

THB 2,000 Hr @ 85 °C, 85% RH, and Vr, AEC-Q200

The MXH series of X2, across-the-line EMI suppression capacitors are designed for the most challenging environments. The series passes a 2,000-hour THB test, twice the 1,000-hour industry standard for THB testing. The MXH series is AEC-Q200 qualified and possesses international agency approvals for safety and performance for X2, across-the-line applications.



Highlights

- Excels at EMI Suppression in harsh environmental conditions
- THB 2,000 Hr @ 85 °C, 85% RH, and Vr
- Automotive Grade (AEC-Q200) qualified
- High operating temperature: up to 110 °C
- International agency approvals for safety and performance

Specifications

Capacitance Range	0.1 µF to 15 µF
Capacitance Tolerance	±10 % (±20% optional)
Rated Voltage	305 Vac, 630 Vdc
Operating Temperature Range	-40 °C to +110 °C (+85 °C to 110 °C, voltage derating factor of 1.35% per Deg. C)
Life Expectancy	100,000h at rated voltage and hot spot temperature ≤85 °C
Voltage Between Terminals UTT	DC Voltage: $4.3U_R$ for 60s or $\sqrt{2}(2U_R + 1000Vac)$ VDC for 2s, charge current must be 1A max. Withstanding DC voltage (cut-off current 10mA) Rise time 100V/s
Voltage Between Terminals and Case UTC	$2U_R + 1500Vac$, 60s at 20 °C
Dissipation Factor	0.001 @ 1KHz @ 20 °C
Insulation Resistance	C ≤0.33µF at 100V; 1 min. > 15000 MΩ C >0.33µF at 100V; 1 min. > 5000 MΩ*µF
IEC Climatic Category	40/110/56 IEC60068-1
THB Rating	+85°C / 85% RH @ rated voltage for 2,000hrs +24/-0 Capacitance Change Rate: (ΔC/C): ≤±10% DF Change (Δtgδ): ≤240*10 ⁻⁴ at 10 KHz (C ≤ 1µF) DF Change (Δtgδ): ≤150*10 ⁻⁴ at 1 KHz (C > 1µF) IR: ≥ 50% of initial limit
Damp Heat, Steady State (Reference: IEC 60384-14; 2013/AMD1:2016)	+40°C / 93% RH @ rated voltage for 1,344 hrs +24/-0 Capacitance Change Rate: (ΔC/C): ≤±5% DF Change (Δtgδ): ≤80*10 ⁻⁴ at 10 KHz (C ≤ 1µF) DF Change (Δtgδ): ≤50*10 ⁻⁴ at 1 KHz (C > 1µF) IR: ≥ 50% of initial limit
Storage Conditions	-10 °C to +40 °C ≤24 months with RH ≤70%
RoHS Compliant	

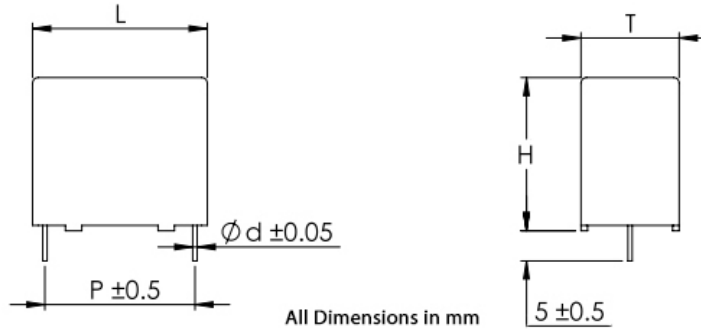
Safety Agency	Standard	File Number
UL	UL 60384-14 CSA-E60384-14	E171988
VDE	IEC 60384-14:2013 IEC 60384-14:2013/AMD1:2016	40055249
CQC	IEC 60384-14:2013/ AMD1:2016	CQC23001381667

Construction Details	
Case Material	Plastic UL 94V-0
Resin Material	Epoxy Resin UL 94V-0
Terminal Material	Copper Clad Steel or Tinned Copper Wires

