



ARMC SERIES

HIGH RELIABLE 125°C TYPE

HYBRID ALUMINUM ELECTROLYTIC CAPACITOR • THT type

Low leakage current

Self-healing of dielectric layer

Low drift and stable electrical characteristics over lifetime

Best performance in small size

High temperature and long lifetime with 4000 hours at 125°C

SPECIFICATION

Item		Characteristics					
Category Temperature Range		-55°C to +125°C					
Rated Voltage Range	V _R	25V _{DC} to 80V _{DC}					
Rated Capacitance Range	C _R	22μF to 470μF					
Capacitance Tolerance ▪ At 20°C; 120Hz	ΔC	±20%					
Surge Voltage ▪ At 125°C	V _S	V _S = 1.15 × V _R					
Dissipation Factor ▪ At 20°C; 120Hz	tan δ	V _R	25V _{DC}	35V _{DC}	50V _{DC}	63V _{DC}	80V _{DC}
		tan δ _{max}	0.14	0.12	0.10	0.08	0.08
Leakage Current ▪ At 20°C; after 2min.	I _{LEAK}	Shall not exceed values in the electrical characteristics					
Endurance	Test	125°C ▲ 4000hrs ▲ V _R and I _R applied					
	Appearance	No significant damage					
	ΔC/C _R	≤ ±30% of the initial value					
	tan δ	≤ 200% of the initial specified value					
	ESR	≤ 200% of the initial specified value					
	I _{LEAK}	≤ The initial specified value					
Damp Heat (Steady State)	Test	60°C ▲ 90 to 95% RH ▲ 1 000hrs ▲ V _R applied					
	Appearance	No significant damage					
	ΔC/C _R	≤ ±20% of the initial value					
	tan δ	≤ 200% of the initial specified value					
	ESR	≤ 200% of the initial specified value					
	I _{LEAK}	≤ The initial specified value					
Shelf Life	Test	After storage for 1 000hrs at 125±2°C with no voltage applied and then being stabilized at 20°C, capacitors shall meet the limits specified in Endurance. (With voltage treatment).					
	Appearance	No significant damage					
	ΔC/C _R	≤ ±30% of the initial value					
	tan δ	≤ 200% of the initial specified value					
	ESR	≤ 200% of the initial specified value					
	I _{LEAK}	≤ The initial specified value					

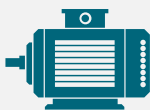
ELECTRICAL CHARACTERISTICS

V_{RDC} (V)	C_R (μF)	Size Code	Dimensions (mm)				I_{LEAK} 20°C 2min (μA)	ESR 20°C 100kHz (m Ω)	I_R 125°C 100kHz (mA)	Part Number ^{Note 1}
			D	L	P	ϕd				
25	100	06X8	6.3	8	2.5	0.6	25	30	1400	250ARMC101M06X8T
	220	08X8	8	8	3.5	0.6	55	27	1600	250ARMC221M08X8T
	330	10A0	10	10	5	0.6	83	20	2000	250ARMC331M10A0T
	470	10A0	10	10	5	0.6	118	20	2000	250ARMC471M10A0T
35	68	06X8	6.3	8	2.5	0.6	24	35	1400	350ARMC680M06X8T
	150	08X8	8	8	3.5	0.6	53	27	1600	350ARMC151M08X8T
	270	10A0	10	10	5	0.6	95	20	2000	350ARMC271M10A0T
	330	10A0	10	10	5	0.6	116	20	2000	350ARMC331M10A0T
50	33	06X8	6.3	8	2.5	0.6	17	40	1100	500ARMC330M06X8T
	68	08X8	8	8	3.5	0.6	34	30	1250	500ARMC680M08X8T
	100	10A0	10	10	5	0.6	50	28	1600	500ARMC101M10A0T
	120	10A0	10	10	5	0.6	60	28	1600	500ARMC121M10A0T
63	22	06X8	6.3	8	2.5	0.6	14	80	900	630ARMC220M06X8T
	47	08X8	8	8	3.5	0.6	30	40	1100	630ARMC470M08X8T
	56	10A0	10	10	5	0.6	35	30	1400	630ARMC560M10A0T
	82	10A0	10	10	5	0.6	52	30	1400	630ARMC820M10A0T
	100	10A2	10	12	5	0.6	63	22	2000	630ARMC101M10A2T
80	22	08X8	8	8	3.5	0.6	18	45	1100	800ARMC220M08X8T
	47	10A0	10	10	5	0.6	38	36	1270	800ARMC470M10A0T
	56	10A2	10	12	5	0.6	45	32	1360	800ARMC560M10A2T

