

ENERGY STORAGE INNOVATOR **STARCAP**

ELECTRIC DOUBLE LAYER CAPACITOR



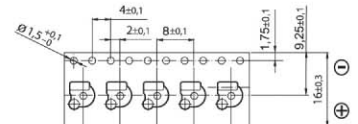
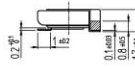
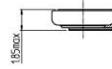
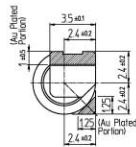
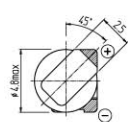
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ENERGY STORAGE INNOVATOR
KORCHIP
ISO9001 · 14001 / RoHS Compliant

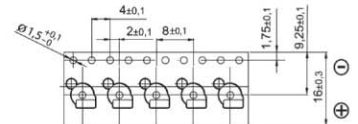
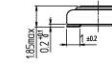
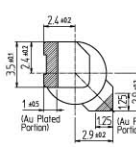
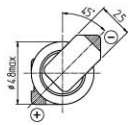
SM 414 (0.07F)



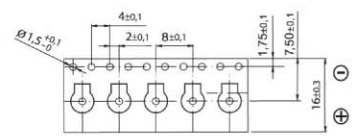
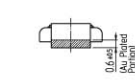
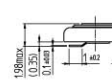
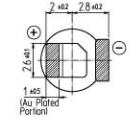
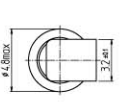
T01



T02



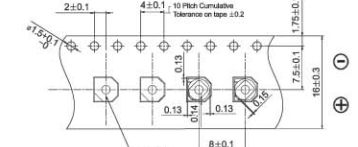
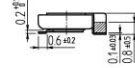
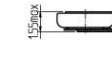
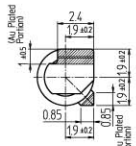
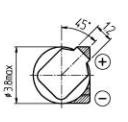
R01



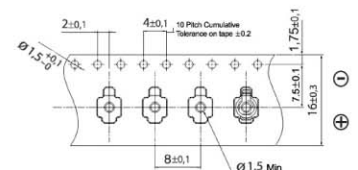
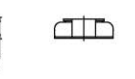
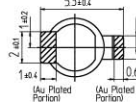
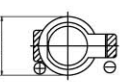
SM 311 (0.033F)



T01



H01

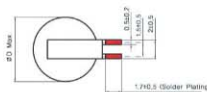


Part number	Operating voltage (V)	Capacitance (F)	ESR (Ω , @1kHz)	Cell Size ϕ DxT (mm)
SM 3R3 703	3.3	0.07	≤ 100	$\phi 4.8 \times 1.4$
SM 3R3 333	3.3	0.033	≤ 200	$\phi 3.8 \times 1.1$
SM 3R3 203*	3.3	0.020	≤ 400	$\phi 3.8 \times 0.7$

* SM 3R3 203(SM307) is under development and specifications may be changed.

