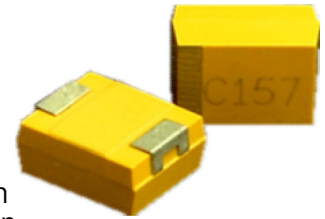


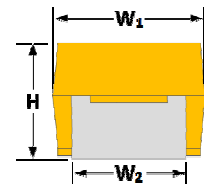
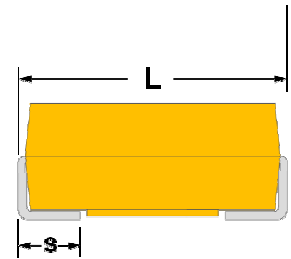
## Product characteristics

- Epoxy resin molded package, sheet, easy to integrate, polarity, all aspects of the performance is better than the conventional chip tantalum capacitor;
- Small size, light weight, can save large capacitor, energy storage, filter and decoupling required circuit board space;
- Stable electrical and storage performance, up to 125C when voltage derating, long working life, high reliability;
- Typical applications include terminal decoupling and filtering applications in automotive, such as DC/DC converters, portable electronics, communication electronics, and control units.



## Overall dimensions (mm)

Shell number	EIA English code	EIA metric code	L	W <sub>1</sub>	H	S	W <sub>2</sub>
A	1206	3216 - 18	3.30±0.20	1.70±0.20	1.80±0.20	0.70±0.20	1.20±0.20
B	1210	3528 - 21	3.60±0.20	2.90±0.20	2.10±0.20	0.70±0.20	2.20±0.20
C	2312	6032 - 28	6.20±0.20	3.30±0.20	2.60±0.20	1.30±0.20	2.20±0.20
H	2917	7343 - 19	7.40±0.20	4.40±0.20	2.00±0.20	1.30±0.20	2.40±0.20
D	2917	7343 - 31	7.40±0.20	4.40±0.20	3.00±0.20	1.30±0.20	2.40±0.20
E	2917	7343 - 43	7.40±0.40	4.40±0.40	4.30±0.40	1.30±0.20	2.40±0.20
V	2924	7360 - 38	7.50±0.40	6.20±0.40	3.80±0.40	1.40±0.20	3.00±0.20



## Product code

**QHL45** Model number  
**-** separator  
**D** Case size See table above  
**010** Dc rated voltage  
 004=4Vdc; 6R3=6.3Vdc;  
 010=10Vdc; 016=16Vdc;  
 020=20Vdc; 025=25Vdc;  
 035=35Vdc; 050=50Vdc;  
**M** Capacity tolerance  
 K=±10%  
 M=±20%  
**107** Capacity code  
 The first 2 digits are significant digits in pF, and the third digit is an exponent. (i.e. how many zeros are followed by a significant number)  
**T** Packing method  
 T = braid

## Environmental statement

The RoHS Declaration (6/6) is in compliance with the requirements of Directive 2002/95/EC, which stipulates the use of 100%Sn solders, gold-coated or non-magnetic 100%Sn solders.



LEAD-FREE



## Product identification

[Voltage code] Rated voltage  
 Code C stands for 16Vdc  
 [Capacity code] The unit is pf  
 Code 476 means 47µf  
 [Positive label]

## Technical characteristics

Technical parameter	All technical parameters were measured at 1 atmosphere at +25 °C							
Capacity range	0.1 µF ~ 680 µF							
Capacity tolerance	±10%; ±20%;							
Rated voltage(V <sub>R</sub> ) ≤+85°C:	4	6.3	10	16	20	25	35	50
Class voltage(V <sub>C</sub> ) ≤+125°C:	2.7	4	6.3	10	15	17	23	33
Surge voltage(V <sub>S</sub> ) ≤+85°C:	5.2	8	13	20	26	32	46	65
Surge voltage(V <sub>S</sub> ) ≤+125°C:	3.4	5	8	13	16	20	28	40
Temperature range	-55°C to +125°C							
Extraction coating	Tin coating (standard), gold coating or tin lead coating to make additional requirements							



Product specification shell number comparison table  
(Shell number code)

Rated voltage (V)		4	6.3	10	16	20	25	35	50
Voltage code		G	J	A	C	D	E	V	T
Capacity value (μF)	Capacity code	Shell number							
0.1	104							A	A
0.15	154							A	A/B
0.22	224							A	A/B
0.33	334						A	A	A/B
0.47	474						A	A/B	A/B/C
0.68	684					A	A	A/B	B/C
1	105				A	A	A/B	A/B	B/C
1.5	155			A	A	A	A/B	A/B/C	C/D
2.2	225		A	A/B	A	A/B	A/B/C	A/B/C	C/D
3.3	335		A	A	A/B	A/B	A/B/C	B/C	C/D
4.7	475		A	A/B	A/B/C	A/B/C	A/B/C	B/C/D	C/D/E
6.8	685		A/B	A/B	A/B/C	A/B/C	B/C/D	C/D/E/H	D/E/V
10	106		A/B	A/B/C	A/B/C	A/B/C	B/C/D	C/D/E/H	D/E
15	156		A/B/C	A/B/C	A/B/C	B/C/D	C/D/E	D/E/V	E
22	226	A	A/B/C	A/B/C	B/C/D	B/C/D	C/D/E	D/E	E
33	336	A	A/B/C	A/B/C/D	B/C/D	C/D/E	D/E/V	D/E	
47	476	A	A/B/C/D	B/C/D	C/D	C/D/E/V	D/E	E/H/V	
68	686	A	A/B/C/D	B/C/D/E	C/D/E	D/E	D/E/V		
100	107	A/B	B/C/D	C/D/E	D/E	E/H/V	E/V		
150	157		B/C/D/E	C/D/E	D/E	D			
220	227		C/D/E/V	D/E	E				
330	337		D/E/H/V	D/E/H/V					
470	477		D/E/H/V	E					
680	687		E/V						