Notes

1 Part number shows the standard Tape/Ammo version

APPLICATIONS

DC Link in Motor Drives	Harsh Environmental Applications	Input/Output Filter in DC/DC Converter	Power and Battery decoupling	Smoothing in Power Supplies
				

REFERENCE DATA ▲ 250ARMC101M06X8T ▲ 100 μ F ▲ 25V ▲ 6.3 x 8.0mm

Fig. 1 • Frequency Characteristics of ESR & |Z|

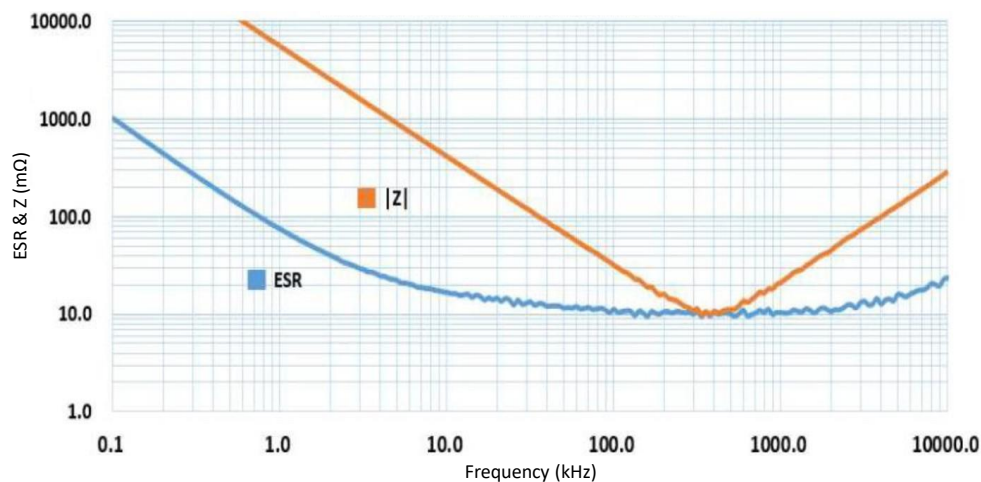


Fig. 2 • Frequency Characteristics of C (μ F)