DMS Series

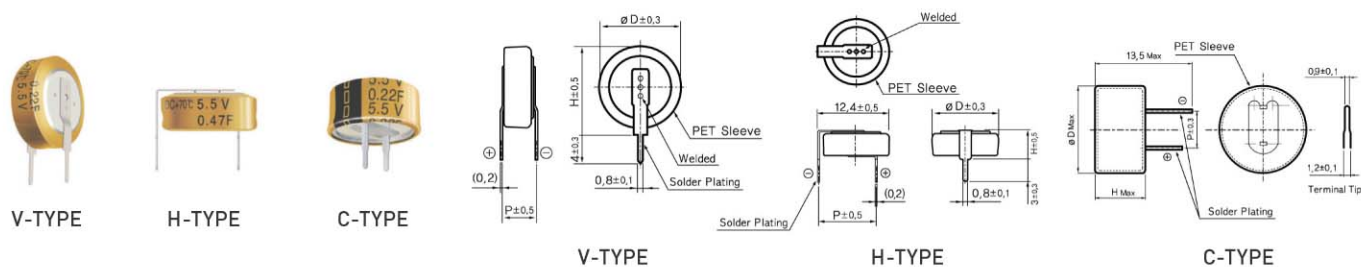
STARCAP DMS Series



Part number	Operating voltage (V)	Capacitance (F)	ESR (Ω , @1kHz)	Cell Size ϕ DxT (mm)
DMS 3R3 204	3.3	0.20	≤ 200	$\phi 6.8 \times 1.4$
DMS 3R3 224	3.3	0.22	≤ 200	$\phi 6.8 \times 1.4$
DMS 3R3 304	3.3	0.30	≤ 200	$\phi 6.8 \times 1.4$

DCS / DCST Series

STARCAP DCS,DCST Series



Part number	Operating voltage (V)	Capacitance (F)	ESR (Ω ,@1kHz)	V type (mm)			H type (mm)			C type (mm)		
				ϕD	H	P	ϕD	H	P	ϕD	H	P
DCS 5R5 473	5.5	0.047	≤ 120	11.5	12.5	5.0	11.5	5.5	10.0	13.5	6.5	5.0
DCS 5R5 104		0.10	≤ 75	11.5	12.5	5.0	11.5	5.5	10.0	13.5	6.5	5.0
DCS 5R5 224		0.22	≤ 75	11.5	12.5	5.0	11.5	5.5	10.0	13.5	6.5	5.0
DCS 5R5 334		0.33	≤ 50	11.5	12.5	5.0	11.5	5.5	10.0	13.5	6.5	5.0
DCS 5R5 474		0.47	≤ 50	11.5	12.5	5.0	11.5	5.5	10.0	13.5	6.5	5.0
DCST 3R6 224	3.6	0.22	≤ 75	11.5	12.5	5.0	11.5	5.5	10.0	13.5	6.5	5.0
DCST 3R6 334		0.33	≤ 50	11.5	12.5	5.0	11.5	5.5	10.0	13.5	6.5	5.0

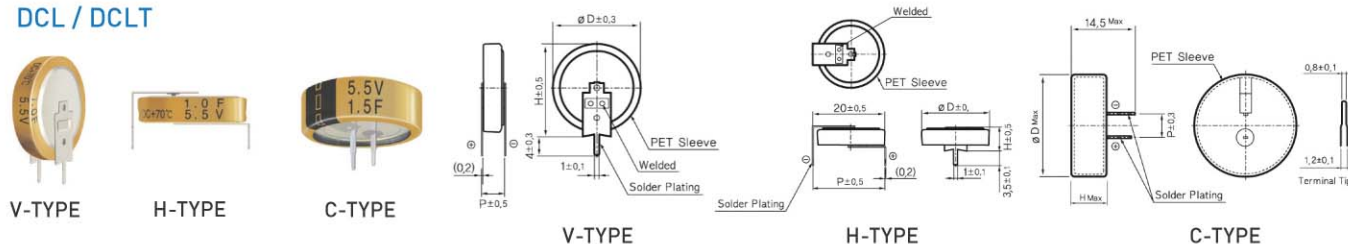
* Auto-insertionable taping type packing available (See DA Series A-Type)

