

円板形セラミックコンデンサ

【温度補償用・高誘電率系コンデンサ CLASS 1&2 (Hシリーズ)】

■特長

温度補償用

- Qが高く、温度変化に対して安定した静電容量値が得られます。
- 各種の温度係数を任意に作れ、低価格で高信頼性が得られます。
- 残留インダクタンスが小さく、高い周波数まで使用できます。
- 主として、発信・同調回路用・温度補償回路用に使えます。



高誘電率系

- チタン酸バリウムを主原料としたコンデンサで、低価格で高信頼性が得られます。
- 残留インダクタンスが小さく、高い周波数まで使用できます。
- 主として、カップリング回路用・バイパス回路用に使えます。

■形名構成

RT
①

-

H
②E
③60
④TK
⑤YF
⑥103
⑦Z
⑧

①包装形態

記号	形態
RT	テーピング
無	バルク

⑤リード形状

記号	リード形状
SJ	バルク ストレート
*TJ	バルク フォーミング
*SK	テーピング ストレート
TK	テーピング フォーミング

*受注生産となります。

⑦静電容量を3文字で表示する。

記号	容量値	記号	容量値
010	1pF	222	2200pF
100	10pF	473	47000pF
331	330pF	104	100000pF

⑧容量許容差
温度補償用

記号	許容差	適用
C	±0.25pF	0.5~5pF
D	±0.5 pF	6~10pF
J	±5%	11pF以上

②シリーズ名

③定格電圧

記号	定格電圧
E	50V
M	500V
P	1000V
S	2000V
T	3000V

⑥温度特性
温度補償用

記号	温度係数	適用
CK	NPO ±250ppm/°C	2pF以下
CJ	NPO ±120ppm/°C	3pF
CH	NPO ± 60ppm/°C	4pF以上
SL	+350~-1000ppm/°C	

高誘導率系

記号	変化率
YB	±10%
YE	+20% -55%
YF	+30% -80%

高誘電率系

記号	許容差	適用
K	±10%	YB
Z	+80% -20%	YF
P	+100% - 0	YE

④製品径

公称径を2文字で表示する。

■静電容量ステップE- シリーズ

E-シリーズ	適 用	
E- 3	YF ; 50V	YE ; 500V~3000V
E- 6	YB ; 1000V~3000V	
E-12	CH・SL ; 1000V~3000V	YB ; 50V~ 500V
E-24	CH・SL ; 50V・ 500V	

E- 3	1								2.2								4.7							
E- 6	1				1.5				2.2				3.3				4.7				6.8			
E-12	1		1.2		1.5		1.8		2.2		2.7		3.3		3.9		4.7		5.6		6.8		8.2	
E-24	1	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.7	3.0	3.3	3.6	3.9	4.3	4.7	5.1	5.6	6.2	6.8	7.5	8.2	9.1

※製造元/三菱マテリアル株式会社

※製品によっては生産していない場合がございます。別途お問い合わせ下さい。

CERAMIC DISC CAPACITORS

[CLASS 1&2 (H series) for temperature compensation • high dielectric constant type]

■ Features

For temperature compensation

- High Q and stable capacitance with temperature changes.
- Provides high reliability, low cost parts in a variety of temperature characteristics.
- Low residual inductance, allows use at high frequencies.
- Mainly used for transmitting / tuning circuits and temperature compensation circuits.



High dielectric constant

- Low cost capacitors based on Barium that provides high reliability.
- Low residual inductance. allows use at high frequencies.
- Mainly used in coupling circuits and bypass circuits.

■ Part Number System

RT

①

—

H

②

E

③

60

④

TK

⑤

YF

⑥

103

⑦

Z

⑧

① Packing Form

code	Form
RT	Taping
none	Bulk

② Series

③ Rated voltage

code	DC V
E	50V
M	500V
P	1000V
S	2000V
T	3000V

④ Diameter

Diameter is expressed in 2 digits.

