

Safety Ceramic Capacitor X1/Y2 Class SMD Encapsulated

MCY-P Series

MERITEK

FEATURE

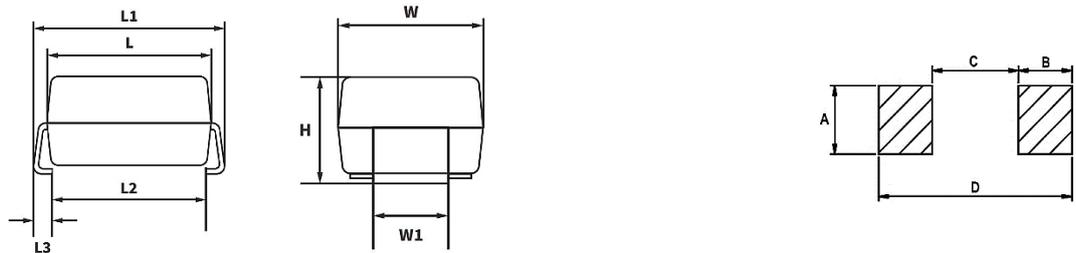
- Rated Capacitance Range: 10pF~4.7nF
- Temperature Characteristic: SL, Y5P, Y5U, Y5V
- The Product Height Is 2.4mm, Significantly Reduced Compared to Traditional Lead-Type Capacitor
- Flammability Classification: UL94V-0
- Applications: Filtering in AC Circuits, Primary and Secondary Coupling in Switch-Mode Power Supplies and AC Converters



ELECTRICAL CHARACTERISTICS

EIA Size	Capacitance Range (pF)	Rated Voltage		Temperature Coefficient				Dissipation Factor				Operating Temperature (°C)
		X1	Y2	SL	Y5P	Y5U	Y5V	SL	Y5P	Y5U	Y5V	
		(V _{AC})	(V _{AC})	(PPM)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	
2522	10~4700	440	300	-1000~+350	±10	-56~+22	-80~+30	≤0.15	≤2.5	≤2.5	≤2.5	-40~+125
1815	10~1000	440	300	-1000~+350	±10	-56~+22	-80~+30	≤0.15	≤2.5	≤2.5	≤2.5	-40~+125

DIMENSION



Unit: mm

EIA Size	L	W	H	L1	L2	L3	W1	A	B	C	D
2522	6.0±0.1	5.55±0.1	2.38±0.1	7.0±0.15	6.0±0.15	0.5±0.1	2.5±0.02	3.6±0.2	2.2±0.2	5.5 Min.	9.5 Min.
1815	4.3±0.1	3.6±0.1	2.2±0.1	5.0±0.15	4.0±0.1	0.5±0.1	1.8±0.02	3.2±0.2	2.2±0.2	4.0 Min.	8.0 Min.

PART NUMBERING SYSTEM

MCY 2522 B 101K P
(1) (2) (3) (4) (5)

No.	Item	Code	Description
(1)	Product Code	MCY	X1/Y2 Safety Ceramic Capacitor
(2)	Series Code	2522	EIA size: 6.0 x 5.55 mm (L x W)
(3)	Temperature Coefficient	B	B: Y5P S: SL, E: Y5U, F: Y5V
(4)	Nominal Capacitance	101K	100pF± 10% (K) First two digits: Significant, Third: Multiplier
(5)	Internal Code	P	SMD Plastic Encapsulated Type

