Series CCS

Innovation in Motion

AEC-Q200 ready

The CCS series is ideal for usage in frequency conversion drives and servo systems, high current battery management systems, automatic control systems, industrial instruments and equipments as well in automobile electronic control units.

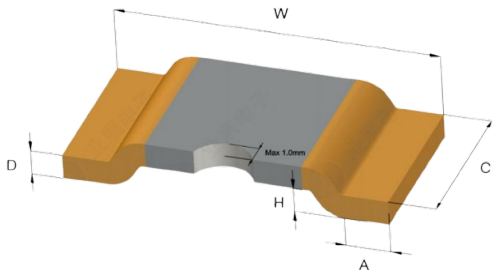
Features

- Special specifications can be customized
- REACH compliant
- ROHS compliant

Technical Specifications

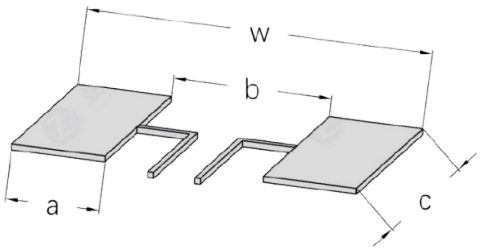
Resistance value	see model specifications
Resistance tolerance	±0.5 % to ±5 %
Temperature coefficient	±50 ppm/°C to ±200 ppm/°C (see model specifications)
Power rating	3 W to 15 W at 70°C bottom case temperature (see model specifications)
Shock resistant	Ideal for pulse applications
Low inductance	< 3nH
Working temperature range	-65°C to +170°C
Packaging	Parts will get packed in tape & reel packaging
Weight	ask for details

Dimensions in mm



Model no.	W	A	C	H
CCS-3	6.3 ± 0.2	1.2 ± 0.2	3.1 ± 0.3	0.5 ± 0.1
CCS-5	10 ± 0.2	2.2 ± 0.2	5.1 ± 0.4	0.5 ± 0.1
CCS-7	15 ± 0.3	4.2 ± 0.2	7.6 ± 0.4	0.5 ± 0.1

PCB-layout (reflow-soldering)



Model no.	W	c	a	b
CCS-3	7	3.4	1.8	3.4
CCS-5	11	6.2	2.7	5.6
CCS-7	16	8.75	5.2	5.6

How to make a request

CCS-_Model no._Ohmic Value_Tolerance

For example:
CCS-3 0R0002 5%

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Model Specifications

Model no.	Ohmic value (mΩ)	Rthi (°C/W)	D ± 0.1 (mm)	*TCR (ppm/°C)	P70°C (W)
CCS-3	0.2	3	1.4	±175	6
	0.3	5	1.5		
	0.5	6	0.93	±115	
	1	10	0.45	±100	
	1.2	-	1.08	±70	
	1.5	-	0.86		
	2	15	0.65		
	2.5	-	0.5		4
	3	24	0.43		4
	4	27	0.31		4
	5	40	0.28		3
CCS-5	0.2	3	1.64	±200	12
	0.3	3.5	1.37	±150	10
	0.4	-	0.97	±100	9
	0.5	7	0.83	±70	
	0.7	9	0.55		8
	1	10	0.4	±50	7
	1	7	1.16		8
	1.5	-	0.75		6
	2	14.5	0.6		
	2.5	-	0.47		5
	3	22	0.37		
	4	24	0.28		
	5	-	0.28		
CCS-7	0.1	2	2.0	±200	15
	0.2	3	1.5	±100	
	0.3	-	0.98		10
	0.35	-	0.83		
	0.4	-	0.75		
	0.5	3.5	0.6	±75	
	0.6	-	0.5		
	0.75	6	0.41		
	1	7	0.86	±50	9
	1.5	10	0.61		8
	2	13	0.4		7
	2.5	-	0.34		
	3	17.5	0.29		

*TCR (ppm°C): Test was conducted with the temperature from 20°C to 120°C, while 20°C worked as reference