* DCST Series is designed for higher temperature application up to 85°C

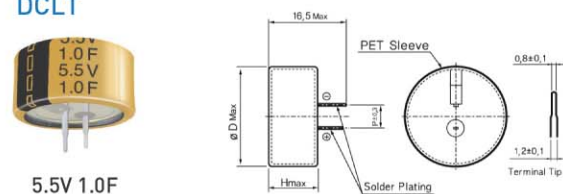
DCL / DCLT / DCLH Series

STARCAP DCL,DCLT,DCLH Series

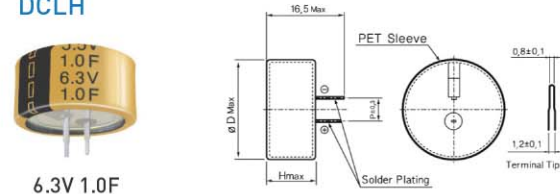
DCL / DCLT



DCLT



DCLH



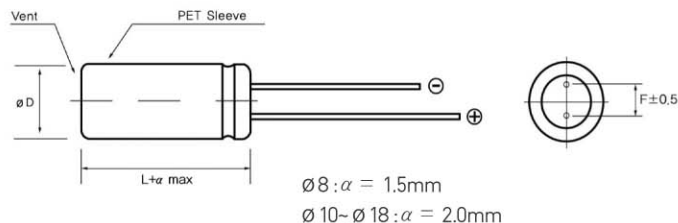
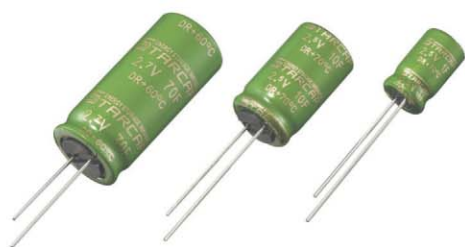
Part number	Operating voltage (V)	Capacitance (F)	ESR (Ω ,@1kHz)	V type (mm)			H type (mm)			C type (mm)		
				ϕD	H	P	ϕD	H	P	ϕD	H	P
DCL 5R5 105	5.5	1.0	≤ 30	19.0	19.5	5.0	19.0	6.5	20.0	21.5	7.5	5.0
DCL 5R5 155		1.5	≤ 30	19.0	19.5	5.0	19.0	6.5	20.0	21.5	7.5	5.0
DCLT 3R6 105	3.6	1.0	≤ 30	19.0	19.5	5.0	19.0	6.5	20.0	21.5	7.5	5.0
DCLT 5R5 474	5.5	0.47	≤ 50							21.5	9.5	5.0
DCLT 5R5 684		0.68	≤ 50							21.5	9.5	5.0
DCLT 5R5 105		1.0	≤ 30							21.5	9.5	5.0
DCLH 6R3 474	6.3	0.47	≤ 50							21.5	9.5	5.0
DCLH 6R3 684		0.68	≤ 50							21.5	9.5	5.0
DCLH 6R3 105		1.0	≤ 30							21.5	9.5	5.0