# Automotive grade chip solid electrolyte tantalum capacitor QHL45 Series

## Product code and parameter specification

Product code	Rated voltage	Nominal capacity	Shell number	Maximum leakage current @25	Maximum loss @25 100Hz	ESR Max @ 25 100KHz	Maximum allowable ripple current @100KHz IRMS (A)			Class temperature	MSL
	V	μF		μA	%		Ω	25 °C	85 °C		
QHL45-A004#226T	4	22	A	0.9	6	2.5	0.161	0.097	0.064	125	1
QHL45-A004#336T	4	33	A	1.3	8	3	0.147	0.088	0.059	125	1
QHL45-A004#476T	4	47	A	1.9	12	2.5	0.161	0.097	0.064	125	1
QHL45-A004#686T	4	68	A	2.7	24	2.5	0.161	0.097	0.064	125	1
QHL45-A004#107T	4	100	A	4.0	30	2	0.180	0.108	0.072	125	1
QHL45-B004#107T	4	100	B	4.0	14	0.9	0.289	0.173	0.116	125	1
QHL45-A6R3#225T	6.3	2.2	A	0.5	6	8	0.090	0.054	0.036	125	1
QHL45-A6R3#335T	6.3	3.3	A	0.5	6	8	0.090	0.054	0.036	125	1
QHL45-A6R3#475T	6.3	4.7	A	0.5	6	6	0.104	0.062	0.042	125	1
QHL45-A6R3#685T	6.3	6.8	A	0.5	6	6	0.104	0.062	0.042	125	1
QHL45-B6R3#685T	6.3	6.8	B	0.5	6	3.5	0.146	0.088	0.058	125	1
QHL45-A6R3#106T	6.3	10	A	0.6	6	4	0.127	0.076	0.051	125	1
QHL45-B6R3#106T	6.3	10	B	0.6	6	3.5	0.146	0.088	0.058	125	1
QHL45-A6R3#156T	6.3	15	A	0.9	6	3.5	0.136	0.082	0.054	125	1
QHL45-B6R3#156T	6.3	15	B	0.9	6	3	0.158	0.095	0.063	125	1
QHL45-C6R3#156T	6.3	15	C	0.9	6	1.8	0.224	0.134	0.090	125	1
QHL45-A6R3#226T	6.3	22	A	1.4	6	4	0.127	0.076	0.051	125	1
QHL45-B6R3#226T	6.3	22	B	1.4	6	3.5	0.146	0.088	0.058	125	1
QHL45-C6R3#226T	6.3	22	C	1.4	6	2	0.212	0.127	0.085	125	1
QHL45-A6R3#336T	6.3	33	A	2.1	12	2.5	0.161	0.097	0.064	125	1
QHL45-B6R3#336T	6.3	33	B	2.1	6	3	0.158	0.095	0.063	125	1
QHL45-C6R3#336T	6.3	33	C	2.1	6	1.8	0.224	0.134	0.090	125	1
QHL45-A6R3#476T	6.3	47	A	3.0	12	3.5	0.136	0.082	0.054	125	1
QHL45-B6R3#476T	6.3	47	B	3.0	6	2	0.194	0.116	0.078	125	1
QHL45-C6R3#476T	6.3	47	C	3.0	6	1.8	0.224	0.134	0.090	125	1
QHL45-D6R3#476T	6.3	47	D	3.0	6	0.8	0.362	0.217	0.145	125	1
QHL45-A6R3#686T	6.3	68	A	4.3	20	4	0.127	0.076	0.051	125	1
QHL45-B6R3#686T	6.3	68	B	4.3	8	0.9	0.289	0.173	0.116	125	1
QHL45-C6R3#686T	6.3	68	C	4.3	6	1.5	0.245	0.147	0.098	125	1
QHL45-D6R3#686T	6.3	68	D	4.3	6	0.8	0.362	0.217	0.145	125	1
QHL45-B6R3#107T	6.3	100	B	6.3	14	3	0.158	0.095	0.063	125	1
QHL45-C6R3#107T	6.3	100	C	6.3	8	0.9	0.316	0.190	0.126	125	1
QHL45-D6R3#107T	6.3	100	D	6.3	8	0.9	0.342	0.205	0.137	125	3
QHL45-B6R3#157T	6.3	150	B	9.5	18	1.2	0.250	0.150	0.100	125	1
QHL45-C6R3#157T	6.3	150	C	9.5	8	1.3	0.263	0.158	0.105	125	1
QHL45-D6R3#157T	6.3	150	D	9.5	8	0.9	0.342	0.205	0.137	125	3
QHL45-E6R3#157T	6.3	150	E	9.5	6	0.3	1.118	0.671	0.447	125	1
QHL45-C6R3#227T	6.3	220	C	13.9	14	1.2	0.274	0.164	0.110	125	1
QHL45-D6R3#227T	6.3	220	D	13.9	8	0.7	0.387	0.232	0.155	125	1
QHL45-E6R3#227T	6.3	220	E	13.9	8	0.7	0.423	0.254	0.169	125	1
QHL45-V6R3#227T	6.3	220	V	13.9	8	0.3	1.000	0.600	0.400	125	1
QHL45-D6R3#337T	6.3	330	D	20.8	8	0.4	0.512	0.307	0.205	125	1
QHL45-E6R3#337T	6.3	330	E	20.8	8	0.4	0.559	0.335	0.224	125	1
QHL45-H6R3#337T	6.3	330	H	20.8	8	0.3	0.707	0.424	0.283	125	1
QHL45-V6R3#337T	6.3	330	V	20.8	8	0.5	0.548	0.329	0.219	125	1
QHL45-D6R3#477T	6.3	470	D	29.6	16	0.4	0.512	0.307	0.205	125	3
QHL45-E6R3#477T	6.3	470	E	29.6	10	0.4	0.559	0.335	0.224	125	1
QHL45-H6R3#477T	6.3	470	H	29.6	10	0.3	0.791	0.475	0.316	125	1
QHL45-V6R3#477T	6.3	470	V	29.6	10	0.4	0.612	0.367	0.245	125	1
QHL45-E6R3#687T	6.3	680	E	42.8	10	0.5	0.500	0.300	0.200	125	3
QHL45-V6R3#687T	6.3	680	V	42.8	10	0.5	0.548	0.329	0.219	125	3