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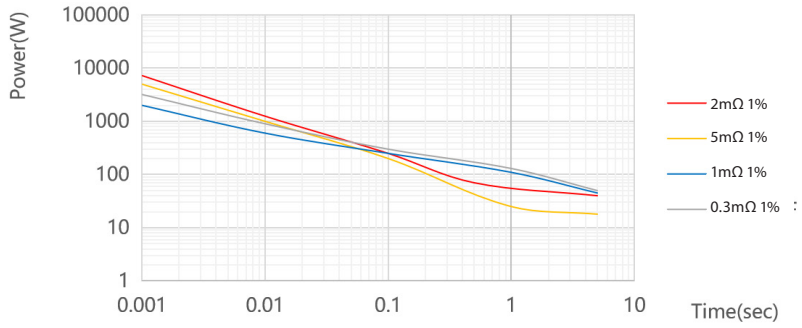
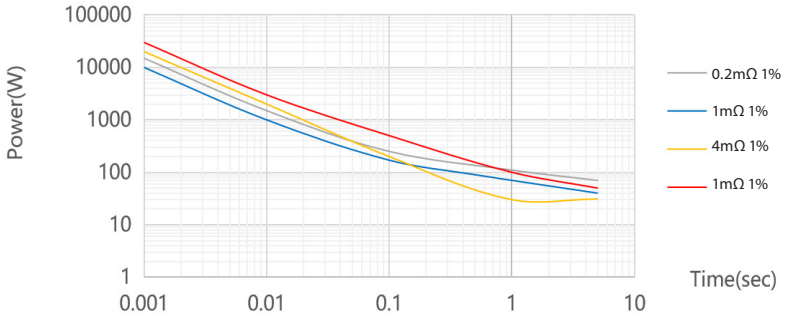
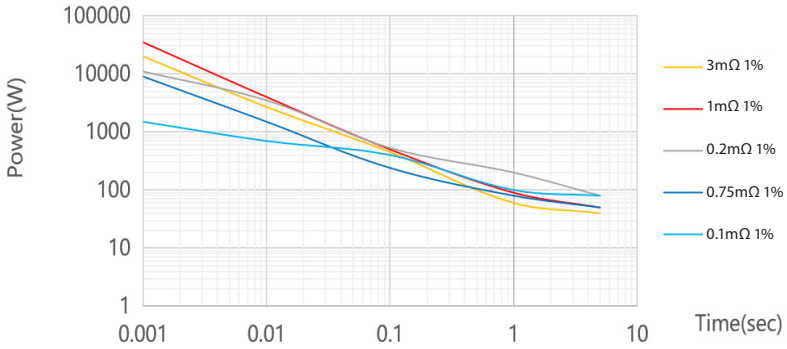
Pulse Power Curve CCS-3



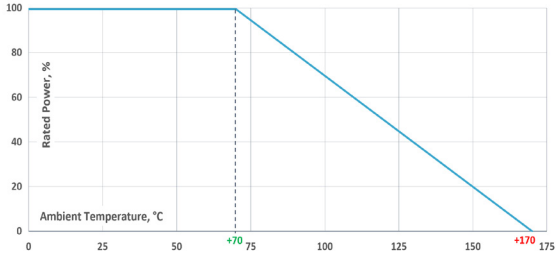
Pulse Power Curve CCS-5



Pulse Power Curve CCS-7



Derating Curve



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Endurance Test

Items	Requirements	Reference	Limits
Temperature cycling	1000 cycles (-55°C to +155°C), unpowered. Minimum dwell time 15 min. at each temperature extreme. Maximum transition time 1 min. Measurement at least 24 hours after test conclusion.	JESD22-A-104	±0.5 %
ESD	1) Direct Contact (DC): ±6 kV 2) Air Discharge (AD): ±12 kV, ±16 kV, ±25 kV	AEC-Q200-002 Rev-B	±0.5 %
High temperature exposure	1000 hrs. (T=170°C), unpowered. Measurement at 24±4 hours after test conclusion.	MIL-STD-202 method 108	±0.5 %
Board flex test	Apply an external force once to the circuit board, bend at least Dx = 2mm, duration 60+5sec.	AEC-Q200-005	±0.5 %
HumidityBias	1000 hrs (85°C/85%RH.) Note: specify conditions: 10% of rated power. Measurement at 24±4 hours after test conclusion.	MIL-STD-202 method 103	±0.5 %
High temperature operating life	1000 hrs. (T=125°C). Rate power was applied to the products intermittently: 90 minutes ON and 30 minutes OFF. Measurement at 24±4 hours after test conclusion.	MIL-STD-202 method 108	±0.5 %
Terminal strength (SMD)	Apply an external force once to the side of the test device, the force is 17.7N (1.8kg), duration 60+1s.	AEC-Q200-006	±0.5 %
Solderability	Weld bath temperature 245°C±5°C, duration 5±0.5s.	J-STD-002	95% Coverage Minimum
Resistance to soldering heat	250°C±5°C, 30s±5s	MIL-STD-202 method 210	±0.5 %
Short time overload	Apply 5 times the rated power for 5 sec. and release the load for about 30 minutes, then measure its resistance variance rate.	MIL-STD-202 method 301	±0.5 %
Vibration	20 min. (5 g's), test from10Hz-2000 Hz, 12 cycles each of 3 orientations	MIL-STD-202 method 204	±0.5 %
Flame retardance	1.) Test power: 100%, 115%, 130%, 150% (rate power) 2.) Test duration: 1h	AEC-Q200-001	The temperature is not higher than 350 °C for more than 10 sec., no flame, no explosion.
Resistance to solvents	Note: add aqueous wash chemical - OKEM clean or equivalent. Do not use banned solvents.	MIL-STD-202 method 215	There was no missing, faded, smeared, blurred, or shifted (dislodged) with the marks. There was no crack, separation, crazing, swelling, softening, degradation on the samples.
Mechanical shock	1) Pulse waveform: half-sine pulse 2) Accelerate peak: 100g's 3) Pulse duration: 6ms; 4) Orientation & shock time: ±X, ±Y, ±Z, 3 times each orientation, total 18 time	MIL-STD-202H, method 213	±0.5 %

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