* DCLT Series is designed for higher temperature application up to 85°C

* DCLH Series is designed for higher operational voltage application up to 6.3V

DR / HP Series

STARCAP DR,HP Series



DR Part number	Capacitance (F)	ESR (Ω , @1kHz)	HP Part number	Capacitance (F)	ESR (Ω , @1kHz)	Operating voltage (V)	Operating temperature	ø DxL (mm)	F(mm)
DR 2R3 106	10	≤ 0.060				2.3	-25~60°C	ø 10x20	5.0
DR 2R3 206	20	≤ 0.050						ø 10x25	5.0
DR 2R3 306	30	≤ 0.035						ø 12.5x25	5.0
DR 2R3 506	50	≤ 0.025						ø 16x25	7.5
DR 2R3 706	70	≤ 0.022						ø 16x35	7.5
DR 2R3 127	120	≤ 0.020						ø 18x40	7.5
DR 2R5 105	1	≤ 0.300				2.5	-25~70°C	ø 8x13	3.5
DR 2R5 305	3	≤ 0.150	HP 2R5 155	1.5	≤ 0.125			ø 8x20	3.5
DR 2R5 335	3.3	≤ 0.150						ø 8x20	3.5
DR 2R5 505	5	≤ 0.120	HP 2R5 205	2	≤ 0.110			ø 8x25	3.5
DR 2R5 505S	5	≤ 0.120	HP 2R5 305	3	≤ 0.090			ø 10x20	5.0
DR 2R5 705	7	≤ 0.100						ø 10x20	5.0
DR 2R5 106	10	≤ 0.070	HP 2R5 405	4	≤ 0.080			ø 10x25	5.0
DR 2R5 106S	10	≤ 0.070	HP 2R5 555	5.5	≤ 0.050			ø 12.5x20	5.0
DR 2R5 156	15	≤ 0.050	HP 2R5 805	8	≤ 0.035			ø 12.5x25	5.0
DR 2R5 256	25	≤ 0.030	HP 2R5 156	15	≤ 0.025			ø 16x25	7.5
DR 2R5 356	35	≤ 0.025	HP 2R5 206	20	≤ 0.020			ø 16x35	7.5
DR 2R5 506	50	≤ 0.021						ø 18x40	7.5
DR 2R5 706	70	≤ 0.020	HP 2R5 306	30	≤ 0.015			ø 18x40	7.5
DR 2R7 105	1	≤ 0.200				2.7	-40~60°C	ø 8x13	3.5
DR 2R7 305	3	≤ 0.075	HP 2R7 155	1.5	≤ 0.050			ø 8x20	3.5
DR 2R7 335	3.3	≤ 0.075						ø 8x20	3.5
DR 2R7 505	5	≤ 0.060	HP 2R7 205	2	≤ 0.045			ø 8x25	3.5
DR 2R7 505S	5	≤ 0.060	HP 2R7 305	3	≤ 0.040			ø 10x20	5.0
DR 2R7 705	7	≤ 0.050						ø 10x20	5.0
DR 2R7 106	10	≤ 0.035	HP 2R7 405	4	≤ 0.030			ø 10x25	5.0
DR 2R7 106S	10	≤ 0.035	HP 2R7 555	5.5	≤ 0.028			ø 12.5x20	5.0
DR 2R7 156	15	≤ 0.030	HP 2R7 805	8	≤ 0.024			ø 12.5x25	5.0
DR 2R7 256	25	≤ 0.020	HP 2R7 156	15	≤ 0.020			ø 16x25	7.5
DR 2R7 356	35	≤ 0.018	HP 2R7 206	20	≤ 0.018			ø 16x35	7.5
DR 2R7 506	50	≤ 0.017						ø 18x40	7.5
DR 2R7 706	70	≤ 0.016	HP 2R7 306	30	≤ 0.015			ø 18x40	7.5

SR Series

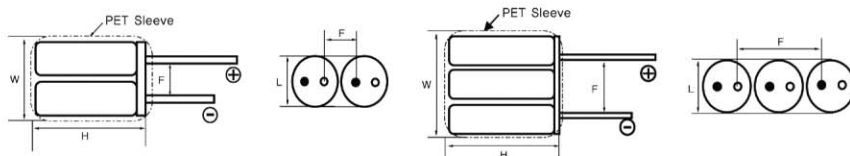
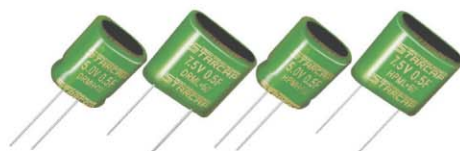
STARCAP SR Series



Part number	Operating voltage (V)	Capacitance (F)	ESR (Ω , @1kHz)	ø DxL (mm)	F (mm)
SR 2R5 154	2.5	0.15	≤ 13	ø 4.0x7.0	1.5
SR 2R5 304		0.30	≤ 6	ø 5.2x12.0	2.0
SR 2R5 704		0.70	≤ 3	ø 4.0x25.0	1.5
SR 2R7 154	2.7	0.15	≤ 10	ø 4.0x7.0	1.5
SR 2R7 304		0.30	≤ 5	ø 5.2x12.0	2.0