ELECTRICAL CHARACTERISTICS

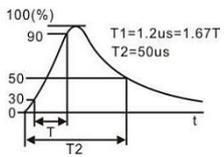
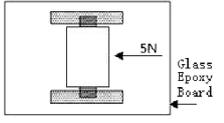
EIA Size	Temperature Coefficient	Nominal Capacitance		Tolerance	Part Number
		(pF)	Code	(%)	
2522	SL (S)	10	100	±10% (K)	MCY2522S100KP
2522	SL (S)	12	120	±10% (K)	MCY2522S120KP
2522	SL (S)	15	150	±10% (K)	MCY2522S150KP
2522	SL (S)	18	180	±10% (K)	MCY2522S180KP
2522	SL (S)	20	200	±10% (K)	MCY2522S200KP
2522	SL (S)	27	270	±10% (K)	MCY2522S270KP
2522	SL (S)	30	300	±10% (K)	MCY2522S300KP
2522	SL (S)	33	330	±10% (K)	MCY2522S330KP
2522	SL (S)	39	390	±10% (K)	MCY2522S390KP
2522	SL (S)	47	470	±10% (K)	MCY2522S470KP
2522	SL (S)	56	560	±10% (K)	MCY2522S560KP
2522	SL (S)	68	680	±10% (K)	MCY2522S680KP
2522	Y5P (B)	82	820	±10% (K)	MCY2522B820KP
2522	Y5P (B)	100	101	±10% (K)	MCY2522B101KP
2522	Y5P (B)	120	121	±10% (K)	MCY2522B121KP
2522	Y5P (B)	150	151	±10% (K)	MCY2522B151KP
2522	Y5P (B)	180	181	±10% (K)	MCY2522B181KP
2522	Y5P (B)	200	201	±10% (K)	MCY2522B201KP
2522	Y5P (B)	220	221	±10% (K)	MCY2522B221KP
2522	Y5P (B)	270	271	±10% (K)	MCY2522B271KP
2522	Y5P (B)	300	301	±10% (K)	MCY2522B301KP
2522	Y5P (B)	330	331	±10% (K)	MCY2522B331KP
2522	Y5U (E)	390	391	±20% (M)	MCY2522E391MP
2522	Y5U (E)	470	471	±20% (M)	MCY2522E471MP
2522	Y5U (E)	560	561	±20% (M)	MCY2522E561MP
2522	Y5U (E)	680	681	±20% (M)	MCY2522E681MP
2522	Y5U (E)	820	821	±20% (M)	MCY2522E821MP
2522	Y5U (E)	1000	102	±20% (M)	MCY2522E102MP
2522	Y5U (E)	1200	122	±20% (M)	MCY2522E122MP
2522	Y5U (E)	1500	152	±20% (M)	MCY2522E152MP
2522	Y5U (E)	1800	182	±20% (M)	MCY2522E182MP
2522	Y5U (E)	2000	202	±20% (M)	MCY2522E202MP
2522	Y5U (E)	2200	222	±20% (M)	MCY2522E222MP
2522	Y5U (E)	3300	332	±20% (M)	MCY2522E332MP
2522	Y5V (F)	3900	392	±20% (M)	MCY2522F392MP
2522	Y5V (F)	4700	472	±20% (M)	MCY2522F472MP
1815	SL (S)	10	100	±10% (K)	MCY1815S100KP
1815	SL (S)	12	120	±10% (K)	MCY1815S120KP
1815	SL (S)	15	150	±10% (K)	MCY1815S150KP
1815	SL (S)	18	180	±10% (K)	MCY1815S180KP
1815	SL (S)	20	200	±10% (K)	MCY1815S200KP
1815	SL (S)	27	270	±10% (K)	MCY1815S270KP
1815	SL (S)	30	300	±10% (K)	MCY1815S300KP
1815	SL (S)	33	330	±10% (K)	MCY1815S330KP
1815	SL (S)	39	390	±10% (K)	MCY1815S390KP
1815	SL (S)	47	470	±10% (K)	MCY1815S470KP
1815	SL (S)	56	560	±10% (K)	MCY1815S560KP
1815	SL (S)	68	680	±10% (K)	MCY1815S680KP
1815	Y5P (B)	82	820	±10% (K)	MCY1815B820KP
1815	Y5P (B)	100	101	±10% (K)	MCY1815B101KP
1815	Y5P (B)	120	121	±10% (K)	MCY1815B121KP
1815	Y5P (B)	150	151	±10% (K)	MCY1815B151KP
1815	Y5P (B)	180	181	±10% (K)	MCY1815B181KP
1815	Y5P (B)	200	201	±10% (K)	MCY1815B201KP
1815	Y5P (B)	220	221	±10% (K)	MCY1815B221KP
1815	Y5P (B)	270	271	±10% (K)	MCY1815B271KP
1815	Y5P (B)	300	301	±10% (K)	MCY1815B301KP
1815	Y5P (B)	330	331	±10% (K)	MCY1815B331KP
1815	Y5U (E)	390	391	±20% (M)	MCY1815E391MP
1815	Y5U (E)	470	471	±20% (M)	MCY1815E471MP
1815	Y5U (E)	560	561	±20% (M)	MCY1815E561MP
1815	Y5U (E)	680	681	±20% (M)	MCY1815E681MP
1815	Y5U (E)	820	821	±20% (M)	MCY1815E821MP
1815	Y5U (E)	1000	102	±20% (M)	MCY1815E102MP
1815	Y5V (F)	1200	122	±20% (M)	MCY1815F122MP
1815	Y5V (F)	1500	152	±20% (M)	MCY1815F152MP
1815	Y5V (F)	1800	182	±20% (M)	MCY1815F182MP
1815	Y5V (F)	2000	202	±20% (M)	MCY1815F202MP
1815	Y5V (F)	2200	222	±20% (M)	MCY1815F222MP