⑤ Lead style

code	Lead style
SJ	Bulk Straight
*TJ	Bulk Forming
*SK	Taping Straight
TK	Taping Forming

*Order made will be required

⑥ Temperature characteristics For temperature compensation

code	T.C.	Value
CK	NPO ±250ppm/°C	Below 2pF
CJ	NPO ±120ppm/°C	3pF
CH	NPO ± 60ppm/°C	Over 4pF
SL	+350~1000ppm/°C	

⑦ Capacitance is expressed in 3 digit system

code	Cap.	code	Cap.
010	1pF	222	2200pF
100	10pF	473	47000pF
331	330pF	104	100000pF

⑧ Capacitance tolerance For temperature compensation

code	Tol.	Value
C	±0.25pF	0.5~5pF
D	±0.5 pF	6~10pF
J	±5%	11pF Over

High dielectric constant type

code	Tol.	Value
K	±10%	YB
Z	+80 % -20	YF
P	+100 % -0	YE

High dielectric constant type

code	Change
YB	±10%
YE	+20 % -55
YF	+30 % -80

■ Capacitance Step E-series

E-series	Value
E- 3	YF ; 50V YE ; 500V~3000V
E- 6	YB ; 1000V~3000V
E-12	CH • SL ; 1000V~3000V YB ; 50V~ 500V
E-24	CH • SL ; 50V • 500V

E- 3	1								2.2								4.7							
E- 6	1				1.5				2.2				3.3				4.7				6.8			
E-12	1		1.2		1.5		1.8		2.2		2.7		3.3		3.9		4.7		5.6		6.8		8.2	
E-24	1	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.7	3.0	3.3	3.6	3.9	4.3	4.7	5.1	5.6	6.2	6.8	7.5	8.2	9.1

CERAMIC DISC CAPACITORS

■ Capacitance Range (pF)

For temperature compensation
W.V. 50V

Code	Size (mm)		Temperature coefficient	
	D (max)	F (±1)	NPO (C)	SL
HE40	4.0	2.5	1~24	0.5~75
HE50	5.0	2.5	27~33	82~120
HE50	5.0	5.0	36~39	—
HE60	6.0	5.0	43~56	130~180
HE70	7.0	5.0	62~82	200~270
HE80	8.0	5.0	91~120	300~390
HE90	9.0	5.0	130~160	430~510
HE95	9.5	5.0	180	560
HE11	10.5	5.0	200~220	620~750
HE12	12.0	5.0	240~300	820~1000

W.V. 500V

Code	Size (mm)		Temperature coefficient	
	D (max)	F (±1)	NPO (C)	SL
HM60	6.0	5.0	1~30	0.5~100
HM74	7.4	5.0	33~47	110~150
HM95	9.5	5.0	51~82	160~270
HM11	11.0	5.0	91~120	300~390
HM13	12.5	5.0	130~160	430~510
HM15	14.5	10.0	180~240	560~750
HM17	16.3	10.0	270~330	820~1000
HM19	19.0	10.0	360~430	—

W.V. 1000V

Code	Size (mm)		Temperature coefficient	
	D (max)	F (±1.5)	NPO (C)	SL
HP60	6.0	5.0	1~22	1~68
HP74	7.4	5.0	27~33	82~100
HP95	9.5	5.0	39~56	120~180
HP11	11.0	5.0	68~82	220~270
HP13	12.5	5.0	100~120	330~390
HP15	15.0	10.0	150~180	470~560
HP17	17.5	10.0	220	680
HP19	19.0	10.0	270~330	820~1000

W.V. 2000V

Code	Size (mm)		Temperature coefficient	
	D (max)	F (±2.0)	NPO (C)	SL
HS80	8.0	10.0	1~12	1~33
HS10	10.0	10.0	15~22	39~68
HS11	11.0	10.0	27~33	82~100
HS15	15.0	10.0	39~68	120~220
HS20	20.0	10.0	82~120	270~390

W.V. 3000V

Code	Size (mm)		Temperature coefficient	
	D (max)	F (±1.5)	NPO (C)	SL
HT10	10.0	10.0	1~15	1~56
HT11	11.0	10.0	18~22	68~82
HT15	15.0	10.0	27~47	100~150
HT20	20.0	10.0	56~82	180~270

* Please contact the sales department regarding capacitance values not shown.

