

FUT SERIES

105°C, Long life(3000 hours), PCB mounting

■ Features

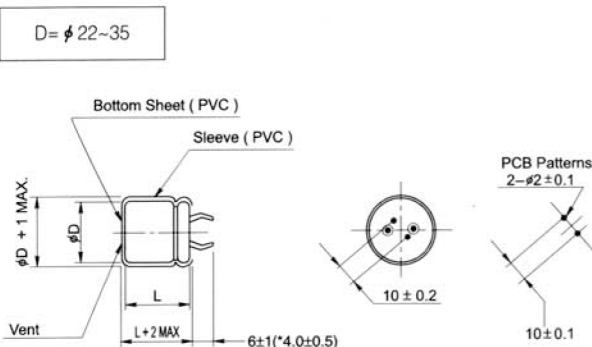
- PCB Mounting
- Super low profile (Smaller than FUH)
- More compact electronic equipment
- High CV density
- Load life of 3000 hours at 105°C



■ Specifications

Item	Performance Characteristics		
Operating temperature range	160V~250V: -40°C~ +105°C, 350V~450V: -25°C~ +105°C		
Rated working voltage range	160V ~ 450V		
Nominal capacitance range	56µF ~ 2200µF, ±20% (at 20°C, 120Hz)		
D.C Leakage current(at 20°C)	The following specifications shall be satisfied when the rated voltage is applied for the required time. $I \leq 0.02CV$ or $3mA(3 \text{ min})$, whichever is less Where I =Leakage current(µA) C=Nominal capacitance(µF) V=Rated voltage(V)		
Tan δ (max., at 20°C, 120Hz)	W.V(V)	160~250	350~450
	Tan δ	0.10	0.20
Characteristics at low temperature(max.) (impedance ratio at 120Hz)	W.V(V)	160~250	350~450
	Z-25°C/Z 20°C	4	8
	Z-40°C/Z 20°C	12	-
Load life	After applying rated working voltage for 3000 hours at +105°C and then being stabilized at +20°C, capacitors shall meet following limits.		
	Capacitance change	Within ± 20% of the initial measured value	
	Tan δ	≤ ± 200% of the initial specified value	
	Leakage current	≤ The initial specified value	
Shelf life	After storage for 1000 hours at + 105°C with no voltage applied and then being stabilized at +20°C, capacitors shall meet following limits.		
	Capacitance change	Within ± 20% of the initial measured value	
	Tan δ	≤ 150% of the initial specified value	
	Leakage current	≤ The initial specified value	

■ Dimensions



■ Ripple current coefficient

• Frequency

W.V(V) \ Freq(Hz)	50	120	1K	10K	100K
160~250	0.80	1.0	1.25	1.40	1.50
350~450	0.84	1.0	1.15	1.20	1.32

• Temperature

Temperature	≤ 45°C	60°C	85°C	105°C
Factor	2.40	2.20	1.65	1.0

* Shorter terminal is available upon request



FUT SERIES

Standard Ratings of FUT Series

Cap(μF)	W.V(V)	160(2C)				200(2D)				250(2E)			
		φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35	φ 22	φ 25	φ 30	φ 35
180										22x25 0.78			
220										22x30 1.00	25x25 1.00		
270						22x25 1.00				22x35 1.26	25x30 1.26		
330		22x25 1.20				22x30 1.25	25x25 1.25			22x40 1.31	25x30 1.31	30x25 1.31	
390		22x40 1.33				22x35 1.44	25x30 1.44			22x45 1.52	25x35 1.52	30x30 1.52	
470		22x35 1.47	25x25 1.47			22x40 1.55	25x35 1.55	30x25 1.55		22x50 1.63	25x40 1.63	30x30 1.63	35x25 1.63
560		22x40 1.60	25x30 1.60			22x45 1.65	25x40 1.65	30x30 1.68			25x45 1.90	30x35 1.87	35x30 1.90
680		22x45 1.80	25x35 1.78	30x30 1.78		22x50 1.87	25x45 1.87	30x35 1.87	35x25 1.86		25x50 2.15	30x40 2.15	35x35 2.18
820		22x50 2.15	25x40 2.15	30x30 2.10	35x25 2.10		25x50 2.25	30x40 2.20	35x30 2.25			30x45 2.30	35x35 2.30
1000			25x45 2.36	30x35 2.36	35x30 2.36			30x45 2.52	35x35 2.52			30x50 2.57	35x40 2.57
1200			25x50 2.63	30x40 2.63	35x30 2.57			30x50 2.71	35x40 2.71				35x45 2.73
1500				30x45 2.93	35x35 2.57				35x45 3.20				
1800				30x50 3.47	35x45 3.47				35x50 3.57				
2200					35x50 3.95								

