

# Medium Power Film Capacitors



## FE (RoHS Compliant)



The FE series uses a non-impregnated metallized polypropylene dielectric specially treated to have a very high dielectric strength in operating conditions up to 100°C.

The FE has been designed for printed circuit board mounting. FE series performance characteristics make them a viable alternative to aluminum electrolytic technology due to much lower ESR and much higher surge voltage capability (dv/dt).

### APPLICATIONS

The FE capacitor is particularly designed for DC filtering, low reactive power.

### HOT SPOT CALCULATION

See *Hot Spot Temperature*, page 3.

$$\theta_{\text{hot spot}} = \theta_{\text{ambient}} + (P_d + P_t) \times R_{\text{th}}$$

with  $P_d$  (Dielectric losses) =  $Q \times \text{tg}\delta_0$   
 $Q \times \text{tg}\delta_0 \Rightarrow [ \frac{1}{2} \times C_n \times (V_{\text{peak to peak}})^2 \times f ] \times \text{tg}\delta_0$   
 $\text{tg}\delta_0$  (tan delta)

For polypropylene,  $\text{tg}\delta_0 = 2 \times 10^{-4}$  for frequencies up to 1MHz and is independent of temperatures.

$$P_t \text{ (Thermal losses)} = R_s \times (I_{\text{rms}})^2$$

where  $C_n$  in Farad     $I_{\text{rms}}$  in Ampere     $f$  in Hertz  
 $V$  in Volt     $R_s$  in Ohm     $\theta$  in °C  
 $R_{\text{th}}$  in °C/W

### PACKAGING MATERIAL

Self-extinguishing plastic case (V0 = in accordance with UL 94) filled thermosetting resin.

Self-extinguishing thermosetting resin (V0 = in accordance with UL 94; I3F2 = in accordance with NF F 16-101).

### STANDARDS

- IEC 61071-1, IEC 61071-2: Power electronic capacitors
- IEC 60384-16: Fixed metallized polypropylene film dielectric DC capacitors
- IEC 60384-16-1: Fixed metallized polypropylene film dielectric DC capacitors Assessment level E
- IEC 60384-17: Fixed metallized polypropylene film dielectric AC and pulse capacitors
- IEC 60384-17-1: Fixed metallized polypropylene film dielectric AC and pulse capacitors Assessment level E

### OPERATING TEMPERATURE RANGE

Operating temperature range: -40°C to +100°C

### LIFETIME EXPECTANCY

One unique feature of this technology (versus aluminum electrolytics) is how the capacitor reacts at the end of its lifetime.

Unlike aluminum electrolytic film capacitors do not have a catastrophic failure mode. Film capacitors simply experience a parametric loss of capacitance of about 2% from initial value, with no risk of short circuit.

The capacitor continues to be functional even after this 2% decrease.

# Medium Power Film Capacitors



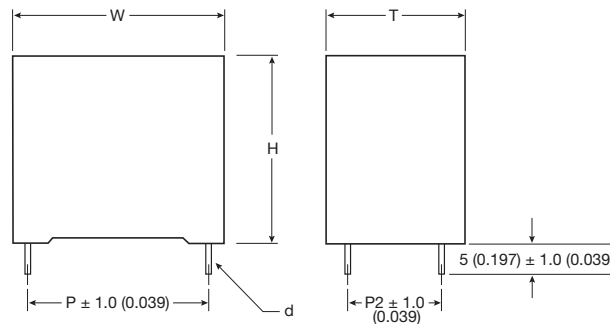
## FE (RoHS Compliant)

### HOW TO ORDER

<b>FE</b> T	<b>27</b> T	<b>G</b> T	<b>6</b> T	<b>K</b> T	<b>0685</b> T	<b>K</b> T	<b>A</b> T
<b>Series</b> FE	<b>Pitch</b> 27 = 27.5 (1.083) 37 = 37.5 (1.476) 52 = 52.5 (2.067)	<b>Case</b> G L H M J N K P	<b>Dielectric</b> 6 = Polypropylene	<b>Voltage</b> J = 550V A = 700V B = 800V C = 900V K = 1000V L = 1100V P = 1200V	<b>Cap</b> µF Code	<b>Tolerance</b> J = ±5% K = ±10% M = ±20%	<b>Pitch P2</b> A = 10.2 (0.402) B = 20.3 (0.799)



### DIMENSIONS: millimeters (inches)



millimeters (inches)

Case Size	W	H	T	P	P2	d
G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	1.20 (0.047)
H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)
J	42.5 (1.673)	37.0 (1.457)	28.0 (1.102)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)
K	42.5 (1.673)	40.0 (1.575)	20.0 (0.787)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)
L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)
M	42.5 (1.673)	45.0 (1.771)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)
N	57.5 (2.264)	45.0 (1.771)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)
P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)

### POLYPROPYLENE DIELECTRIC FOR INDUSTRIAL DC FILTERING

These capacitors have been designed principally for high and medium power DC filtering applications.