TYPE MXH, X2, EMI, RFI Suppression Capacitors, Harsh Environment

THB 2,000 Hr @ 85 °C, 85% RH, and Vr, AEC-Q200

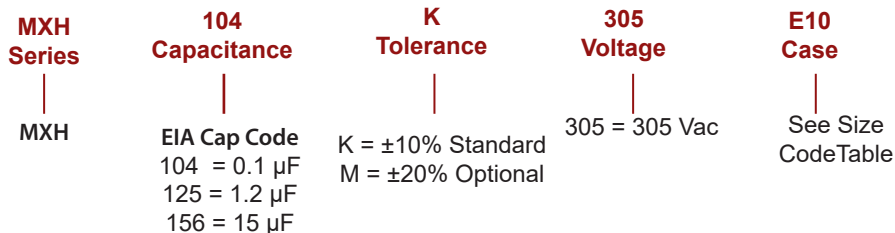
Dimensions



Size Code Table

Size	Dimensions (mm)						Pitch (mm)	Lead Wire (mm)
	Code	L	Tol. ±	H	Tol. ±	T		
E10	18	0.5	11	0.5	5	0.5	15	0.6
E11	18	0.5	12	0.5	6	0.5	15	0.6
E13	18	0.5	13.5	0.5	7.5	0.5	15	0.8
E14	18	0.5	14.5	0.5	8.5	0.5	15	0.8
E20	18	0.5	16	0.5	10	0.5	15	0.8
E21	18	0.5	19	0.5	11	0.5	15	0.8
G11	26	0.5	16.5	0.5	7	0.5	22.5	0.8
G20	26	0.5	19	0.5	10	0.5	22.5	0.8
G22	26	0.5	22	0.5	12	0.5	22.5	0.8
G23	26	0.5	23	0.5	13	0.5	22.5	0.8
G24	26	0.5	29.5	0.5	14.5	0.5	22.5	0.8
H11	32	0.8	18	0.8	9	0.8	27.5	0.8
H20	32	0.8	20	0.8	11	0.8	27.5	0.8
H22	32	0.8	24.5	0.8	13	0.8	27.5	0.8
H23	32	0.8	24	0.8	14	0.8	27.5	0.8
H27	32	0.8	28	0.8	18	0.8	27.5	0.8
H28	32	0.8	33	0.8	18	0.8	27.5	0.8
H30	32	0.8	37	0.8	22	0.8	27.5	0.8
N31	42	1	37	1	22	1	37.5	1
N30	42	1	40	1	20	1	37.5	1
N32	42	1	44	1	24	1	37.5	1
N40	42	1	45	1	30	1	37.5	1