Cap(μF)	W.V(V)	350(2V)				400(2G)				450(2W)			
		φ 22	φ 25	φ 25	φ 35	φ 22	φ 25	φ 25	φ 35	φ 22	φ 25	φ 30	φ 35
56										22x25 0.46			
68						22x25 0.53				22x30 0.53	25x25 0.53		
82						22x30 0.60	25x25 0.60			22x35 0.60	25x30 0.60		
100		22x25 0.72				22x35 0.74	25x30 0.74			22x40 0.76	25x30 0.76	30x25 0.76	
120		22x30 0.78	25x25 0.78			22x40 0.81	25x30 0.80	30x25 0.80		22x45 0.80	25x35 0.80	30x30 0.80	
150		22x35 0.86	25x30 0.86			22x45 0.88	25x35 0.88	30x30 0.88		22x50 0.90	25x40 0.90	30x30 0.90	
180		22x45 0.99	25x35 0.96	30x25 0.96		22x50 0.99	25x40 0.99	30x30 0.99	35x25 0.99		25x45 2.00	30x35 0.99	
220		22x50 1.09	25x40 1.09	30x30 1.07	35x25 1.07		25x45 1.13	30x35 1.13	35x30 1.13		25x50 1.20	30x40 1.20	35x30 1.20
270			25x45 1.20	30x35 1.20	35x30 1.20		25x50 1.28	30x40 1.28	35x30 1.28			30x45 1.30	35x35 1.30
330			25x50 1.42	30x40 1.42	35x35 1.42			30x45 1.47	35x35 1.47			30x50 1.50	35x40 1.50
390				30x45 1.58	35x40 1.58			30x50 1.63	35x40 1.63				35x45 1.68
470					35x45 1.80				35x45 1.84				35x50 1.84
560					35x50 2.05				35x50 2.10				

Max. permissible ripple current[A(rms) at 105°C, 120Hz]
Case size [φ DxL(mm)]

High Power

ORDERING INFORMATION for Leaded Type



Daewoo Components Corp.

Through-Hole Part Numbering System Example:

RM = Leaded Radial 85°C Miniature Series, **102** = 1000µF, **M** =20% Tolerance, **1E** 25 Volts, **B** = Bulk,
1020 = Case size (Dia x H) = 10.0 x 20.0mm, **E** = 5.0mm



(1) Series

See Quick Guide on page 2
Example: RSS, RM, RMU,...

(2) Capacitance Value Code

Capacitance expressed in micro Farads (µF)
First two digits are significant figures
Third digit denotes the number of zeros
Use R for decimal point for values less than 10µF

Examples:

CODE	Capacitance
R10	0.1 µF
R68	0.68 µF
1R0	1.0 µF
100	10 µF
680	68 µF
471	470 µF
102	1000 µF
103	10000 µF

(3) Capacitance Tolerance Code

CODE	Cap. Tol.	CODE	Cap. Tol.
J	±5%	V	-10% ~ +20%
K	±10%	Q	-10% ~ +30%
M	±20%	T	-10% ~ +50%
R	+20%, -0%		

(4) Rated Voltage Code

CODE	Voltage	CODE	Voltage
0G	4.0V	2C	160V
0J	6.3V	2S	180V
1A	10V	2D	200V
1C	16V	2E	250V
1E	25V	2F	315V
1V	35V	2V	350V
1H	50V	2G	400V
1J	63V	2W	450V
1K	80V	3Z	1000V
2A	100V		

(5) Packaging Form & Lead Style Code (see page 7, 8, 9 for details)

	Code	Packaging Form & Lead Style
Bulk	B	Bulk: Standard Package
	L	Bulk: 4 -8ø Long Leads Formed to 5 mm Pitch
Snap-In	1	10-13ø Snap-in Cut 5.0mm
	2	16-13ø Snap-in Cut 5.0mm
	3	10-13ø Snap-in Cut 4.5mm
	4	16-18ø Snap-in Cut 4.5mm
	5	4-8ø Snap-in Cut 7.5mm
Form	F	4-8ø Forming Cut 6.5mm
	G	4-8ø Forming Cut 10.0mm
Straight Cut	C	4-18ø Straight Cut 4.0mm
	6	4-18ø Straight Cut 3.1mm
	7	4-18ø Straight Cut 5.0mm
	8	4-18ø Straight Cut 6.35mm
Ammo Tape (+) Leading	A	4-8ø Straight Ammo Detail Ranges: 4-6.3ø; F=2.5mm 8ø; F=3.5mm
		4-8ø Form Tape & Ammo 5mm Pitch
		10ø Straight Ammo Tape 5mm Pitch
		13ø Straight Ammo Tape 5mm Pitch
		16-18ø Straight Ammo Tape 5mm Pitch
Tape & Reel (+) Leading	T	4-8ø Straight Ammo Detail Ranges: 4-6.3ø; F=2.5mm 8ø; F=3.5mm
		4-13ø Form Tape & Reel 5mm Pitch
		10-13ø Straight Reel Tape 5mm Pitch

NOTE: Standard Pack Anode(+) Lead Leading FEEDS OFF FIRST
Special Option Cathode(-) Lead Leading available upon request
Standard Packages: B = Bulk, A = Ammo, T = Tape & Reel

(6) Example Dimension Code (Diameter x Height in mm)

Size Code	Diameter	Height	Size Code	Diameter	Height
0405	4	5	1320	13	20
0407	4	7	1631	16	31.5
0505	5	5	1835	18	35.5
0507	5	7	2240	22	40
0607	6.3	7	2545	25	45
0511	5	11	3035	30	35
0605	6	5	3500	35	100
0611	6.3	11	3501	35	110
0805	8	5	5102	51	120
0811	8	11	6303	63.5	130
1012	10	12.5	7604	76	140
1220	12.5	20	8904	89	140

(7) Lead Spacing Code (LS)

Code	X	A	B	C	D	E	J	F
LS	1.0	1.5	2.0	2.5	3.5	5.0	7.0	7.5
Code	K	M	G	P	H	Q	R	S
LS	8.0	10.0	10.5	12.0	12.5	12.8	15.0	16.0
Code	T	U	V	W	Y	Z		
LS	20.0	21.7	28.3	30.0	31.6	32		