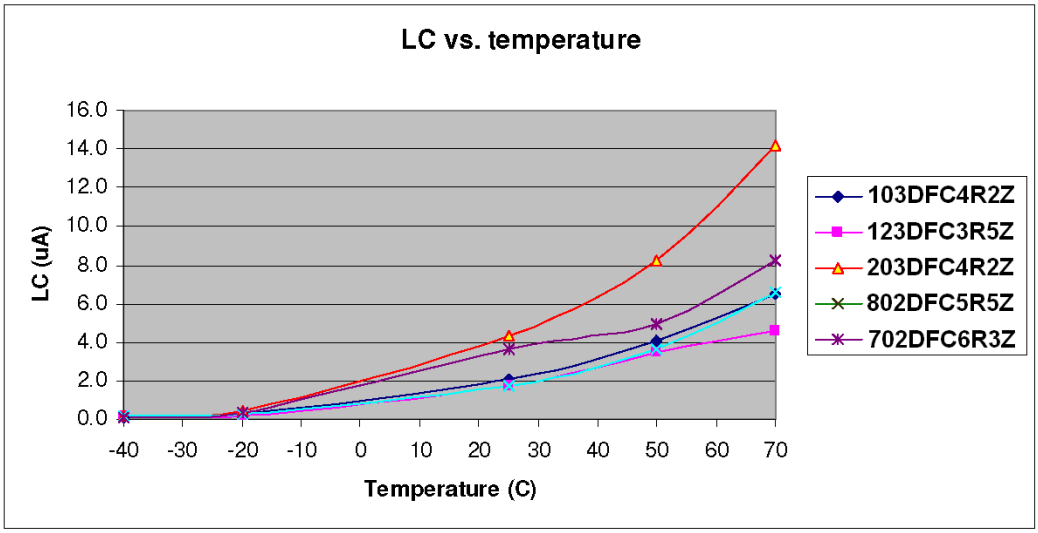

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