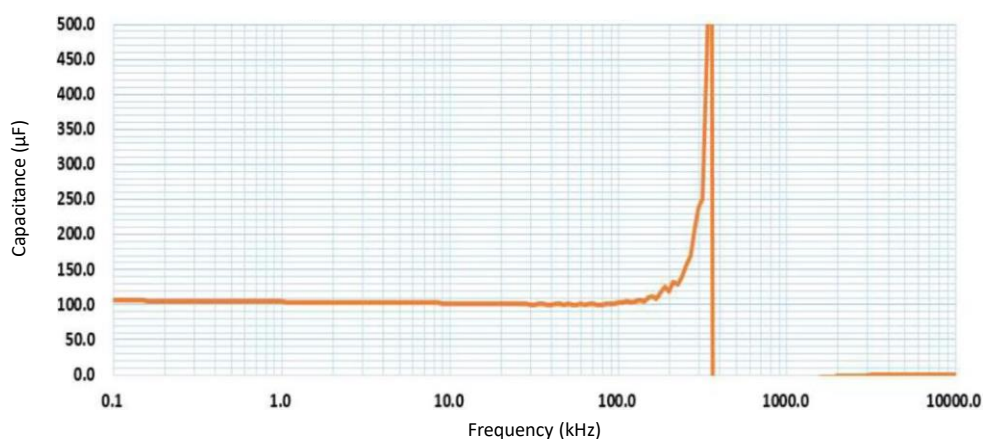
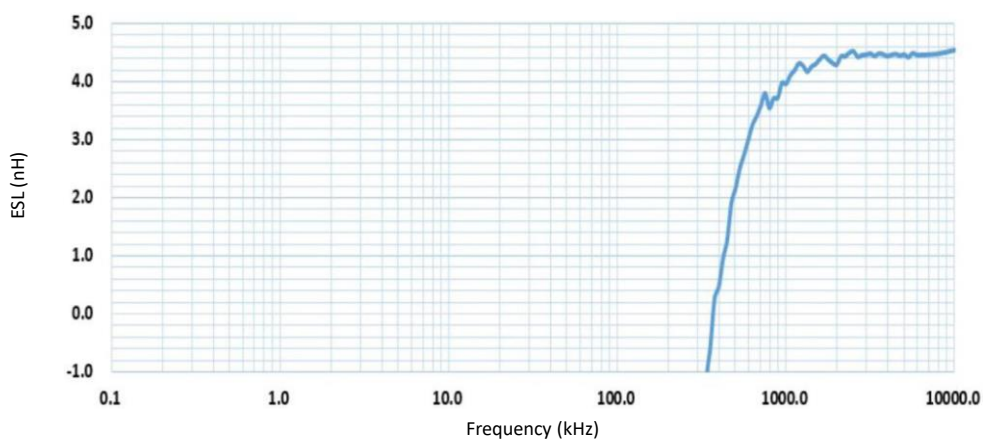


Fig. 3 • Frequency Characteristics of ESL (nH)



