

FEATURES

- TRS 5 (Size code 5 = low profile).
- Compact size with low impedance at high frequency.
- Long life +105°C (2000 hours for Ø6.3mm, 3000 hours for Ø8mm and 10mm, 5000 hours for Ø ≤ 13mm).
- Solvent resistant.

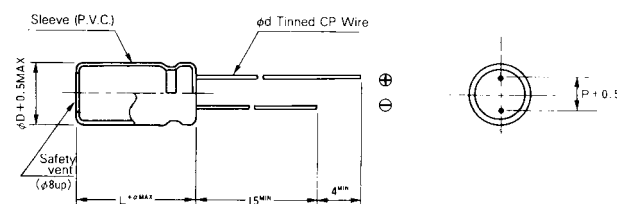
PART NUMBERING

Part Number Example: TRS-050/100M5X11F						
TRS	-	050	/	100	M	5X11 F
Type		Rated DC Voltage		Capacitance Code (μF)*	Tolerance Code	Size
* Capacitance Code: First two digits represent significant figures, third digit represents multiplier (number of zeros).						

SPECIFICATIONS

Performance Characteristics								
Operating Temperature Range	-55°C ~ +105°C.							
Temperature Characteristics (120Hz)	Impedance Ratio							
	Rated Voltage (WVDC)	6.3	10	16	25	35	50	63
	Z (-55°C) / Z (+20°C)	4	4	3	3	3	2	2
Voltage Range	6.3VDC ~ 63VDC.							
Capacitance Range	0.47μF ~ 15000μF.							
Capacitance Tolerance (20°C, 120Hz)	±20%.							
Maximum Dissipation Factor (20°C, 120Hz)	Rated Voltage (WVDC)	6.3	10	16	25	35	50	63
	DF %	24	20	16	14	12	10	9
Maximum Leakage Current (after 1 minute)	I = 0.03CV or 4μA, whichever is greater.							
Applicable Standards	Characteristics of JIS C-5141.							
Load Life Test (105°C)	After 5000 hours' application of rated voltage, capacitors meet the characteristics requirements mentioned below. (dØ - 6.3, 2000 hours; 8 - dØ - 10, 3000 hours).							
	Capacitance Change	Within ±20% of initial value.						
	DF	200% or less of initial specified value.						
	Leakage Current	Initial specified value or less.						
Shelf Life (105°C)	After leaving capacitors under no load for 1000 hours and applying voltage according to JIS C-5102 4-3, they meet the specified value for load life characteristics listed above.							

DIMENSIONS



DIMENSIONS (UNIT: mm)

D	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
dØ	0.5			0.6		0.8	

*: dØ = 0.8 for 12.5Ø at L > 25.

α	(L < 20) 1.5 (L ≥ 20) 2.0
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ALLOWABLE RIPPLE CURRENT VS. AMBIENT TEMPERATURE

Ambient Temperature (°C)	~ +45	-65	-85	-105
Compensation Coefficiency	2.4	2.2	1.7	1

Frequency coefficient of allowable ripple current (10kHz ~ 200kHz = 1).

CASE SIZE OF STANDARD PRODUCTS (TRS5 (SIZE CODE 5 = LOW PROFILE)) (DØXL (mm))