### ELECTRICAL CHARACTERISTICS – POLYPROPYLENE DIELECTRIC

Climatic category	40/100/56 (IEC 60068)
Test voltage between terminals @ 25°C	1.5 x V <sub>n</sub> dc
Capacitance range C <sub>n</sub>	3.3µF to 75µF
Tolerance on C <sub>n</sub>	±5%, ±10%, ±20%
Rated DC voltage V <sub>n</sub> dc	550V to 1200V
Dielectric	Polypropylene
Insulation Resistance:	>3,000 MΩ·µF/C after 1 minute electrification @ 100 Vdc & 25°C
Lifetime (ΔC/C ≤ 5%):	100,000hrs @ Ur & 70°C

# Medium Power Film Capacitors



FE (RoHS Compliant)

## RATINGS AND PART NUMBER REFERENCE – POLYPROPYLENE DIELECTRIC

Cap (µF)	Rated Voltage (V)	Part Number	Case Size	W ±0.50 (0.020)	H ±0.50 (0.020)	T ±0.50 (0.020)	P ±1.00 (0.039)	P2 ±1.00 (0.039)	d ±0.05 (0.002)	dv/dt Volt/sec	I peak Amps	I rms Amps	ESR mOhms	Packaging Qty.
<b>Voltage V<sub>DC</sub> 550V Voltage Code: J</b>														
15	550	FE27G6J0156*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	27.0	475.0	13.0	5.5	80
20	550	FE37K6J0206*A	K	42.5 (1.673)	40.0 (1.575)	20.0 (0.787)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	19.0	380.0	12.5	6.5	56
25	550	FE37J6J0256*A	J	42.5 (1.673)	37.0 (1.457)	28.0 (1.102)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	19.0	475.0	13.0	6.0	35
30	550	FE37J6J0306*A	J	42.5 (1.673)	37.0 (1.457)	28.0 (1.102)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	19.0	570.0	14.5	5.5	35
35	550	FE37M6J0356*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	19.0	665.0	16.0	5.0	44
40	550	FE37M6J0406*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	19.0	760.0	16.0	5.0	44
50	550	FE52N6J0506*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	12.5	625.0	15.0	6.0	25
60	550	FE52N6J0606*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	12.5	750.0	16.0	5.5	25
75	550	FE52P6J0756*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	12.5	937.5	17.0	5.0	20
<b>Voltage V<sub>dc</sub> 700V Voltage Code: A</b>														
12	700	FE27G6A0126*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	31.0	372.0	12.5	5.5	80
15	700	FE37H6A0156*A	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	21.0	315.0	10.0	8.0	49
20	700	FE37J6A0206*A	J	42.5 (1.673)	37.0 (1.457)	28.0 (1.102)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	21.0	420.0	12.0	6.0	35
22	700	FE37L6A0226*A	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	21.0	462.0	14.0	5.5	42
25	700	FE37L6A0256*A	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	21.0	525.0	14.5	5.0	42
30	700	FE37M6A0306*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	21.0	630.0	17.0	4.0	44
40	700	FE52N6A0406*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	14.5	580.0	14.0	6.0	25
45	700	FE52N6A0456*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	14.5	652.5	15.5	5.5	25
50	700	FE52P6A0506*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	14.5	725.0	16.0	5.0	20
55	700	FE52P6A0556*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	14.5	797.5	18.0	4.5	20
60	700	FE52P6A0606*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	14.5	870.0	19.0	4.0	20
<b>Voltage V<sub>dc</sub> 800V Voltage Code: B</b>														
10	800	FE27G6B0106*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	36.0	360.0	11.5	9.5	80
12	800	FE37H6B0126*A	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	24.0	288.0	9.5	10.5	49
15	800	FE37K6B0156*A	K	42.5 (1.673)	40.0 (1.575)	20.0 (0.787)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	24.0	360.0	11.0	10.5	56
20	800	FE37L6B0206*A	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	24.0	480.0	14.0	5.5	42
22	800	FE37M6B0226*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	24.0	528.0	15.5	5.0	44
25	800	FE37M6B0256*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	24.0	600.0	16.5	4.5	44
30	800	FE52N6B0306*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	16.5	495.0	13.0	7.5	25
40	800	FE52P6B0406*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	16.5	660.0	15.5	5.5	20
47	800	FE52P6B0476*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	16.5	775.5	17.5	5.0	20
<b>Voltage V<sub>dc</sub> 900V Voltage Code: C</b>														
7.5	900	FE27G6C0755*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	41.5	311.3	10.5	14.5	80
10	900	FE37H6C0106*A	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	28.0	280.0	9.5	11.5	49
15	900	FE37L6C0156*A	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	28.0	420.0	12.0	7.5	42
20	900	FE37M6C0206*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	28.0	560.0	15.0	5.5	44
25	900	FE52N6C0256*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	18.5	462.5	12.0	9.5	25
35	900	FE52P6C0356*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	18.5	647.5	15.5	6.5	20
<b>Voltage V<sub>dc</sub> 1000V Voltage Code: K</b>														
6.8	1000	FE27G6K0685*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	47.0	319.6	12.0	13.5	80
7.5	1000	FE37H6K0755*A	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	31.0	232.5	11.0	13.5	49
9.0	1000	FE37K6K0905*A	K	42.5 (1.673)	40.0 (1.575)	20.0 (0.787)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	31.0	279.0	12.0	13.0	56
10	1000	FE37K6K0106*A	K	42.5 (1.673)	40.0 (1.575)	20.0 (0.787)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	31.0	310.0	12.0	12.5	56
12	1000	FE37L6K0126*A	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	31.0	372.0	13.0	9.0	42
15	1000	FE37M6K0156*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	31.0	465.0	15.0	7.5	44
22	1000	FE52N6K0226*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	21.0	462.0	14.0	7.0	25
30	1000	FE52P6K0306*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	21.0	630.0	15.0	6.5	20
<b>Voltage V<sub>dc</sub> 1100V Voltage Code: L</b>														
4.7	1100	FE27G6L0475*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	70.0	329.0	9.6	9.5	80
5.0	1100	FE27G6L0505*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	70.0	350.0	13.0	6.1	80
6.8	1100	FE37H6L0685*A	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	45.0	306.0	12.0	13.5	49
7.5	1100	FE37H6L0755*A	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	45.0	337.5	12.5	11.5	49
10	1100	FE37L6L0106*A	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	45.0	450.0	15.0	8.5	42
12	1100	FE37M6L0126*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	45.0	540.0	16.5	7.0	44
20	1100	FE52N6L0206*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	23.0	460.0	15.0	8.5	25
22	1100	FE52P6L0226*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	23.0	506.0	16.5	7.5	20
25	1100	FE52P6L0256*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	23.0	575.0	17.0	6.5	20