DRM / HPM Series

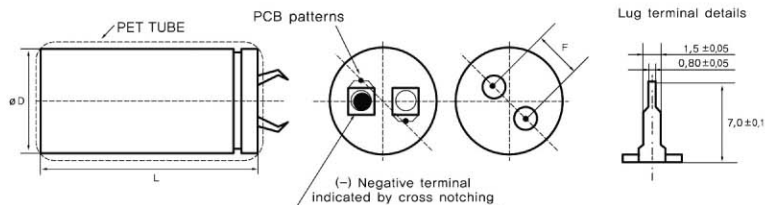
STARCAP DRM, HPM Series



DRM Part number	Capacitance (F)	ESR (Ω , @1kHz)	HPM Part number	Capacitance (F)	ESR (Ω , @1kHz)	Operating voltage (V)	Operating temperature	WxLxH (mm)	F (mm)
DRMH 5R0 504	0.5	≤ 0.600				5.0	-25~70°C	16.5x8.0x14.0	5.2/12.5
DRMH 5R0 155	1.5	≤ 0.300	HPMH 5R0 504	0.5	≤ 0.250			16.5x8.0x21.0	5.2/12.5
DRMH 5R0 255	2.5	≤ 0.240	HPMH 5R0 105	1.0	≤ 0.220			16.5x8.0x26.0	5.2/12.5
DRMH 5R0 255S	2.5	≤ 0.240	HPMH 5R0 155	1.5	≤ 0.180			20.5x10.0x21.0	5.3
DRMH 5R0 355	3.5	≤ 0.200						20.5x10.0x21.0	5.3
DRMH 5R0 505	5.0	≤ 0.150	HPMH 5R0 205	2.0	≤ 0.150			20.5x10.0x26.0	5.3
DRMH 5R0 505S	5.0	≤ 0.150	HPMH 5R0 255	2.5	≤ 0.100			25.5x12.5x21.0	7.0
DRMH 5R0 755	7.5	≤ 0.110	HPMH 5R0 405	4.0	≤ 0.070			25.5x12.5x26.0	7.0
DRML 5R0 504	0.5	≤ 0.400					-40~60°C	16.5x8.0x14.0	5.2/12.5
DRML 5R0 155	1.5	≤ 0.150	HPML 5R0 504	0.5	≤ 0.100			16.5x8.0x21.0	5.2/12.5
DRML 5R0 255	2.5	≤ 0.120	HPML 5R0 105	1.0	≤ 0.090			16.5x8.0x26.0	5.2/12.5
DRML 5R0 255S	2.5	≤ 0.120	HPML 5R0 155	1.5	≤ 0.070			20.5x10.0x21.0	5.3
DRML 5R0 355	3.5	≤ 0.100						20.5x10.0x21.0	5.3
DRML 5R0 505	5.0	≤ 0.080	HPML 5R0 205	2.0	≤ 0.060			20.5x10.0x26.0	5.3
DRML 5R0 505S	5.0	≤ 0.070	HPML 5R0 255	2.5	≤ 0.058			25.5x12.5x21.0	7.0
DRML 5R0 755	7.5	≤ 0.060	HPML 5R0 405	4.0	≤ 0.048			25.5x12.5x26.0	7.0
DRMH 7R5 504	0.5	≤ 0.900				7.5	-25~70°C	25.0x8.0x14.0	14.0
DRMH 7R5 105	1.0	≤ 0.450	HPMH 7R5 504	0.5	≤ 0.380			25.0x8.0x21.0	14.0
DRMH 7R5 155	1.5	≤ 0.360	HPMH 7R5 754	7.5	≤ 0.350			25.0x8.0x26.0	14.0
DRMH 7R5 155S	1.5	≤ 0.360						31.0x10.0x21.0	17.0
DRMH 7R5 205	2.0	≤ 0.300	HPMH 7R5 105	1.0	≤ 0.280			31.0x10.0x21.0	17.0
DRMH 7R5 305	3.0	≤ 0.250						31.0x10.0x26.0	17.0
DRMH 7R5 305S	3.0	≤ 0.250	HPMH 7R5 155	1.5	≤ 0.160			38.5x12.5x21.0	20.5
DRMH 7R5 505	5.0	≤ 0.150	HPMH 7R5 255	2.5	≤ 0.110			38.5x12.5x26.0	20.5
DRML 7R5 504	0.5	≤ 0.600					-40~60°C	25.0x8.0x14.0	14.0
DRML 7R5 105	1.0	≤ 0.225	HPML 7R5 504	0.5	≤ 0.150			25.0x8.0x21.0	14.0
DRML 7R5 155	1.5	≤ 0.180	HPML 7R5 754	7.5	≤ 0.140			25.0x8.0x26.0	14.0
DRML 7R5 155S	1.5	≤ 0.180						31.0x10.0x21.0	17.0
DRML 7R5 205	2.0	≤ 0.150	HPML 7R5 105	1.0	≤ 0.125			31.0x10.0x21.0	17.0
DRML 7R5 305	3.0	≤ 0.100						31.0x10.0x26.0	17.0
DRML 7R5 305S	3.0	≤ 0.100	HPML 7R5 155	1.5	≤ 0.085			38.5x12.5x21.0	20.5
DRML 7R5 505	5.0	≤ 0.090	HPML 7R5 255	2.5	≤ 0.075			38.5x12.5x26.0	20.5