REFERENCE DATA ▲ 500ARMC680M08X8T ▲ 68 μ F ▲ 50V ▲ 8.0 x 8.0mm

Fig. 4 • Frequency Characteristics of ESR & |Z|

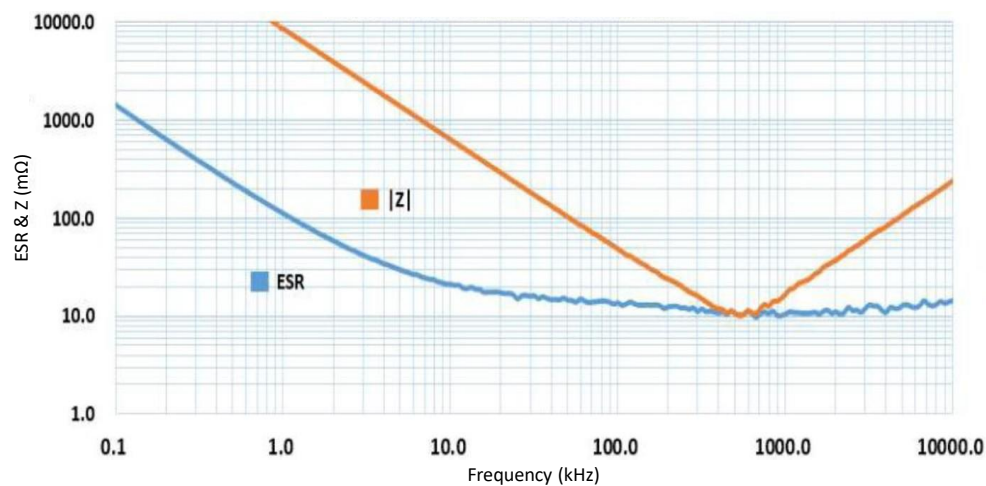
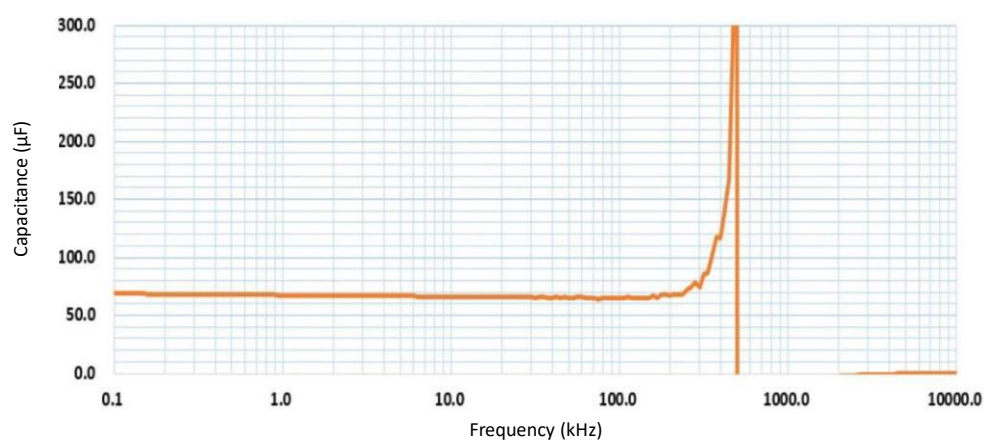
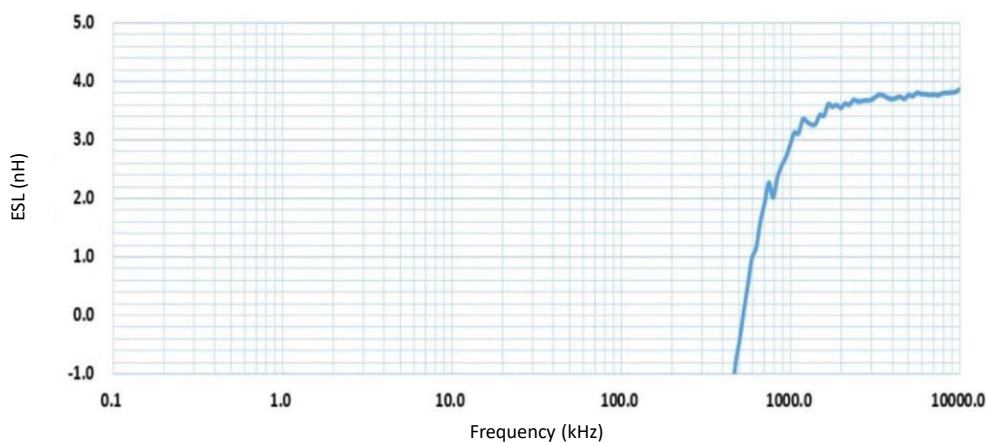

Fig. 5 • Frequency Characteristics of C (μ F)


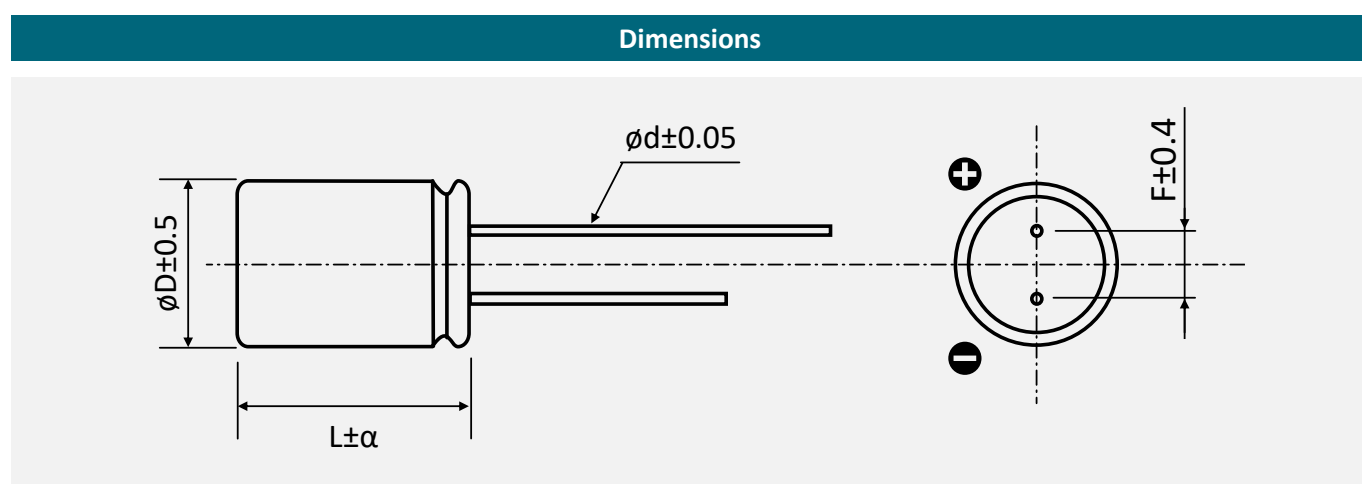
Fig. 6 • Frequency Characteristics of ESL (nH)