Cap. (µf)	Code	WVDC													
		6.3		10		16		25		35		50		63	
		Size Code													
		-	5	-	5	-	5	-	5	-	5	-	5	-	5
0.47	R47											5 x 11			
0.68	R68											5 x 11			
1	010											5 x 11			
1.5	1R5											5 x 11			
2.2	2R2											5 x 11			
3.3	3R3											5 x 11			
4.7	4R7											5 x 11			
6.8	6R8											5 x 11			
10	100											5 x 11		5 x 11	
15	150											5 x 11		6.3 x 11	
22	220									5 x 11		6.3 x 11		6.3 x 11	
33	330							5 x 11		6.3 x 11		6.3 x 11		6.3 x 11	
47	470					5 x 11		6.3 x 11		6.3 x 11		6.3 x 15		8 x 11.5	
68	680			5 x 11		6.3 x 11		6.3 x 11		6.3 x 15		8 x 11.5		8 x 15	10 x 13
100	101	5 x 11		6.3 x 11		6.3 x 11		6.3 x 15		8 x 11.5		8 x 20	10 x 15	10 x 20	13 x 15
150	151	6.3 x 11		6.3 x 11		6.3 x 15		8 x 11.5		8 x 15	10 x 13	10 x 20	13 x 15	10 x 25	13 x 15
220	221	6.3 x 11		6.3 x 15		8 x 11.5		8 x 15	10 x 13	8 x 20	10 x 15	10 x 25	13 x 15	13 x 20	16 x 15
330	331	6.3 x 15		8 x 11.5		8 x 15	10 x 13	8 x 20	10 x 15	10 x 20	13 x 15	10 x 31.5	16 x 15	13 x 25	18 x 15
470	471	8 x 15	10 x 13	8 x 15	10 x 13	8 x 20	10 x 15	10 x 20	13 x 15	10 x 31.5	16 x 15	13 x 25	18 x 15	13 x 35.5	16 x 25
680	681	8 x 20	10 x 15	8 x 20	10 x 15	10 x 20	13 x 15	10 x 31.5	16 x 15	13 x 25	18 x 15	13 x 35.5	16 x 20	16 x 31.5	18 x 25
1000	102	10 x 20	13 x 15	10 x 20	13 x 15	10 x 31.5	16 x 15	13 x 25	18 x 15	13 x 31.5	16 x 20	16 x 31.5	18 x 25	16 x 40	18 x 35.5
1500	152	10 x 25	13 x 15	10 x 31.5	16 x 15	13 x 25	18 x 15	13 x 31.5	16 x 20	13 x 40	18 x 20	16 x 40	18 x 31.5		
2200	222	10 x 31.5	16 x 15	13 x 25	18 x 15	13 x 31.5	16 x 20	13 x 40	18 x 20	16 x 35.5	18 x 31.5	18 x 40			
3300	332	13 x 25	18 x 15	13 x 35.5	16 x 20	13 x 40	18 x 20	16 x 35.5	18 x 31.5	18 x 40					
4700	472	13 x 35.5	18 x 20	16 x 31.5	18 x 25	16 x 35.5	18 x 31.5	18 x 40							
6800	682	16 x 31.5	18 x 25	16 x 35.5	18 x 31.5	18 x 35.5									
10000	103	16 x 40	18 x 31.5	18 x 40											
15000	153	18 x 40													

For capacitance values or sizes not listed above, consult Factory or Area Representative.

QUICK GUIDE FOR PRODUCT SELECTION

Cap. (µF)	Code	6.3WVDC									
		Size Code									
		-					5				
		Case Size dØxL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)		Case Size dØxL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)	
			20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz		20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz
100	101	5 x 11	0.85	1.70	150	100					
150	151	6.3 x 11	0.49	0.98	220	155					
220	221	6.3 x 11	0.30	0.60	260	190					
330	331	6.3 x 15	0.20	0.40	405	310					
470	471	8 x 15	0.14	0.28	550	440	10 x 13	0.14	0.28	570	455
680	681	8 x 20	0.10	0.20	735	610	10 x 15	0.11	0.22	700	580
1000	102	10 x 20	0.075	0.15	950	825	13 x 15	0.085	0.17	885	765
1500	152	10 x 25	0.055	0.11	1220	1090	13 x 15	0.065	0.13	1040	935
2200	222	10 x 31.5	0.043	0.086	1470	1320	16 x 15	0.049	0.098	1340	1200
3300	332	13 x 25	0.034	0.068	1690	1520	18 x 15	0.039	0.078	1600	1440
4700	472	13 x 35.5	0.028	0.056	2100	1890	18 x 20	0.032	0.064	1920	1720
6800	682	16 x 31.5	0.024	0.048	2370	2130	18 x 25	0.027	0.054	2190	1970
10000	103	16 x 40	0.020	0.040	2750	2470	18 x 31.5	0.023	0.046	2490	2240
15000	153	18 x 40	0.018	0.036	2960	2660					