DL Series

STARCAP DL Series

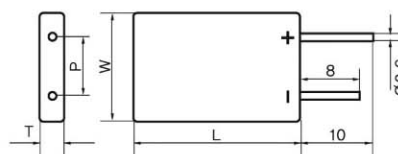


Part number	Operating voltage (V)	Capacitance (F)	ESR		Emax (Wh/kg)	I _{rated} (A)	ø D x L (mm)	F (mm)
			(m Ω , @AC1kHz)	(m Ω , DC)				
DL 2R5 107	2.5	100	≤ 18	≤ 27	3.72	11	ø 22x45	10
DL 2R5 367		360	≤ 16	≤ 12	4.04	25	ø 35x60	10
DL 2R5 407*		400	≤ 12	≤ 18	4.56	8	ø 35x60	10
DL 2R7 107	2.7	100	≤ 9	≤ 14	4.82	20	ø 22x45	10
DL 2R7 367		360	≤ 6	≤ 9	5.47	45	ø 35x60	10
DL 2R7 407*		400	≤ 8	≤ 12	5.87	15	ø 35x60	10

* DL 2R5 407 and DL 2R7 407 products are suitable for energy back-up application such as solar LED lamps.

DT Series

STARCAP DT Series



Part number	Operating voltage (V)	Capacitance (F)	ESR (mΩ ,@1kHz)	Leakage current (μA)	W x L x T x P (mm)
DT 3R5 123	3.5	12	600	≤ 3	12.5 x 12 x 2.4 x 8
DT 3R5 253	3.5	25	300	≤ 6	12.5 x 12 x 3.4 x 8
DT 3R5 503	3.5	50	150	≤ 12	17.5 x 17 x 3.4 x 11
DT 3R5 603	3.5	60	130	≤ 10	17.5 x 28 x 2.4 x 11
DT 3R5 124	3.5	120	65	≤ 20	17.5 x 28 x 3.4 x 11
DT 4R2 103	4.2	10	720	≤ 3	12.5 x 12 x 2.6 x 8
DT 4R2 203	4.2	20	360	≤ 6	12.5 x 12 x 3.9 x 8
DT 4R2 403	4.2	40	180	≤ 12	17.5 x 17 x 3.9 x 11
DT 4R2 503	4.2	50	150	≤ 10	17.5 x 28 x 2.6 x 11
DT 4R2 104	4.2	100	75	≤ 20	17.5 x 28 x 3.9 x 11
DT 5R5 163	5.5	16	500	≤ 6	12.5 x 12 x 4.8 x 8
DT 5R5 303	5.5	30	280	≤ 12	17.5 x 17 x 4.8 x 11
DT 5R5 403	5.5	40	200	≤ 10	17.5 x 28 x 3.1 x 11
DT 5R5 803	5.5	80	100	≤ 20	17.5 x 28 x 4.8 x 11
DT 6R3 123	6.3	12	600	≤ 6	12.5 x 12 x 5.3 x 8
DT 6R3 353	6.3	35	230	≤ 10	17.5 x 28 x 3.4 x 11
DT 6R3 703	6.3	70	115	≤ 20	17.5 x 28 x 5.4 x 11
DT 12R6 153	12.6	15	445	≤ 10	17.5 x 28 x 5.4 x 11