FREQUENCY CORRECTION FACTOR

Frequency Correction Factor of Permissible Ripple Current							
Frequency	$120\text{Hz} \leq f < 1\text{kHz}$	$1\text{kHz} \leq f < 5\text{kHz}$	$5\text{kHz} \leq f < 10\text{kHz}$	$10\text{kHz} \leq f < 20\text{kHz}$	$20\text{kHz} \leq f < 300\text{kHz}$	$30\text{kHz} \leq f < 100\text{kHz}$	$100\text{kHz} \leq f < 500\text{kHz}$
Coefficient	0.05	0.3	0.5	0.6	0.7	0.75	1

PACKAGE OUTLINE ▲ All dimensions in mm



Size Code	$\varnothing D \pm 0.5 \text{ max.}$	L	α	$\varnothing d \pm 0.05$	$F \pm 0.4$
06X8	6.3	8.0	-0.5 to +1.0	0.60	2.5
08X8	8.0	8.0	-0.5 to +1.0	0.60	3.5
10A0	10.0	10.0	-0.5 to +1.0	0.60	5.0
10A2	10.0	12.0	-0.5 to +1.0	0.60	5.0

PRODUCT CODE

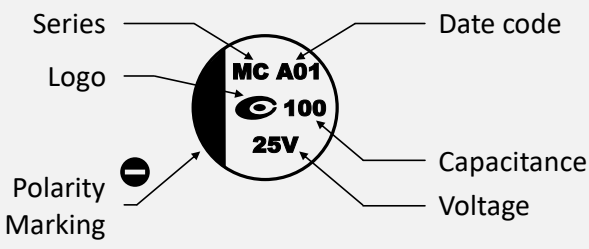
Example: ARMC series ▲ 100μF ▲ 25V_{DC} ▲ ±20% ▲ D=6.3mm ▲ L=8mm ▲ F=2.5mm ▲ Tape/Ammo

250		ARMC		101		M		06X8		T	
Rated Voltage (V _{DC})		Series		Capacitance Code ^{Note 1} (μF)		Capacitance Tolerance (%)		Package Code		Packaging Type	
Code	VDC	Code	Series	Code	μF	Code	Tol.	Code	D x L	Code	Type
250	25	ARMC	ARMC	220	22	M	±20	06X8	6.3 x 8.0	Blank T	Bulk Tape/Ammo
350	35			560	56			08X8	8.0 x 8.0		
500	50			101	100			10A0	10.0 x 10.0		
630	63			331	330			10A2	10.0 x 12.0		
800	80			471	470						

Note:

- Capacitance code expressed in μF. The first two digits represent significant figures. The last digit specifies the total number of zeros to be added.