- # is the replacement character to indicate the capacity tolerance, fill in K represents +10%, M represents +20%;
- Do not use a multimeter;
- Capacity and loss measurement conditions: 100Hz,  $U_{\text{DC}}=2.2 \cdot U_{\text{N}}$ ,  $U_{\text{AC}}=1.0 \cdot U_{\text{N}}$ , Frequency=100Hz, Series measurement
- If the ambient temperature is higher than +85 °C, the derating voltage is required. (The leakage current parameter is the reading after 5 minutes of power-on.)
- For special sizes or requirements please contact us.



Product code and parameter specification

Product code	Rated voltage	Nominal capacity	Shell number	Maximum leakage current @25	Maximum loss @25 100Hz	ESR Max @ 25 100KHz	Maximum allowable ripple current @100KHz IRMS (A)			Class temperature	MSL
	V	μF		μA	%	Ω	25℃	85℃	125℃	℃	
QHL45-A010#155T	10	1.5	A	0.5	6	8	0.090	0.054	0.036	125	1
QHL45-A010#225T	10	2.2	A	0.5	6	8	0.090	0.054	0.036	125	1
QHL45-B010#225T	10	2.2	B	0.5	6	3.5	0.146	0.088	0.058	125	1
QHL45-A010#335T	10	3.3	A	0.5	6	6	0.104	0.062	0.042	125	1
QHL45-A010#475T	10	4.7	A	0.5	6	6	0.104	0.062	0.042	125	1
QHL45-B010#475T	10	4.7	B	0.5	6	4	0.137	0.082	0.055	125	1
QHL45-A010#685T	10	6.8	A	0.7	6	6	0.104	0.062	0.042	125	1
QHL45-B010#685T	10	6.8	B	0.7	6	3.5	0.146	0.088	0.058	125	1
QHL45-A010#106T	10	10	A	1.0	6	4	0.127	0.076	0.051	125	1
QHL45-B010#106T	10	10	B	1.0	6	3.5	0.146	0.088	0.058	125	1
QHL45-C010#106T	10	10	C	1.0	6	1.8	0.224	0.134	0.090	125	1
QHL45-A010#156T	10	15	A	1.5	6	6	0.104	0.062	0.042	125	1
QHL45-B010#156T	10	15	B	1.5	6	3.5	0.146	0.088	0.058	125	1
QHL45-C010#156T	10	15	C	1.5	6	2	0.212	0.127	0.085	125	1
QHL45-A010#226T	10	22	A	2.2	10	6	0.104	0.062	0.042	125	1
QHL45-B010#226T	10	22	B	2.2	6	3	0.158	0.095	0.063	125	1
QHL45-C010#226T	10	22	C	2.2	6	1.8	0.224	0.134	0.090	125	1
QHL45-A010#336T	10	33	A	3.3	15	2.5	0.161	0.097	0.064	125	1
QHL45-B010#336T	10	33	B	3.3	6	1.8	0.204	0.122	0.082	125	1
QHL45-C010#336T	10	33	C	3.3	6	1.8	0.224	0.134	0.090	125	1
QHL45-D010#336T	10	33	D	3.3	6	1.6	0.256	0.154	0.102	125	1
QHL45-B010#476T	10	47	B	4.7	8	1	0.274	0.164	0.110	125	1
QHL45-C010#476T	10	47	C	4.7	6	1.2	0.274	0.164	0.110	125	1