DP Series

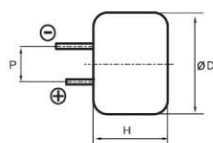
STARCAP DP Series



5.5V 0.47F



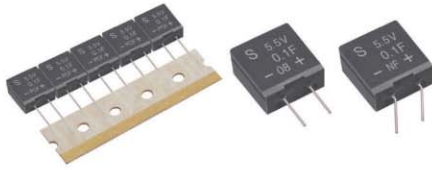
5.5V 1.0F



Part number	Operating voltage (V)	Capacitance (F)	ESR (Ω ,@1kHz)	ØD x H x P (mm)
DP 3R6 155	3.6	1.5	≤ 15	Ø21.5 x 11.5 x 7.6
DP 3R6 335		3.3	≤ 10	Ø28.5 x 12.5 x 10.0
DP 3R6 705		7.0	≤ 10	Ø28.5 x 20.0 x 10.0
DP 4R5 335	4.5	3.3	≤ 10	Ø28.5 x 16.5 x 10.0
DP 5R5 474	5.5	0.47	≤ 40	Ø16.5 x 15.5 x 5.0
DP 5R5 105		1.0	≤ 15	Ø21.5 x 15.5 x 7.6
DP 5R5 225		2.2	≤ 10	Ø28.5 x 16.5 x 10.0
DP 5R5 475		4.7	≤ 10	Ø28.5 x 27.5 x 10.0
DP 9R0 474	9.0	0.47	≤ 8	Ø28.5 x 24.5 x 10.0
DP 9R0 105		1.0	≤ 8	Ø28.5 x 24.5 x 10.0

DA Series

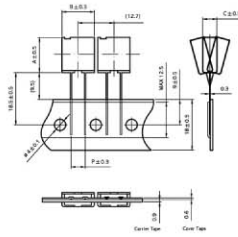
STARCAP DA Series



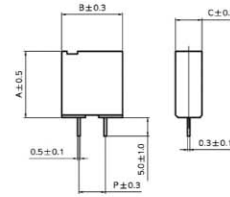
A-TYPE

V-TYPE

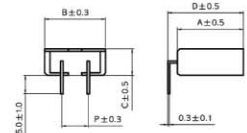
H-TYPE



A-TYPE



V-TYPE



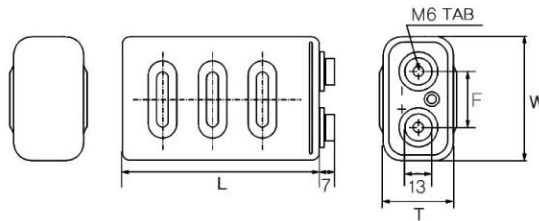
D: 12.0mm (223, 473)
14.0mm (104)

H-TYPE

Part number	Operating voltage (V)	Capacitance (F)	ESR (Ω , @1kHz)	A x B x C x P (mm)
DA 5R5 223	5.5	0.022	≤ 150	10.5 x 9.5 x 5.0 x 5.0
DA 5R5 473		0.047	≤ 60	10.5 x 9.5 x 5.0 x 5.0
DA 5R5 104		0.10	≤ 60	12.5 x 11.5 x 5.0 x 5.0