\* Insert K for 10% capacitance tolerance (standard): J = +5% and M = +20% tolerances available on request.

# Insert C for 5.00 (0.197) lead length (standard): L = 15 (0.591) available on request.

Values outside this standard range may be available – please contact AVX for any special requirements.

AVX reserves the right to supply capacitors to a tighter capacitance tolerance or higher voltage rating, in the same case size.



# Medium Power Film Capacitors



## FE (RoHS Compliant)

Cap (µF)	Rated Voltage (V)	Part Number	Case Size	W ±0.50 (0.020)	H ±0.50 (0.020)	T ±0.50 (0.020)	P ±1.00 (0.039)	P2 ±1.00 (0.039)	d ±0.05 (0.002)	dv/dt Volt/sec	I peak Amps	I rms Amps	ESR mOhms	Packaging Qty.
				Voltage V <sub>dc</sub> 1200V Voltage Code: P										
3.3	1200	FE27G6P0335*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	80.0	264.0	8.2	12.5	80
4.0	1200	FE27G6P0405*A	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	10.2 (0.402)	0.80 (0.031)	80.0	320.0	9.0	10.5	80
4.7	1200	FE37H6P0475*A	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	55.0	258.5	7.3	19.5	49
5.0	1200	FE37H6P0505*A	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	55.0	275.0	7.5	16.5	49
6.8	1200	FE37L6P0685*A	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	55.0	374.0	9.0	14.0	42
7.5	1200	FE37J6P0755*A	J	42.5 (1.673)	37.0 (1.457)	28.0 (1.102)	37.5 (1.476)	10.2 (0.402)	1.20 (0.047)	55.0	412.5	9.8	11.0	35
10	1200	FE37M6P0106*B	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	20.3 (0.799)	1.20 (0.047)	55.0	550.0	12.0	8.0	44
12	1200	FE52N6P0126*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	35.0	420.0	10.0	13.5	25
15	1200	FE52N6P0156*B	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	35.0	525.0	11.0	10.5	25
20	1200	FE52P6P0206*B	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	20.3 (0.799)	1.20 (0.047)	35.0	700.0	14.0	8.0	20

\* Insert K for 10% capacitance tolerance (standard); J = +5% and M = +20% tolerances available on request.

# Insert C for 5.00 (0.197) lead length (standard); L = 15 (0.591) available on request.

Values outside this standard range may be available – please contact AVX for any special requirements.

AVX reserves the right to supply capacitors to a tighter capacitance tolerance or higher voltage rating, in the same case size.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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