QHL45-D010#476T	10	47	D	4.7	6	0.8	0.362	0.217	0.145	125	1
QHL45-B010#686T	10	68	B	6.8	10	1.4	0.231	0.139	0.092	125	1
QHL45-C010#686T	10	68	C	6.8	6	1.3	0.263	0.158	0.105	125	1
QHL45-D010#686T	10	68	D	6.8	6	0.9	0.342	0.205	0.137	125	3
QHL45-E010#686T	10	68	E	6.8	4	0.3	0.913	0.548	0.365	125	1
QHL45-C010#107T	10	100	C	10.0	8	1.2	0.274	0.164	0.110	125	1
QHL45-D010#107T	10	100	D	10.0	8	0.9	0.342	0.205	0.137	125	3
QHL45-E010#107T	10	100	E	10.0	6	0.3	0.913	0.548	0.365	125	1
QHL45-C010#157T	10	150	C	15.0	10	0.9	0.316	0.190	0.126	125	1
QHL45-D010#157T	10	150	D	15.0	8	0.9	0.342	0.205	0.137	125	3
QHL45-E010#157T	10	150	E	15.0	8	0.9	0.373	0.224	0.149	125	3
QHL45-D010#227T	10	220	D	22.0	8	0.5	0.458	0.275	0.183	125	1
QHL45-E010#227T	10	220	E	22.0	8	0.5	0.500	0.300	0.200	125	1
QHL45-D010#337T	10	330	D	33.0	14	0.9	0.342	0.205	0.137	125	1
QHL45-E010#337T	10	330	E	33.0	8	0.9	0.373	0.224	0.149	125	3
QHL45-H010#337T	10	330	H	33.0	10	0.3	0.707	0.424	0.283	125	1
QHL45-V010#337T	10	330	V	33.0	10	0.9	0.408	0.245	0.163	125	1
QHL45-E010#477T	10	470	E	47.0	10	0.5	0.500	0.300	0.200	125	1
QHL45-A016#105T	16	1	A	0.5	4	11	0.077	0.046	0.031	125	1
QHL45-A016#155T	16	1.5	A	0.5	6	8	0.090	0.054	0.036	125	1
QHL45-A016#225T	16	2.2	A	0.5	6	6.5	0.100	0.060	0.040	125	1
QHL45-A016#335T	16	3.3	A	0.5	6	5	0.114	0.068	0.046	125	1
QHL45-B016#335T	16	3.3	B	0.5	6	4.5	0.129	0.077	0.052	125	1
QHL45-A016#475T	16	4.7	A	0.8	6	4	0.127	0.076	0.051	125	1
QHL45-B016#475T	16	4.7	B	0.8	6	6	0.112	0.067	0.045	125	1
QHL45-C016#475T	16	4.7	C	0.8	6	2.4	0.194	0.116	0.078	125	1
QHL45-A016#685T	16	6.8	A	1.1	6	7	0.096	0.058	0.038	125	1
QHL45-B016#685T	16	6.8	B	1.1	6	3.5	0.146	0.088	0.058	125	1

- # is the replacement character to indicate the capacity tolerance, fill in K represents +10%, M represents +20%;
- Do not use a multimeter;
- Capacity and loss measurement conditions: 100Hz,  $U_{DC}=2.2 \cdot U_N$ ,  $U_{AC}=1.0 \cdot U_N$ , Frequency=100Hz, Series measurement
- If the ambient temperature is higher than +85 °C, the derating voltage is required. (The leakage current parameter is the reading after 5 minutes of power-on.)
- For special sizes or requirements please contact us.