DXL Series

STARCAP DXL Series



Part number	Operating voltage (V)	Capacitance (F)	ESR		Emax (Wh/kg)	Irated (A)	WxTxL (mm)	F (mm)
			(m Ω , @AC1kHz)	(m Ω , DC)				
DXL 2R5 907	2.5	900	≤ 1.3	≤ 2.6	3.40	140	60x34x103	27
DXL 2R5 128	2.5	1200	≤ 1.0	≤ 2.0	4.22	220	60x34x103	27
DXL 2R5 308*	2.5	3000	≤ 0.7	≤ 1.3	4.74	520	60x50x141	27
DXL 2R7 907	2.7	900	≤ 1.0	≤ 2.0	4.34	180	60x34x103	27
DXL 2R7 128	2.7	1200	≤ 0.7	≤ 1.3	5.45	300	60x34x103	27
DXL 2R7 308*	2.7	3000	≤ 0.4	≤ 0.7	6.08	690	60x50x141	27

* DXL 2R5 308 and DXL 2R7 308 products are under development and specifications may be changed.

STARCAP Modules

STARCAP Module

* Customized STARCAP modules are available.

* Table below shows some typical module products.

Part number	Operating voltage (V)	Capacitance (F)	Module Formation
MOD 015-166	15	16	DL 2R7 107 (or DL 2R5 107) x 6 in series
MOD 015-606		60	DL 2R7 367 (or DL 2R5 367) x 6 in series
MOD 015-157		150	DXL 2R7 907 (or DXL 2R5 907) x 6 in series
MOD 015-207		200	DXL 2R7 128 (or DXL 2R5 128) x 6 in series
MOD 030-805	30	8	DL 2R7 107 (or DL 2R5 107) x 12 in series
MOD 030-306		30	DL 2R7 367 (or DL 2R5 367) x 12 in series
MOD 030-756		75	DXL 2R7 907 (or DXL 2R5 907) x 12 in series
MOD 030-107		100	DXL 2R7 128 (or DXL 2R5 128) x 12 in series
MOD 050-505	50	5	DL 2R7 107 (or DL 2R5 107) x 20 in series
MOD 050-186		18	DL 2R7 367 (or DL 2R5 367) x 20 in series
MOD 050-456		45	DXL 2R7 907 (or DXL 2R5 907) x 20 in series
MOD 050-606		60	DXL 2R7 128 (or DXL 2R5 128) x 20 in series

General STARCAP Application Matrix

	RTC, Memory or System Back-up Power	Sub Power with other Power Sources	Main Power
Extra Small Size	GSM Phone, Smart phone, MP3P, PMP, GPS, Digital Camera, Digital Photo Frame, Digital Thermometer	Motor Drive, Pulse Power, AMR, LED Flash	Small Motor Drive
	SM / DMS Series 3.3V 0.033F~0.3F	SR / DT Series 2.5V, 2.7V 0.15F~0.7F	SR Series 2.5V, 2.7V 0.15F~0.7F
Small Size	AV, VCR, DVD Drive, Car Audio, Rice Cooker, Printer, Energy Meter		Bike Tail Lamp, Flash Lights, Remote Control
	DA / DCS / DCL Series 5.5V 0.022F~1.5F		DCS / DCL Series 5.5V 0.047F~1.5F
Medium Size	Car Black Box, Cash Register	RF Devices, VDSL Modem, Smart Meter(Gas or Water), Relay/Solenoid Starter	Toys, Solar Brick, Solar Road Sign
	DR / DRM / HP / HPM Series 2.5V, 2.7V, 5.0V, 7.5V 0.5F~70F	DR / DRM / HP / HPM Series 2.5V, 2.7V, 5.0V, 7.5V 0.5F~70F	DR / DRM / HP / HPM Series 2.5V, 2.7V, 5.0V, 7.5V 0.5F~70F
Large Size		Copier, Car Idling Stop and Go, Electric Vehicle	Smart Grid Energy Storage, Wind Turbine Pitch Control, UPS, SAG Protector, Truck Cold Cranking
		DL / DXL Series, Modules 2.5V, 2.7V 100F and above	DL / DXL Series, Modules 2.5V, 2.7V 100F and above

※ This Product Catalog is Released on April 1, 2011

Specifications may be changed without notification for market demands and technical improvement.

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