PRODUCT MARKING

Marking	Details	
	Marking	Description
	Logo	Manufacturer Logo
	Series	MC = ARMC
	Date code	See date code table
	Capacitance	100 = 100μF
	Voltage	25V = 25V
	Polarity Marking (-)	Polarity (-) marking

DATE CODE

Example:

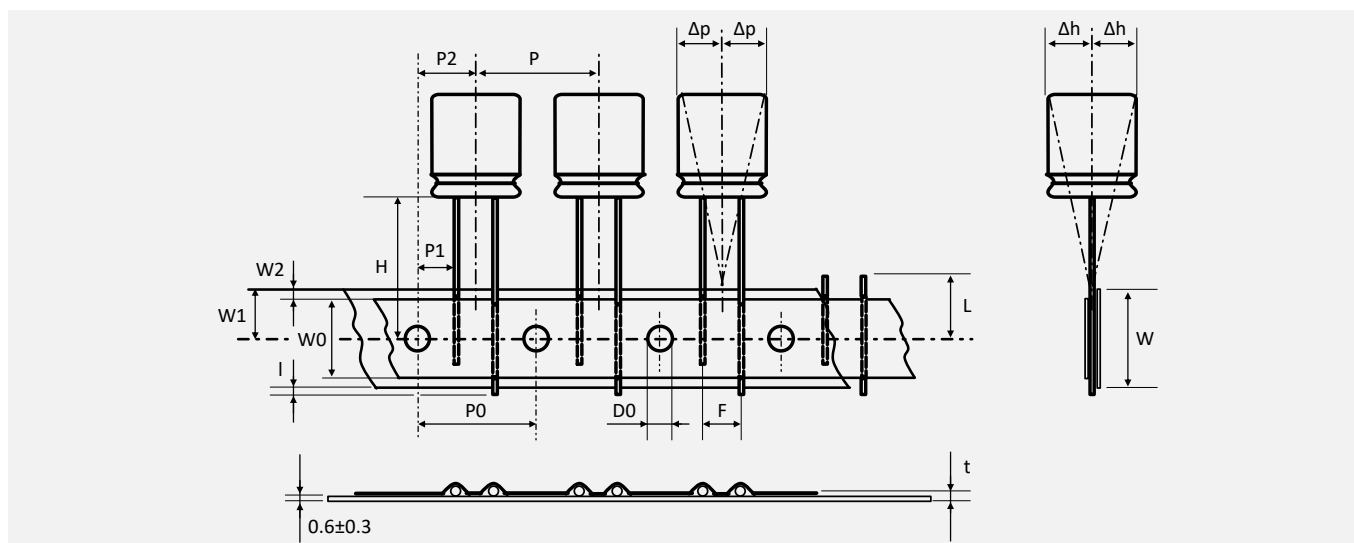
Date code

A01: A01 = 1st week of 2020

A		01	
Year		Week	
A	2019	01	1 st
B	2020	02	2 nd
...	...	...	...
Z	2030	53	53 rd

TAPING SPECIFICATION ▲ THT TYPE

Dimensions in mm



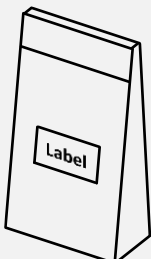
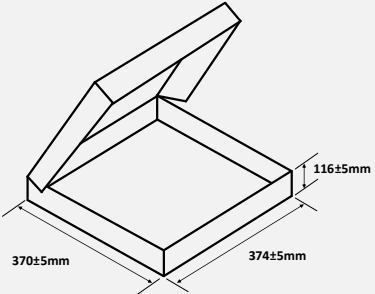
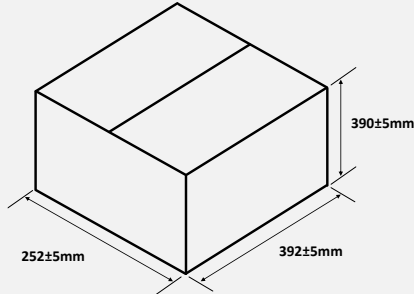
Size Code	F	P	P0	P1	P2	Δp	Δh	W	W0	W1	W2	H	ØD0	t	l	L
Tolerance	+0.8	±1.0	±0.2	±0.5	±1.0	±1.0	±1.0	±0.5	Min	±0.5	Max	±0.75	±0.2	±0.3	Max	max
	-0.2															
06X8	2.5	12.7	12.7	5.1	6.35	0	0	18	9.5	9	2.5	18.5	4	0.6	0	11
08X8	3.5	12.7	12.7	4.6	6.35	0	0	18	9.5	9	2.5	18.5	4	0.6	0	11
10A0	5	12.7	12.7	3.85	6.35	0	0	18	9.5	9	2.5	18.5	4	0.6	0	11
10A2	5	12.7	12.7	3.85	6.35	0	0	18	9.5	9	2.5	18.5	4	0.6	0	11