High dielectric constant type
W.V. 50V

Code	Size (mm)		Temp. char.	
	D (max)	F (±1)	YB	YF
HE40	4.0	2.5	100~820	1000~2200
HE50	5.0	2.5	1000~1500	4700
HE60	6.0	5.0	1800~2200	10000
HE70	7.0	5.0	2700~3300	—
HE80	8.0	5.0	3900~4700	22000
HE90	9.0	5.0	5600	—
HE95	9.5	5.0	6800	—
HE10	10.0	5.0	8200	—
HE12	12.0	5.0	10000	47000

W.V. 500V

Code	Size (mm)		Temp. char.	
	D (max)	F (±1)	YB	YE
HM60	6.0	5.0	100~1000	1000
HM74	7.4	5.0	1200~1500	2200
HM86	8.6	5.0	1800~2200	—
HM95	9.5	5.0	2700	—
HM11	11.0	5.0	3300~3900	4700
HM13	12.5	5.0	4700~5600	—
HM15	14.5	10.0	6800~8200	10000
HM17	16.3	10.0	10000	—
HM21	20.6	10.0	—	22000

W.V. 1000V

Code	Size (mm)		Temp. char.	
	D (max)	F (±1.5)	YB	YE
HP60	6.0	5.0	100~680	1000
HP74	7.4	5.0	1000	—
HP86	8.6	5.0	1500	2200
HP95	9.5	5.0	2200	—
HP11	11.0	5.0	3300	4700
HP13	12.5	5.0	3900	—
HP15	15.0	10.0	4700	10000
HP17	17.0	10.0	6800	—
HP19	19.0	10.0	10000	—

W.V. 2000V

Code	Size (mm)		Temp. char.	
	D (max)	F (±1.5)	YB	YE
HS80	8.0	10.0	100~330	—
HS10	10.0	10.0	470~680	1000
HS11	11.0	10.0	1000	2200
HS15	15.0	10.0	1500~2200	—
HS20	20.0	10.0	3300~4700	4700

W.V. 3000V

Code	Size (mm)		Temp. char.	
	D (max)	F (±1.5)	YB	YE
HT10	10.0	10.0	100~470	1000
HT11	11.0	10.0	680	—
HT15	15.0	10.0	1000~1500	2200
HT20	20.0	10.0	2200~3300	4700

CERAMIC DISC CAPACITORS

[Semiconductor capacitors CLASS 3 (DSX • DST series)]

■Features

Grain Boundary Type

- Exhibits low loss and low distortion with excellent frequency characteristics.
- Capacitance is strong against temperature changes.

Surface Layer Type

- Provides large capacitance in a small size.
- Can be used in the same applications as high dielectric constant type.



■Part Number System

RT
①

—

DSX
②

B
③

65
④

TK
⑤

YF
⑥

104
⑦

Z
⑧

① Packing form

Code	Form
RT	Taping
None	Bulk

③ Rated voltage

Code	Rated voltage
B	16V
C	25V
E	50V

⑤ Lead style

Code	Lead style
SJ	Bulk Straight
*TJ	Bulk Forming
*SK	Taping Straight
TK	Taping Forming

*Make to order

⑦ Capacitance is expressed in 3 digit system

Code	Cap.
222	2200pF
473	47000pF
104	100000pF

② Series

Code	Series
DST	Grain Boundary Type
DSX	Surface Layer Type

④ Diameter
Diameter is expressed in 2 digits.

⑥ Temp. Char.
Class3

Code	Change
YR	±15%
YF	+30 -80 %

⑧ Capacitance tolerance

Code	Tol.	Value
K	±10%	YR
M	±20%	
Z	+80 -20 %	YF

■Capacitance Range

DST Series (Temp. Char. YR)

Part Number	Size (mm)		Rated Voltage	
	D (max)	F (±1)	16V	25V
DST③40SJ YR ⑦ K, M	4.0	2.5	—	1,000~4,700
DST③50SJ YR ⑦ K, M	5.0	2.5	10,000~22,000	5,600~15,000
DST③60SJ YR ⑦ K, M	6.0	5.0	—	18,000•22,000
DST③70SJ YR ⑦ K, M	7.0	5.0	27,000~47,000	27,000•33,000
DST③80SJ YR ⑦ K, M	8.0	5.0	—	39,000•47,000
DST③90SJ YR ⑦ K, M	9.0	5.0	56,000~100,000	56,000•68,000
DST③11SJ YR ⑦ K, M	11.0	5.0	—	82,000•100,000