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RELIABILITY

Item	Test Conditions / Method	Specifications															
Vibration	Frequency range: 10 ~ 55 Hz Amplitude: 1.5mm within 1 min. Direction: 3 mutually perpendicular directions, 2 hrs each.	Within tolerance range No visible damage															
Solderability	Solder: 245 ±3°C, 3 ±0.3 sec Solder composition: Sn98Ag2	At least 75% of terminal electrode is covered by new solder															
Resistance to Soldering Heat	Pre-treatment: 150 +0/-10°C for 60 ±5 mins for Y5P&Y5U; 100~120°C for 1 min for SL&Y5V Solder: 260 ±5°C, for 10 ±1 seconds Test after standing at room temperature for 24±2 hrs	$ \Delta C/C \leq 10\%$ No visible damage Dielectric strength test pass															
High Temperature Storage	Pre-test preparation: Capacitors must be stored at 125±2°C for 1hr, then stand by 24 ±2 hrs at room temperature Stored at 125 ±5°C for 1000 hrs Test after standing at room temperature for 24±2 hrs	$ \Delta C/C \leq 20\%$ No visible damage I.R.>5000MΩ Dielectric strength test pass															
Low Temperature Storage	Pre-test preparation: Capacitors must be stored at 125±2°C for 1hr, then stand by 24 ±2 hrs at room temperature Stored at -40 ±5°C for 1000± 24 hrs Test after standing at room temperature for 24±2 hrs	$ \Delta C/C \leq 20\%$ No visible damage I.R.>5000MΩ Dielectric strength test pass															
Damp Heat, Steady State	40 ±2°C, 90 ~ 95%RH for 500 ±12 hrs Test after standing at room temperature for 1~2 hrs	$ \Delta C/C \leq 15\%$ No visible damage I.R.>5000MΩ Dielectric strength test pass															
Damp Heat, with Load	40 ±2°C, 90 ~ 95%RH, applies rated voltage for 500 ±12 hrs Test after standing at room temperature for 1~2 hrs	$ \Delta C/C \leq 15\%$ No visible damage I.R.>5000MΩ Dielectric strength test pass															
Rapid Change of Temperature	Pre-test preparation: Capacitors must be stored at 125±2°C for 1hr, then stand by 24 ±2 hrs at room temperature The conditions shown below shall be repeated 5 cycles. <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Period (minutes)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40+0/-3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25+0/-3</td> <td>3</td> </tr> <tr> <td>3</td> <td>125+3/-0</td> <td>30</td> </tr> <tr> <td>4</td> <td>25+0/-3</td> <td>3</td> </tr> </tbody> </table> Test after standing at room temperature for 24±2 hrs	Step	Temperature (°C)	Period (minutes)	1	-40+0/-3	30	2	25+0/-3	3	3	125+3/-0	30	4	25+0/-3	3	$ \Delta C/C \leq 20\%$ No visible damage I.R.>5000MΩ Dielectric strength test pass
Step	Temperature (°C)	Period (minutes)															
1	-40+0/-3	30															
2	25+0/-3	3															
3	125+3/-0	30															
4	25+0/-3	3															
Durability	Peak Voltage: Each test capacitor withstands three instances of 8KVDC peak voltage, followed by a life test. Conduct a 1000 +48/-24 hrs test at 125+2/-0°C with relative humidity not exceeding 50%, applies 1.7 time of rated voltage increases the voltage by AC1000V every hour for 0.1s." Test after standing at room temperature for 1~2 hrs	 $ \Delta C/C \leq 20\%$ No visible damage I.R.>5000MΩ Dielectric strength test pass															
Welding Strength	Weld the capacitor onto the test fixture as shown in the diagram, apply a 5N pushing force in the direction of the arrow. Solder the capacitor using reflow soldering and handle with care to avoid damage from heat shocks.	 No pin misalignment or other adverse events															
Dielectric Strength	The capacitor withstands the test voltage of 2600VAC (r.m.s) for 60s between the two terminals, voltage rise time> 0.3s	No breakdown or arcing															
Insulation Resistance	Charging at 500VDC for 60 ±5s	>10000MΩ															