Part Numbering System



THB 2,000 Hr @ 85 °C, 85% RH, and Vr, AEC-Q200

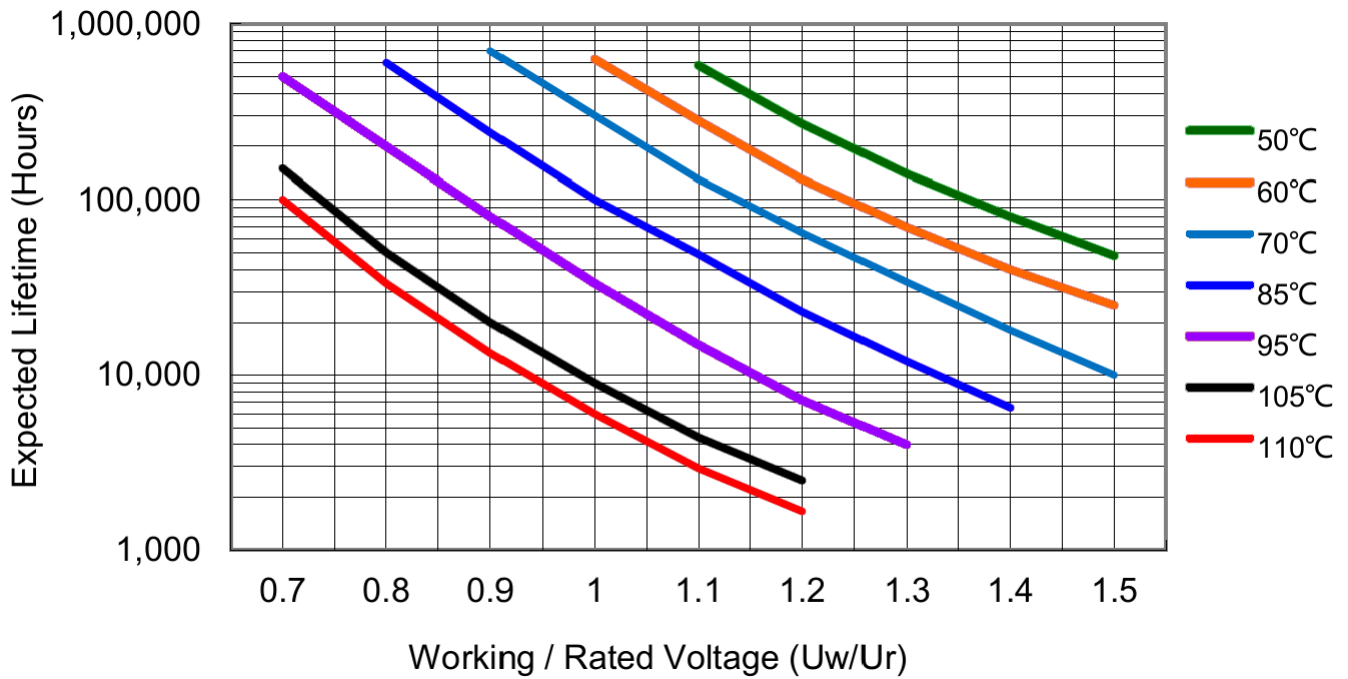
Ratings

Part Number	Cap (μ F)	Dimensions				dv/dt V/us	Lead Wire (mm)
		L (mm)	H (mm)	T (mm)	P (mm)		
305 VAC							
MXH104K305E10	0.1	18	11	5	15	400	0.6
MXH154K305E11	0.15	18	12	6	15	400	0.6
MXH224K305E13	0.22	18	13.5	7.5	15	400	0.8
MXH224K305E14	0.22	18	14.5	8.5	15	400	0.8
MXH224K305G11	0.22	26	16.5	7	22.5	200	0.8
MXH274K305E14	0.27	18	14.5	8.5	15	400	0.8
MXH334K305E14	0.33	18	14.5	8.5	15	400	0.8
MXH334K305G11	0.33	26	16.5	7	22.5	200	0.8
MXH474K305E20	0.47	18	16	10	15	400	0.8
MXH474K305G11	0.47	26	16.5	7	22.5	200	0.8
MXH564K305E21	0.56	18	19	11	15	400	0.8
MXH564K305G20	0.56	26	19	10	22.5	200	0.8
MXH684K305E21	0.68	18	19	11	15	400	0.8
MXH684K305G20	0.68	26	19	10	22.5	200	0.8
MXH684K305H11	0.68	32	18	9	27.5	150	0.8
MXH824K305H11	0.82	32	18	9	27.5	150	0.8
MXH105K305G20	1	26	19	10	22.5	200	0.8
MXH105K305H20	1	32	20	11	27.5	150	0.8
MXH125K305G22	1.2	26	22	12	22.5	200	0.8
MXH155K305G23	1.5	26	23	13	22.5	200	0.8
MXH155K305H22	1.5	32	24.5	13	27.5	150	0.8
MXH185K305G24	1.8	26	29.5	14.5	22.5	200	0.8
MXH185K305H22	1.8	32	24.5	13	27.5	150	0.8
MXH225K305G24	2.2	26	29.5	14.5	22.5	200	0.8
MXH225K305H23	2.2	32	24	14	27.5	150	0.8
MXH275K305H27	2.7	32	28	18	27.5	150	0.8
MXH335K305H28	3.3	32	33	18	27.5	150	0.8
MXH395K305H28	3.9	32	33	18	27.5	150	0.8
MXH475K305H30	4.7	32	37	22	27.5	150	0.8
MXH685K305N31	6.8	42	37	22	37.5	100	1
MXH685K305N30	6.8	42	40	20	37.5	100	1
MXH106K305N32	10	42	44	24	37.5	100	1
MXH126K305N40	12	42	45	30	37.5	100	1
MXH156K305N40	15	42	45	30	37.5	100	1

Note: Ammo Pack taping available.