Cap. (μ F)	Code	10WVDC									
		Size Code									
		-					5				
		Case Size d ϕ xL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)		Case Size d ϕ xL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)	
			20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz		20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz
68	680	5 x 11	0.80	1.60	155	97					
100	101	6.3 x 11	0.55	1.30	220	145					
150	151	6.3 x 11	0.35	0.70	260	180					
220	221	6.3 x 15	0.24	0.48	370	270					
330	331	8 x 11.5	0.16	0.32	460	350					
470	471	8 x 15	0.12	0.24	590	470	10 x 13	0.13	0.26	590	470
680	681	8 x 20	0.085	0.17	790	655	10 x 15	0.090	0.18	775	640
1000	102	10 x 20	0.060	0.12	1060	915	13 x 15	0.065	0.13	1040	900
1500	152	10 x 31.5	0.045	0.090	1440	1290	16 x 15	0.050	0.10	1320	118
2200	222	13 x 25	0.034	0.068	1710	1530	18 x 15	0.039	0.078	1600	1440
3300	332	13 x 35.5	0.026	0.052	2140	1920	16 x 20	0.031	0.062	1850	1660
4700	472	16 x 31.5	0.023	0.046	2440	2190	18 x 25	0.026	0.052	2250	2020
6800	682	16 x 35.5	0.020	0.040	2690	2420	18 x 31.5	0.022	0.044	2540	2280
10000	103	18 x 40	0.017	0.034	3020	2710					

Cap. (μ F)	Code	16WVDC									
		Size Code									
		-					5				
		Case Size d ϕ xL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)		Case Size d ϕ xL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)	
			20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz		20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz
47	470	5 x 11	0.80	1.6	155	93					
68	680	6.3 x 11	0.50	1.0	225	140					
100	101	6.3 x 11	0.35	0.70	265	175					
150	151	6.3 x 15	0.23	0.46	375	260					
220	221	8 x 11.5	0.16	0.32	460	335					
330	331	8 x 15	0.12	0.24	590	450	10 x 13	0.12	0.24	625	480
470	471	8 x 20	0.090	0.18	770	615	10 x 15	0.090	0.18	760	605
680	681	10 x 20	0.065	0.13	1030	850	13 x 15	0.070	0.14	970	800
1000	102	10 x 31.5	0.047	0.094	1400	1210	16 x 15	0.055	0.11	1270	1100
1500	152	13 x 25	0.036	0.072	1620	1450	18 x 15	0.041	0.082	1540	1380
2200	222	13 x 31.5	0.028	0.056	2010	1800	16 x 20	0.033	0.066	1760	1580
3300	332	13 x 40	0.023	0.046	2390	2150	18 x 20	0.027	0.054	2110	1900
4700	472	16 x 35.5	0.020	0.040	2650	2380	18 x 31.5	0.023	0.046	2480	2230
6800	682	18 x 35.5	0.018	0.036	2890	2600					

Cap. (μ F)	Code	25WVDC									
		Size Code									
		-					5				
		Case Size d ϕ xL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)		Case Size d ϕ xL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)	
			20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz		20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz
33	330	5 x 11	0.80	1.60	150	85					
47	470	6.3 x 11	0.55	1.10	220	135					
68	680	6.3 x 11	0.36	0.72	260	160					
100	101	6.3 x 15	0.24	0.48	380	250					
150	151	8 x 11.5	0.16	0.32	455	315					
220	221	8 x 15	0.11	0.22	615	445	10 x 13	0.13	0.26	600	435
330	331	8 x 20	0.085	0.17	785	600	10 x 15	0.095	0.19	745	570
470	471	10 x 20	0.065	0.13	1010	800	13 x 15	0.070	0.14	980	780
680	681	10 x 31.5	0.046	0.092	1380	1140	16 x 15	0.055	0.11	1260	1040
1000	102	13 x 25	0.036	0.072	1640	1420	18 x 15	0.043	0.086	1490	1290
1500	152	13 x 31.5	0.029	0.058	1960	1760	16 x 20	0.034	0.068	1730	1550
2200	22	13 x 40	0.024	0.048	2360	2120	18 x 25	0.028	0.056	2020	1810
3300	332	16 x 35.5	0.020	0.040	2610	2340	18 x 31.5	0.023	0.046	2460	2210
4700	472	18 x 40	0.018	0.036	2960	2660					