Product code and parameter specification

Product code	Rated voltage	Nominal capacity	Shell number	Maximum leakage current @25	Maximum loss @25 100Hz	ESR Max @ 25 100KHz	Maximum allowable ripple current @100KHz IRMS (A)			Class temperature	MSL
	V	μF		μA	%	Ω	25℃	85℃	125℃	℃	
QHL45-C016#685T	16	6.8	C	1.1	6	1.9	0.218	0.131	0.087	125	1
QHL45-A016#106T	16	10	A	1.6	6	3	0.147	0.088	0.059	125	1
QHL45-B016#106T	16	10	B	1.6	6	3.5	0.146	0.088	0.058	125	1
QHL45-C016#106T	16	10	C	1.6	6	2	0.212	0.127	0.085	125	1
QHL45-A016#156T	16	15	A	2.4	6	3	0.147	0.088	0.059	125	1
QHL45-B016#156T	16	15	B	2.4	6	2.5	0.173	0.104	0.069	125	1
QHL45-C016#156T	16	15	C	2.4	6	1.8	0.224	0.134	0.090	125	1
QHL45-B016#226T	16	22	B	3.5	6	2.3	0.181	0.109	0.072	125	1
QHL45-C016#226T	16	22	C	3.5	6	1.6	0.237	0.142	0.095	125	1
QHL45-D016#226T	16	22	D	3.5	6	1.1	0.309	0.185	0.124	125	3
QHL45-B016#336T	16	33	B	5.3	8	1.9	0.199	0.119	0.080	125	1
QHL45-C016#336T	16	33	C	5.3	6	1.5	0.245	0.147	0.098	125	1
QHL45-D016#336T	16	33	D	5.3	6	0.9	0.342	0.205	0.137	125	3
QHL45-C016#476T	16	47	C	7.5	6	1.2	0.274	0.164	0.110	125	1
QHL45-D016#476T	16	47	D	7.5	6	0.9	0.342	0.205	0.137	125	3
QHL45-C016#686T	16	68	C	10.9	6	1.3	0.263	0.158	0.105	125	1
QHL45-D016#686T	16	68	D	10.9	6	0.9	0.342	0.205	0.137	125	3
QHL45-E016#686T	16	68	E	10.9	6	0.9	0.373	0.224	0.149	125	1
QHL45-D016#107T	16	100	D	16.0	8	0.7	0.387	0.232	0.155	125	1
QHL45-E016#107T	16	100	E	16.0	6	0.9	0.373	0.224	0.149	125	3
QHL45-D016#157T	16	150	D	24.0	8	0.9	0.342	0.205	0.137	125	1
QHL45-E016#157T	16	150	E	24.0	8	0.5	0.500	0.300	0.200	125	1
QHL45-E016#227T	16	220	E	35.2	10	0.5	0.500	0.300	0.200	125	1
QHL45-A020#684T	20	0.68	A	0.5	4	12	0.074	0.044	0.030	125	1
QHL45-A020#105T	20	1	A	0.5	4	10	0.081	0.049	0.032	125	1
QHL45-A020#155T	20	1.5	A	0.5	6	8	0.090	0.054	0.036	125	1
QHL45-A020#225T	20	2.2	A	0.5	6	7	0.096	0.058	0.038	125	1
QHL45-B020#225T	20	2.2	B	0.5	6	3.6	0.144	0.086	0.058	125	1
QHL45-A020#335T	20	3.3	A	0.7	6	4.5	0.120	0.072	0.048	125	1
QHL45-B020#335T	20	3.3	B	0.7	6	3.5	0.146	0.088	0.058	125	1
QHL45-A020#475T	20	4.7	A	0.9	6	4	0.127	0.076	0.051	125	1
QHL45-B020#475T	20	4.7	B	0.9	6	3.5	0.146	0.088	0.058	125	1
QHL45-C020#475T	20	4.7	C	0.9	6	2.4	0.194	0.116	0.078	125	1
QHL45-A020#685T	20	6.8	A	1.4	6	6	0.104	0.062	0.042	125	1
QHL45-B020#685T	20	6.8	B	1.4	6	2.5	0.173	0.104	0.069	125	1
QHL45-C020#685T	20	6.8	C	1.4	6	2	0.212	0.127	0.085	125	1
QHL45-A020#106T	20	10	A	2.0	8	3.5	0.136	0.082	0.054	125	1
QHL45-B020#106T	20	10	B	2.0	6	2.1	0.189	0.113	0.076	125	1
QHL45-C020#106T	20	10	C	2.0	6	1.8	0.224	0.134	0.090	125	1
QHL45-B020#156T	20	15	B	3.0	6	2	0.194	0.116	0.078	125	1
QHL45-C020#156T	20	15	C	3.0	6	1.7	0.230	0.138	0.092	125	1
QHL45-D020#156T	20	15	D	3.0	6	1	0.324	0.194	0.130	125	1
QHL45-B020#226T	20	22	B	4.4	8	1.9	0.199	0.119	0.080	125	1
QHL45-C020#226T	20	22	C	4.4	6	1.6	0.237	0.142	0.095	125	1
QHL45-D020#226T	20	22	D	4.4	6	0.9	0.342	0.205	0.137	125	3
QHL45-C020#336T	20	33	C	6.6	6	1.5	0.245	0.147	0.098	125	1
QHL45-D020#336T	20	33	D	6.6	6	0.9	0.342	0.205	0.137	125	3
QHL45-E020#336T	20	33	E	6.6	8	0.3	0.791	0.475	0.316	125	1
QHL45-C020#476T	20	47	C	9.4	10	1.1	0.286	0.172	0.114	125	1
QHL45-D020#476T	20	47	D	9.4	6	0.9	0.342	0.205	0.137	125	3
QHL45-E020#476T	20	47	E	9.4	6	0.9	0.373	0.224	0.149	125	1

- # is the replacement character to indicate the capacity tolerance, fill in K represents +10%, M represents +20%;
- Do not use a multimeter;
- Capacity and loss measurement conditions: 100Hz,  $U_{\text{DC}}=2.2_{-0.1}^0 \text{V}$ ,  $U_{\text{AC}}=1.0_{-0.5}^0 \text{V}$ , Frequency=100Hz, Series measurement
- If the ambient temperature is higher than +85 °C, the derating voltage is required. (The leakage current parameter is the reading after 5 minutes of power-on.)
- For special sizes or requirements please contact us.