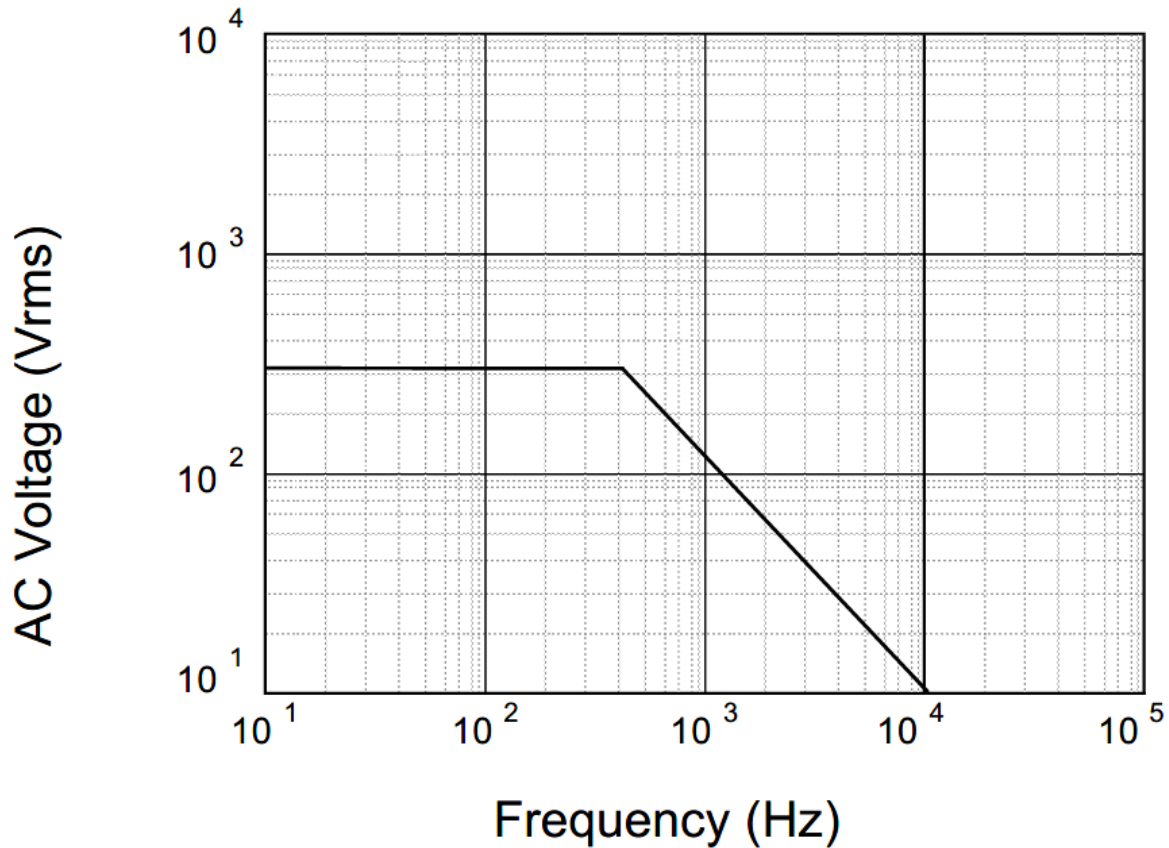
THB 2,000 Hr @ 85 °C, 85% RH, and Vr, AEC-Q200

Expected Life Curve



Maximum Voltage (Vrms) Versus Frequency

305Vac



Notice and Disclaimer: All product drawings, descriptions, specifications, statements, information and data (collectively, the "Information") in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements ("Cornell Dubilier") has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.