AMMO PACKAGING QUANTITIES ▲ THT TYPE

Carton	Diameter (mm)	Length (mm)	Size Code	L max. (mm)	W max. (mm)	H max. (mm)	Qty per carton (pcs)
	Ø 6.3	8.0	06X8	335	42	260	2000
	Ø 8.0	8.0	08X8	335	42	260	1200
	Ø 10.0	10.0	10A0	335	45	260	650
	Ø 10.0	12.0	10A2	335	45	260	650

BULK PACKAGING ▲ THT TYPE

Code	Capacitor Dimensions		Quantity / Bag	Quantity / Inner Box		Quantity outer box	
	ØD	L					
06X8	6.3	8.0	500 pcs	6 bags	3 000 pcs	5 inner boxes	15 000 pcs
08X8	8.0	8.0	500 pcs	4 bags	2 000 pcs	5 inner boxes	10 000 pcs
10A0	10.0	10.0	300 pcs	4 bags	1 200 pcs	5 inner boxes	6 000 pcs
10A2	10.0	12.0	300 pcs	4 bags	1 200 pcs	5 inner boxes	6 000 pcs

Bag	Inner Box	Outer Carton
		
Label content Size L x W = 70mm x 50mm 1. P/N: Customer part number 2. R-ID: CCF1001290001 CCF: Fix 10: e.g., 2010 01: e.g., January 29: e.g., Day 29 th 0001: Running number 3. DESC: Customer specification 4. SPEC: Manufacturer part number 5. COO: Country of origin 6. MAKER: Manufacturer 7. VENDOR: Manufacturer 8. DC: Date code 9. LOT/NO: Production lot	Label on the inner box Size L x W = 70mm x 35mm 1. P/N: Customer part number 2. DESC: Customer specification 3. SPEC: Manufacturer part number 4. COO: Country of origin 5. QTY: Quantity (pcs) 6. MAKER: Manufacturer 7. VENDOR: Manufacturer 8. DC: Date code 9. LOT/NO: Production lot	Label on the outer carton Size L x W = 100mm x 90mm 1. CUSTOMER: Customer name 2. P/O: Customer order number 3. P/N: Customer part number 4. DESCRIPTION: Manufacturer part number 5. QTY: Quantity (pcs) and shipping date 6. COO: Country of origin