Product code and parameter specification

Product code	Rated voltage	Nominal capacity	Shell number	Maximum leakage current @25	Maximum loss @25 100Hz	ESR Max @ 25 100KHz	Maximum allowable ripple current @100KHz IRMS (A)			Class temperature	MSL
	V	μF		μA	%	Ω	25℃	85℃	125℃	℃	
QHL45-V020#476T	20	47	V	9.4	6	0.3	0.926	0.556	0.370	125	1
QHL45-D020#686T	20	68	D	13.6	6	0.4	0.512	0.307	0.205	125	3
QHL45-E020#686T	20	68	E	13.6	6	0.9	0.373	0.224	0.149	125	3
QHL45-E020#107T	20	100	E	20.0	6	0.4	0.559	0.335	0.224	125	3
QHL45-H020#107T	20	100	H	20.0	8	0.3	0.645	0.387	0.258	125	1
QHL45-V020#107T	20	100	V	20.0	8	0.9	0.408	0.245	0.163	125	1
QHL45-D020#157T	20	150	D	30.0	10	0.9	0.342	0.205	0.137	125	1
QHL45-A025#334T	25	0.33	A	0.5	4	15	0.066	0.040	0.026	125	1
QHL45-A025#474T	25	0.47	A	0.5	4	14	0.068	0.041	0.027	125	1
QHL45-A025#684T	25	0.68	A	0.5	4	10	0.081	0.049	0.032	125	1
QHL45-A025#105T	25	1	A	0.5	4	8	0.090	0.054	0.036	125	1
QHL45-B025#105T	25	1	B	0.5	4	5	0.122	0.073	0.049	125	1
QHL45-A025#155T	25	1.5	A	0.5	4	7.5	0.093	0.056	0.037	125	1
QHL45-B025#155T	25	1.5	B	0.5	6	5	0.122	0.073	0.049	125	1
QHL45-A025#225T	25	2.2	A	0.6	6	7	0.096	0.058	0.038	125	1
QHL45-B025#225T	25	2.2	B	0.6	6	4.5	0.129	0.077	0.052	125	1
QHL45-C025#225T	25	2.2	C	0.6	6	3.5	0.160	0.096	0.064	125	1
QHL45-A025#335T	25	3.3	A	0.8	6	7	0.096	0.058	0.038	125	1
QHL45-B025#335T	25	3.3	B	0.8	6	3.5	0.146	0.088	0.058	125	1
QHL45-C025#335T	25	3.3	C	0.8	6	2.5	0.190	0.114	0.076	125	1
QHL45-A025#475T	25	4.7	A	1.2	6	4	0.127	0.076	0.051	125	1
QHL45-B025#475T	25	4.7	B	1.2	6	1.5	0.224	0.134	0.090	125	1
QHL45-C025#475T	25	4.7	C	1.2	6	2.4	0.194	0.116	0.078	125	1
QHL45-B025#685T	25	6.8	B	1.7	6	2.8	0.164	0.098	0.066	125	1
QHL45-C025#685T	25	6.8	C	1.7	6	2	0.212	0.127	0.085	125	1
QHL45-D025#685T	25	6.8	D	1.7	6	1.4	0.274	0.164	0.110	125	1
QHL45-B025#106T	25	10	B	2.5	6	2.5	0.173	0.104	0.069	125	1
QHL45-C025#106T	25	10	C	2.5	6	1.8	0.224	0.134	0.090	125	1
QHL45-D025#106T	25	10	D	2.5	6	1.2	0.296	0.178	0.118	125	1
QHL45-C025#156T	25	15	C	3.8	6	1.6	0.237	0.142	0.095	125	1
QHL45-D025#156T	25	15	D	3.8	6	1	0.324	0.194	0.130	125	1
QHL45-E025#156T	25	15	E	3.8	6	0.3	0.791	0.475	0.316	125	1
QHL45-C025#226T	25	22	C	5.5	6	1.4	0.254	0.152	0.102	125	1
QHL45-D025#226T	25	22	D	5.5	6	0.9	0.342	0.205	0.137	125	3
QHL45-E025#226T	25	22	E	5.5	6	0.3	0.737	0.442	0.295	125	1
QHL45-D025#336T	25	33	D	8.3	6	0.9	0.342	0.205	0.137	125	3
QHL45-E025#336T	25	33	E	8.3	6	0.9	0.373	0.224	0.149	125	1
QHL45-V025#336T	25	33	V	8.3	6	0.3	0.707	0.424	0.283	125	1
QHL45-D025#476T	25	47	D	11.8	6	0.9	0.342	0.205	0.137	125	3
QHL45-E025#476T	25	47	E	11.8	6	0.9	0.373	0.224	0.149	125	3
QHL45-D025#686T	25	68	D	17.0	10	0.9	0.342	0.205	0.137	125	1
QHL45-E025#686T	25	68	E	17.0	8	0.9	0.373	0.224	0.149	125	1
QHL45-V025#686T	25	68	V	17.0	8	0.9	0.408	0.245	0.163	125	1
QHL45-E025#107T	25	100	E	25.0	10	0.3	0.645	0.387	0.258	125	1
QHL45-V025#107T	25	100	V	25.0	8	0.4	0.612	0.367	0.245	125	1
QHL45-A035#104T	35	0.1	A	0.5	4	24	0.052	0.031	0.021	125	1
QHL45-A035#154T	35	0.15	A	0.5	4	19	0.058	0.035	0.023	125	1
QHL45-A035#224T	35	0.22	A	0.5	4	18	0.060	0.036	0.024	125	1
QHL45-A035#334T	35	0.33	A	0.5	4	15	0.066	0.040	0.026	125	1
QHL45-A035#474T	35	0.47	A	0.5	4	12	0.074	0.044	0.030	125	1
QHL45-B035#474T	35	0.47	B	0.5	4	8	0.097	0.058	0.039	125	1