Cap. (μF)	Code	35WVDC									
		Size Code									
		-					5				
		Case Size dØxL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)		Case Size ØDxL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)	
			20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz		20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz
22	220	5 x 11	0.75	1.50	160	83					
33	330	6.3 x 11	0.49	0.98	225	125					
47	470	6.3 x 11	0.34	0.68	265	155					
68	680	6.3 x 15	0.24	0.48	370	230					
100	101	8 x 11.5	0.16	0.32	465	305					
150	151	8 x 15	0.12	0.24	590	410	10 x 13	0.12	0.24	625	435
220	221	8 x 20	0.085	0.17	790	575	10 x 15	0.090	0.18	760	550
330	331	10 x 20	0.060	0.12	1030	790	13 x 15	0.065	0.13	1020	780
470	471	10 x 31.5	0.046	0.092	1420	1130	16 x 15	0.055	0.11	1280	1020
680	681	13 x 25	0.035	0.072	1610	1330	18 x 15	0.042	0.084	1490	1230
1000	102	13 x 31.5	0.029	0.058	1970	1710	16 x 20	0.034	0.068	1750	1520
1500	152	13 x 40	0.024	0.048	2360	2120	18 x 25	0.028	0.056	2040	1830
2200	22	16 x 35.5	0.020	0.040	2700	2430	18 x 31.5	0.023	0.046	2490	2240
3300	332	18 x 40	0.017	0.034	3040	2730					

Cap. (μF)	Code	50WVDC									
		Size Code									
		-					5				
		Case Size dØxL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)		Case Size ØDxL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)	
			20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz		20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz
0.47	R47	5 x 11	3.90	7.80	24	12					
0.68	R68	5 x 11	3.70	7.40	30	15					
1	O10	5 x 11	3.50	7.00	38	19					
1.5	IR5	5 x 11	3.30	6.60	46	23					
2.2	2R2	5 x 11	3.00	6.00	56	28					
3.3	3R3	5 x 11	2.60	5.20	70	35					
4.7	4R7	5 x 11	2.20	4.40	82	41					
6.8	6R8	5 x 11	1.80	3.60	92	46					
10	100	5 x 11	1.40	2.80	115	56					
15	150	5 x 11	0.93	1.86	145	70					
22	220	6.3 x 11	0.65	1.30	200	105					
33	330	6.3 x 11	0.43	0.86	235	130					
47	470	6.3 x 15	0.30	0.60	330	195					
68	680	8 x 11.5	0.20	0.40	410	255					
100	101	8 x 20	0.14	0.28	630	415	10 x 15	0.16	0.32	565	370
150	151	10 x 20	0.10	0.20	810	565	13 x 15	0.11	0.22	760	530
220	221	10 x 25	0.075	0.15	1030	745	13 x 15	0.080	0.16	880	640
330	331	10 x 31.5	0.055	0.11	1240	950	16 x 15	0.060	0.12	1210	930
470	471	13 x 25	0.044	0.088	1490	1190	18 x 15	0.046	0.092	1430	1140
680	681	13 x 35.5	0.036	0.072	1870	1550	16 x 20	0.040	0.080	1630	1350
1000	102	16 x 31.5	0.030	0.060	2180	1890	18 x 25	0.033	0.066	2000	1740
1500	152	16 x 40	0.026	0.052	2400	2160	18 x 31.5	0.029	0.058	2240	2010
2200	222	18 x 40	0.024	0.048	2560	2300					

Cap. (μF)	Code	63WVDC									
		Size Code									
		-					5				
		Case Size dØxL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)		Case Size ØDxL (mm)	Impedance (Ω Max.)		Allowable Ripple (mA rms)	
			20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz		20°C/100KHz	-10°C/100KHz	105°C/100KHz	105°C/100KHz
10	100	5 x 11	1.06	2.12	135	66					
15	150	6.3 x 11	0.73	1.46	190	94					
22	220	6.3 x 11	0.52	1.04	215	110					
33	330	6.3 x 15	0.35	0.70	305	170					
47	470	8 x 11.5	0.25	0.50	365	215					
68	680	8 x 15	0.17	0.34	500	315	10 x 13	0.19	0.38	500	315
100	101	10 x 20	0.12	0.24	750	495	13 x 15	0.14	0.28	700	460
150	151	10 x 25	0.090	0.18	950	660	13 x 15	0.095	0.19	820	570
220	221	13 x 20	0.065	0.13	1100	800	16 x 15	0.070	0.14	1060	770
330	331	13 x 25	0.049	0.098	1420	1090	18 x 15	0.050	0.10	1370	1050
470	471	13 x 35.5	0.039	0.078	1780	1420	16 x 25	0.042	0.084	1640	1310
680	681	16 x 31.5	0.032	0.064	2050	1700	18 x 25	0.035	0.070	1940	1610
1000	102	18 x 40	0.027	0.054	2360	2050	18 x 35.5	0.029	0.058	2200	1930