DSX Series (Temp. Char. YF)

Part Number	Size (mm)		Rated Voltage		
	D (max)	F (±1)	16V	25V	50V
DSX③40SJ YF ⑦ Z	4.0	2.5	22,000	—	10,000
DSX③50SJ YF ⑦ Z	5.0	2.5	47,000	—	22,000
DSX③60SJ YF ⑦ Z	6.0	5.0	—	47,000	—
DSX③65SJ YF ⑦ Z	6.5	5.0	100,000	—	47,000
DSX③75SJ YF ⑦ Z	7.5	5.0	—	100,000	—
DSX③85SJ YF ⑦ Z	8.5	5.0	—	—	100,000
DSX③90SJ YF ⑦ Z	9.0	5.0	220,000	—	—
DSX③11SJ YF ⑦ Z	11.0	5.0	—	220,000	—

* ③ = Rated voltage W.V. ⑦ = Capacitance

*This products made by Mitsubishi Materials Corporation
*Some products may not be produced. Contact us separately.

CERAMIC DISC CAPACITORS

[For pulse circuit]

■ Features

- Excellent for high pulse.
- Low dielectric loss and stable capacitance with temperature changes.
- No piezo-electric characteristics.
- Epoxy coating meets UL 94V-0 requirements.



■ Part number system

RT
①— LR
②3D
③11
④AJ
⑤YR
⑥102
⑦K
⑧

① Packing form

Code	Form
RT	Taping
None	Bulk

② Series
LR Class2

③ Rated voltage

Code	DC (V)
2H	500v
3A	1000v
3D	2000v

④ Diameter
Diameter is expressed in 2 digits.

⑤ Lead style

Bulk		Taping	
Code	Lead style	Code	Lead style
AJ	Straight • Long	RT-AJ	Taping • Straight
DJ	Straight • Short	RT-TK	Taping • Forming

*Make to order for pulse circuit.

*Please contact us separately for PT-AJ, RT-TK types.

⑥ Temp. char.

Code	Change	Temp.char
YR	±15%	-25~85°C
	+15%, -30% (Reference Value)	-25~125°C (Reference Value)

⑦ Capacitance
Capacitance is expressed in 3 digits system

Code	Cap.
221	220pF
102	1000pF

⑧ Cap. Tol.

Code	Tol.
K	±10%

■ Capacitance Range • Specifications

Rated voltage 500V

Part Number	Cap.pF	Diameter	Lead interval F
LR2H50 ⑤ YR331K	330	5.0	5.0
LR2H50 ⑤ YR471K	470	5.0	5.0
LR2H50 ⑤ YR681K	680	5.0	5.0
LR2H60 ⑤ YR102K	1000	6.0	5.0
LR2H74 ⑤ YR152K	1500	7.4	5.0
LR2H86 ⑤ YR222K	2200	8.6	5.0
LR2H11 ⑤ YR332K	3300	11.0	5.0
LR2H13 ⑤ YR472K	4700	13.0	7.5

Rated voltage 1KV

Part Number	Cap.pF	Diameter	Lead interval F
LR3A60 ⑤ YR221K	220	6.0	5.0
LR3A60 ⑤ YR331K	330	6.0	5.0
LR3A60 ⑤ YR471K	470	6.0	5.0
LR3A74 ⑤ YR681K	680	7.4	5.0
LR3A86 ⑤ YR102K	1000	8.6	5.0
LR3A95 ⑤ YR152K	1500	9.5	5.0
LR3A11 ⑤ YR222K	2200	11.0	7.5
LR3A13 ⑤ YR332K	3300	13.0	7.5
LR3A15 ⑤ YR472K	4700	15.0	7.5