- # is the replacement character to indicate the capacity tolerance, fill in K represents +10%, M represents +20%;
- Do not use a multimeter;
- Capacity and loss measurement conditions: 100Hz,  $U_{DC}=2.2_{-0.5}^0 V$ ,  $U_{AC}=1.0_{-0.5}^0 V$ , Frequency=100Hz, Series measurement
- If the ambient temperature is higher than +85 °C, the derating voltage is required. (The leakage current parameter is the reading after 5 minutes of power-on.)
- For special sizes or requirements please contact us.



Product code and parameter specification

Product code	Rated voltage	Nominal capacity	Shell number	Maximum leakage current @25	Maximum loss @25 100Hz	ESR Max @ 25 100KHz	Maximum allowable ripple current @100KHz IRMS (A)			Class temperature	MSL
	V	μF		μA	%	Ω	25 °C	85 °C	125 °C	°C	
QHL45-A035#684T	35	0.68	A	0.5	4	8	0.090	0.054	0.036	125	1
QHL45-B035#684T	35	0.68	B	0.5	4	6.5	0.107	0.064	0.043	125	1
QHL45-A035#105T	35	1	A	0.5	4	7.5	0.093	0.056	0.037	125	1
QHL45-B035#105T	35	1	B	0.5	4	4	0.137	0.082	0.055	125	1
QHL45-A035#155T	35	1.5	A	0.5	6	7	0.096	0.058	0.038	125	1
QHL45-B035#155T	35	1.5	B	0.5	6	5	0.122	0.073	0.049	125	1
QHL45-C035#155T	35	1.5	C	0.5	6	4.5	0.141	0.085	0.056	125	1
QHL45-A035#225T	35	2.2	A	0.8	6	4.5	0.120	0.072	0.048	125	1
QHL45-B035#225T	35	2.2	B	0.8	6	4	0.137	0.082	0.055	125	1
QHL45-C035#225T	35	2.2	C	0.8	6	3.2	0.168	0.101	0.067	125	1
QHL45-B035#335T	35	3.3	B	1.2	6	3.5	0.146	0.088	0.058	125	1
QHL45-C035#335T	35	3.3	C	1.2	6	2.5	0.190	0.114	0.076	125	1
QHL45-B035#475T	35	4.7	B	1.6	6	3.1	0.156	0.094	0.062	125	1
QHL45-C035#475T	35	4.7	C	1.6	6	2.5	0.190	0.114	0.076	125	1
QHL45-D035#475T	35	4.7	D	1.6	6	1.5	0.265	0.159	0.106	125	1
QHL45-C035#685T	35	6.8	C	2.4	6	1.8	0.224	0.134	0.090	125	1
QHL45-D035#685T	35	6.8	D	2.4	6	1.3	0.284	0.170	0.114	125	1
QHL45-E035#685T	35	6.8	E	2.4	4	0.3	0.645	0.387	0.258	125	1
QHL45-H035#685T	35	6.8	H	2.4	6	1.2	0.323	0.194	0.129	125	1
QHL45-C035#106T	35	10	C	3.5	6	1.6	0.237	0.142	0.095	125	1
QHL45-D035#106T	35	10	D	3.5	6	1	0.324	0.194	0.130	125	1
QHL45-E035#106T	35	10	E	3.5	6	0.9	0.373	0.224	0.149	125	1
QHL45-H035#106T	35	10	H	3.5	6	2	0.250	0.150	0.100	125	1
QHL45-D035#156T	35	15	D	5.3	6	0.9	0.342	0.205	0.137	125	3
QHL45-E035#156T	35	15	E	5.3	6	0.9	0.373	0.224	0.149	125	1
QHL45-V035#156T	35	15	V	5.3	6	0.3	0.707	0.424	0.283	125	1
QHL45-D035#226T	35	22	D	7.7	6	0.9	0.342	0.205	0.137	125	3
QHL45-E035#226T	35	22	E	7.7	6	0.7	0.423	0.254	0.169	125	1
QHL45-D035#336T	35	33	D	11.6	6	0.9	0.342	0.205	0.137	125	1
QHL45-E035#336T	35	33	E	11.6	6	0.9	0.373	0.224	0.149	125	3
QHL45-E035#476T	35	47	E	16.5	6	0.9	0.373	0.224	0.149	125	1
QHL45-H035#476T	35	47	H	16.5	10	0.9	0.373	0.224	0.149	125	1
QHL45-V035#476T	35	47	V	16.5	10	0.5	0.548	0.329	0.219	125	1
QHL45-A050#104T	50	0.1	A	0.5	4	27	0.049	0.029	0.020	125	1
QHL45-A050#154T	50	0.15	A	0.5	4	15	0.066	0.040	0.026	125	1
QHL45-B050#154T	50	0.15	B	0.5	4	16	0.068	0.041	0.027	125	1
QHL45-A050#224T	50	0.22	A	0.5	4	18	0.060	0.036	0.024	125	1
QHL45-B050#224T	50	0.22	B	0.5	4	15	0.071	0.043	0.028	125	1
QHL45-A050#334T	50	0.33	A	0.5	4	17	0.062	0.037	0.025	125	1
QHL45-B050#334T	50	0.33	B	0.5	4	11	0.083	0.050	0.033	125	1
QHL45-A050#474T	50	0.47	A	0.5	4	9.5	0.083	0.050	0.033	125	1
QHL45-B050#474T	50	0.47	B	0.5	4	9.5	0.089	0.053	0.036	125	1
QHL45-C050#474T	50	0.47	C	0.5	4	8	0.106	0.064	0.042	125	1
QHL45-B050#684T	50	0.68	B	0.5	4	8	0.097	0.058	0.039	125	1
QHL45-C050#684T	50	0.68	C	0.5	4	7	0.113	0.068	0.045	125	1
QHL45-B050#105T	50	1	B	0.5	6	7	0.104	0.062	0.042	125	1
QHL45-C050#105T	50	1	C	0.5	4	5.5	0.128	0.077	0.051	125	1
QHL45-C050#155T	50	1.5	C	0.8	6	4.5	0.141	0.085	0.056	125	1
QHL45-D050#155T	50	1.5	D	0.8	6	3.5	0.173	0.104	0.069	125	1
QHL45-C050#225T	50	2.2	C	1.1	6	2.5	0.190	0.114	0.076	125	1
QHL45-D050#225T	50	2.2	D	1.1	6	2.5	0.205	0.123	0.082	125	1