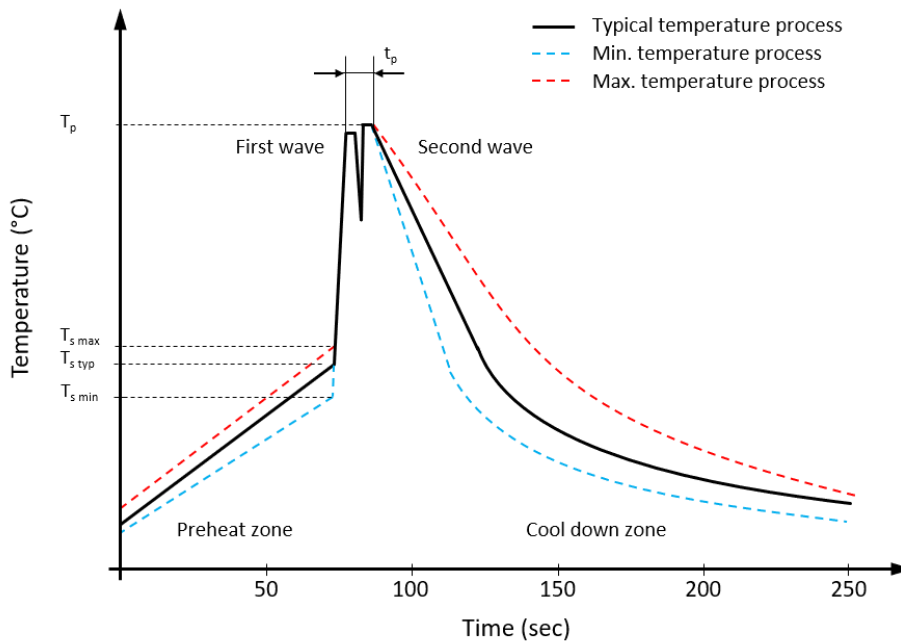
BULK PACKAGING ▲ THT TYPE WITH CUTTED LEADS ^{NOTE 1}

Code	Capacitor Dimensions		Quantity / Bag	Quantity / Inner Box		Quantity outer box	
	ØD	L					
06X8	6.3	8.0	500 pcs	8 bags	4 000 pcs	5 inner boxes	20 000 pcs
08X8	8.0	8.0	500 pcs	6 bags	3 000 pcs	5 inner boxes	15 000 pcs
10A0	10.0	10.0	500 pcs	4 bags	2 000 pcs	5 inner boxes	10 000 pcs
10A2	10.0	12.0	500 pcs	4 bags	2 000 pcs	5 inner boxes	10 000 pcs

Note:

- 1 Please consult MGT for possible lead length, drawing and ordering code.

RECOMMENDED WAVE SOLDERING PROFILE ▲ THT PACKAGE



Profile Features		Value ▲ Sn-Pb Assembly	Value ▲ Pb-free Assembly
Preheat temperature min.	$T_{s \min}$	100 °C	100 °C
Preheat temperature typical	$T_{s \text{ typ}}$	120 °C	120 °C
Preheat temperature max.	$T_{s \max}$	130 °C	130 °C
Preheat time t_s from $T_{s \min}$ to $T_{s \max}$	t_s	70 seconds	70 seconds
Peak temperature	T_p	235 °C to 260 °C	245 °C to 260 °C
Time of actual peak temperature	t_p	Max. 10 seconds Max. 5 second each wave	Max. 10 seconds Max. 5 second each wave
Ramp-down rate min.		~ 2 °C/second	~ 2 °C/second
Ramp-down rate typical		~ 3.5 °C/second	~ 3.5 °C/second
Ramp-down rate max.		~ 5 °C/second	~ 5 °C/second
Time 25°C to 25°C		4 minutes	4 minutes

SOLDERING SUGGESTIONS

When solder a capacitor, heat in soldering is conducted to the element of the capacitor from wire lead and an enclosure, and hence it should be noted that soldering under high temperature and a long period may cause deterioration of breakdown of capacitors. Be sure to solder within the recommended temperature condition range.

HAND SOLDERING

- Soldering iron top temperature: $\leq 350^\circ\text{C}$
- Soldering time: $\leq 3\text{sec}$

If re-work or dipping twice in necessary, it should be done after the capacitor returned to the normal temperature.

Suggestion time is 24 hours.

THT capacitors are not suitable for reflow soldering.

When SMD components are used together with film capacitor, the film capacitor should not pass into the SMD adhesive curing oven. The film capacitor should be assembled after the SMD process.

REVISION TABLE

Revision	Date	Status	Notes
001	01/10/2021	Initial release	Initial publication

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It is subject to the user's duty of care to design and validate his products in such a way that appropriate measures are taken, such as protective circuits or redundant systems to ensure the safety standards required in the application.

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