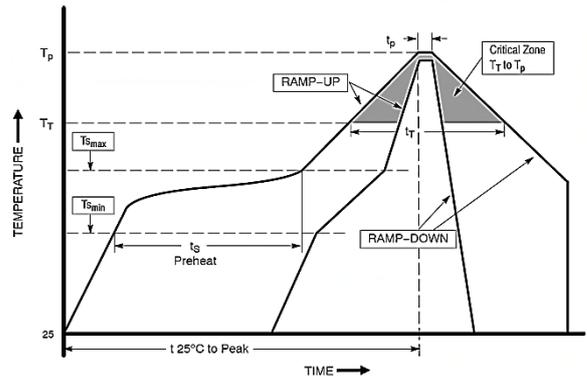
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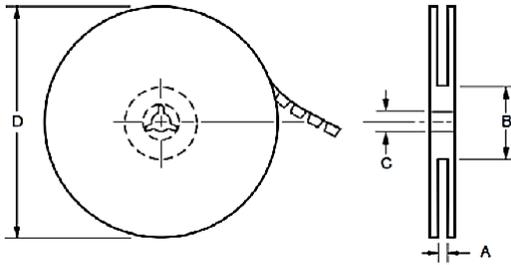
RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temp. Min $T_{s(min)}$	130°C
	Temp. Max $T_{s(max)}$	170°C
	Time (min. to max.) (t_s)	60~120 seconds
$T_{s(max)}$ to T_L (Ramp-up rate)		3°C/second max.
Average ramp up rate (T_L) to peak		3°C/second max.
Reflow	Temp. (T_L)	230°C
	Time (min. to max.) (t_L)	60~120 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of peak Temperature (t_p)		20 seconds max.
Ramp-down Rate		6°C/second

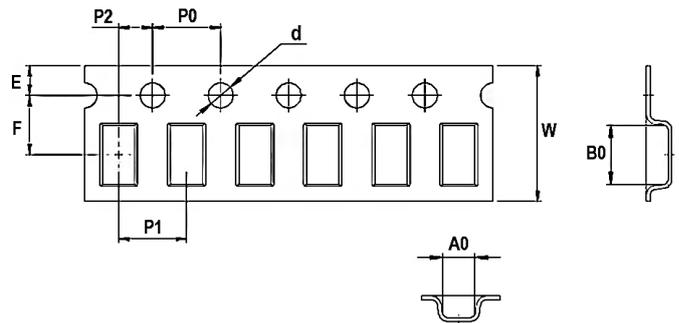


PACKAGING DIMENSION

Reel Specification



Plastic Tape Specification



EIA Size	Reel Dimension (mm)				Tape Dimensions (mm)									Quantity
	A ±0.2	B ±3.0	C ±1	D 0/-2	A0 ±0.1	B0 ±0.1	E ±0.1	F ±0.1	W ±0.2	P1 ±0.1	P0 ±0.1	P2 ±0.1	d +0.1	Pcs Per Reel
2522	12.5	100	13.3	330	5.7	7.3	1.75	7.5	16.0	8.0	4.0	2.0	1.5	3000
1815	24.4	100	13.3	380	4.2	5.7	1.75	5.5	12.0	8.0	4.0	2.0	1.5	3000

*Specifications subject to change without notice.