- # is the replacement character to indicate the capacity tolerance, fill in K represents +10%, M represents +20%;
- Do not use a multimeter;
- Capacity and loss measurement conditions: 100Hz,  $U_{-2.2} = 2.2 \text{ V}$ ,  $U_{-1.0} = 1.0 \text{ V}$ , Frequency=100Hz, Series measurement
- If the ambient temperature is higher than +85 °C, the derating voltage is required. (The leakage current parameter is the reading after 5 minutes of power-on.)
- For special sizes or requirements please contact us.



# Automotive grade chip solid electrolyte tantalum capacitor QHL45 Series

## Product code and parameter specification

Product code	Rated voltage	Nominal capacity	Shell number	Maximum leakage current @25	Maximum loss @25 100Hz	ESR Max @ 25 100KHz	Maximum allowable ripple current @100KHz IRMS (A)			Class temperature	MSL
							25°C	85°C	125°C		
QHL45-C050#335T	50	3.3	C	1.7	6	2.5	0.190	0.114	0.076	125	1
QHL45-D050#335T	50	3.3	D	1.7	6	2	0.229	0.137	0.092	125	1
QHL45-C050#475T	50	4.7	C	2.4	6	1.4	0.254	0.152	0.102	125	1
QHL45-D050#475T	50	4.7	D	2.4	6	1.4	0.274	0.164	0.110	125	1
QHL45-E050#475T	50	4.7	E	2.4	4	0.5	0.500	0.300	0.200	125	1
QHL45-D050#685T	50	6.8	D	3.4	6	1	0.324	0.194	0.130	125	1
QHL45-E050#685T	50	6.8	E	3.4	6	1.5	0.289	0.173	0.116	125	1
QHL45-V050#685T	50	6.8	V	3.4	6	0.5	0.548	0.329	0.219	125	1
QHL45-D050#106T	50	10	D	5.0	6	0.8	0.362	0.217	0.145	125	3
QHL45-E050#106T	50	10	E	5.0	6	1	0.354	0.212	0.142	125	1
QHL45-E050#156T	50	15	E	7.5	6	0.6	0.456	0.274	0.182	125	3
QHL45-E050#226T	50	22	E	11.0	8	0.9	0.373	0.224	0.149	125	1

- 1 # is the replacement character to indicate the capacity tolerance, fill in K represents +10%, M represents +20%;
- 2 Do not use a multimeter;
- 3 Capacity and loss measurement conditions: 100Hz,  $U_{-} = 2.2_{-1}^{\circ} V$ ,  $U_{\sim} = 1.0_{-0.5}^{\circ} V$ , Frequency=100Hz, Series measurement
- 4 If the ambient temperature is higher than +85 °C, the derating voltage is required. (The leakage current parameter is the reading after 5 minutes of power-on.)
- 5 For special sizes or requirements please contact us.