Rated voltage 2KV

Part Number	Cap.pF	Diameter	Lead interval F
LR3D60 ⑤ YR101K	100	6.0	7.5
LR3D60 ⑤ YR121K	120	6.0	7.5
LR3D60 ⑤ YR151K	150	6.0	7.5
LR3D60 ⑤ YR181K	180	6.0	7.5
LR3D60 ⑤ YR221K	220	6.0	7.5
LR3D60 ⑤ YR271K	270	6.0	7.5
LR3D60 ⑤ YR331K	330	6.0	7.5
LR3D74 ⑤ YR391K	390	7.4	7.5
LR3D74 ⑤ YR471K	470	7.4	7.5
LR3D86 ⑤ YR561K	560	8.6	7.5
LR3D10 ⑤ YR681K	680	10.0	7.5
LR3D10 ⑤ YR821K	820	10.0	7.5
LR3D11 ⑤ YR102K	1000	11.0	7.5
LR3D11 ⑤ YR122K	1200	11.0	7.5
LR3D13 ⑤ YR152K	1500	13.0	7.5
LR3D14 ⑤ YR182K	1800	14.0	7.5
LR3D15 ⑤ YR222K	2200	15.0	7.5
LR3D16 ⑤ YR272K	2700	16.0	7.5
LR3D17 ⑤ YR332K	3300	17.0	10.0
LR3D19 ⑤ YR392K	3900	19.0	10.0
LR3D21 ⑤ YR472K	4700	21.0	10.0

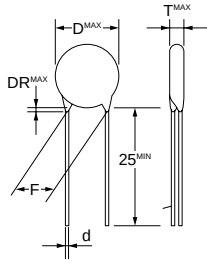
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Lead interval (F) : 5.0±1.0mm 7.5±1.5mm 10.0±1.5mm

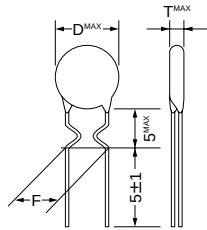
PACKAGE FORM DETAILS

■ Dimensions

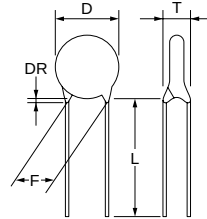
- Bulk
- SJ type



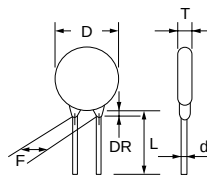
- TJ type



- AJ type

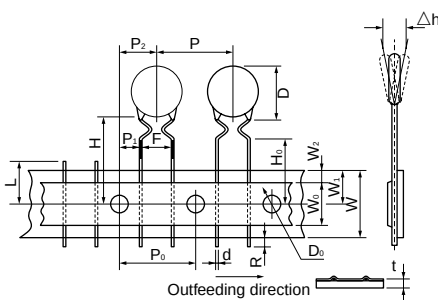


- DJ type

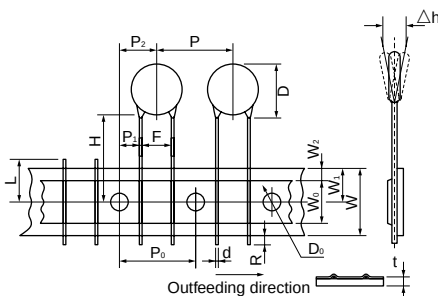


- Taping

Formed lead type
RT-TK type (F=5.0)



Straight lead type
RT-SK type (F=5.0)



(mm)						
Series	Code	R.V.	T _{max}	DR _{max}	d	L _{min}
H	SJ	50V	3	1	F=2.5 : 0.4 F=5.0 : 0.5	—
		500V	4	3	0.6	—
		1kV	6	4	0.6 • 0.8	—
		2kV~3kV	6	4	0.8	—
	TJ	50V	3	—	0.6	—
		500V	4	—	0.6	—
		1kV	6	—	0.6 • 0.8	—
		2kV~3kV	6	—	0.8	—
DST	SJ	—	3	1.5	F=2.5 : 0.4 F=5.0 : 0.5	—
	TJ	—	3	—	0.6	—
DSX	SJ	—	3	1.5	F=2.5 : 0.4 F=5.0 : 0.5	—
	TJ	—	3	—	F=5.0 : 0.5	—
LR	AJ	500V	4.0	2.5	0.6	25min
		1kV	4.5	2.5	0.6	25min
		2kV	5.0	2.5	0.6	25min
	DJ	500V	4.0	2.5	0.6	8.5max
		1kV	4.5	2.5	0.6	8.5max
		2kV	5.0	2.5	0.6	8.5max

TK TYPE

Code	Dimensions (mm)
P	12.7±1.0
P ₀	12.7±0.3
P ₁	3.85±0.7
P ₂	6.35±1.3
W	18.0 ^{+1.0} / _{-0.5}
W ₀	12.5 min
W ₁	9.0±0.5
W ₂	3.0 max
H	20.0 ^{+1.5} / _{-1.0}
H ₀	16.0±0.5
R	2.0 max
D ₀	4.0±0.2
t	0.7±0.2
Δh	0±2.0
F	5.0 ^{+0.8} / _{-0.2}
d	0.6 ^{+0.06} / _{-0.05}
L	11.0
D	12.0 ϕ max

SK TYPE

Code	Dimensions (mm)
P	12.7±1.0
P ₀	12.7±0.3
P ₁	3.85±0.7
P ₂	6.35±1.3
W	18.0 ^{+1.0} / _{-0.5}
W ₀	12.5 min
W ₁	9.0±0.5
W ₂	3.0 max
H	20.0±0.75
R	2.0 max
D ₀	4.0±0.2
t	0.7±0.2
Δh	0±2.0
F	5.0 ^{+0.8} / _{-0.2}
d	0.6 ^{+0.06} / _{-0.05}
L	11.0 max
D	12.0 ϕ max

*This products made by Mitsubishi Materials Corporation
*Some products may not be produced. Contact us separately.

PACKAGE FORM DETAILS

■ Packing form

H, DST, DSX Series

Code	Form	Unit quantity							
RT	Taping	2000pcs. / box							
None	Bulk	Nominal product dia.	40-50	60-74	75-90	95-12	13-14	15-17	18min
		Qty per bag	Straight type(SJ)	1,000	1,000	1,000	500	500	200
			Formed type(TJ)	1,000	1,000	1,000	1,000	500	500

*1. ○Minimum order unit quantity : Bulk : 1000pcs. Taping : 2000pcs.
 ○Minimum order quantity : Bulk : 5000pcs. Taping : 10000pcs.

LR Series

Code	Form	Unit quantity
RT	Taping	1500pcs. / box
None	Bulk	1000 / pouch

*2. ○Minimum order unit quantity : Bulk : 1000pcs. Taping : 1500pcs
 ○Minimum order quantity : Bulk : 1000pcs. Taping : 1500pcs

■ Character Specifications

	Temperature compensation capacitor (H_series)	High dielectric constant capacitor (H_series)	Semiconductor capacitor (DSX, DST_series)	Capacitor for pulse circuit (LR_series)
Temperature range	Y $-25^{\circ}\text{C} \sim +85^{\circ}\text{C}$			R- $25^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Capacitance	Not to exceed cap. tol. at 1MHz $\pm 10\%$, 1Vrms, 20°C.		YR : Not to exceed cap. tol. at 1kHz $\pm 10\%$, 1Vrms, 20°C. YF : Not to exceed cap. tol. at 1kHz $\pm 10\%$, 0.1Vrms, 20°C.	Not to exceed cap. tol. at 1kHz $\pm 10\%$, 1Vrms, 20°C.
Withstanding voltage	There shall be no abnormality when a voltage 3 times the rated voltage is applied for 1-5 seconds. (2 times the rated voltage for 1-3 kV products)	There shall be no abnormality when a voltage 2.5 times the rated voltage is applied for 1-5 seconds. (2 times the rated voltage for 1-3 kV products)	When 2.5 times (W.V.500V) or 2.0 times (W.V.1kV, 2kV) the working voltage for 1 to 5 seconds no abnormality.	
Insulation resistance	10000M Ω min. at the regulation working voltage for 1 minute.		1000M Ω or 100M $\Omega \cdot \mu\text{F}$ whichever is smaller. (Based on regulation working voltage for 1 minute.)	10000M Ω min. at DC500V for 1 minute.
Dissipation factor (tan δ) D. F. or Q	Q 30pF or more Less than 30pF	tan δ YB:2.5%max YE:2.5%max YF:5.0%max	tan δ YR:1.5%max YF:5.0%max	tan δ YR:0.2%max