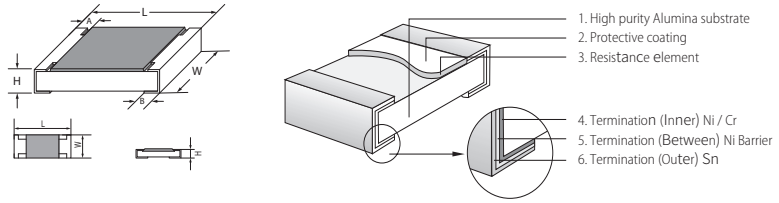


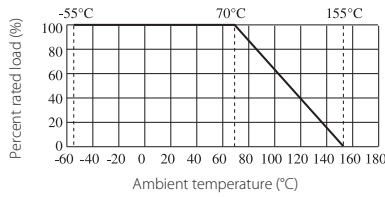
Feature

- Ultra-low Value
- Low Temperature Coefficient
- Suitable for reflow & wave soldering
- Application: Power supply

Figures



Derating Curve & Specification



Type	Dielectric Withstanding Voltage	Operating Temperature
CS02	100V	-55°C~155°C
CS03	300V	-55°C~155°C
CS05	500V	-55°C~155°C
CS06	500V	-55°C~155°C
CS07	500V	-55°C~155°C
CS10	500V	-55°C~155°C
CS11	500V	-55°C~155°C
CS12	500V	-55°C~155°C

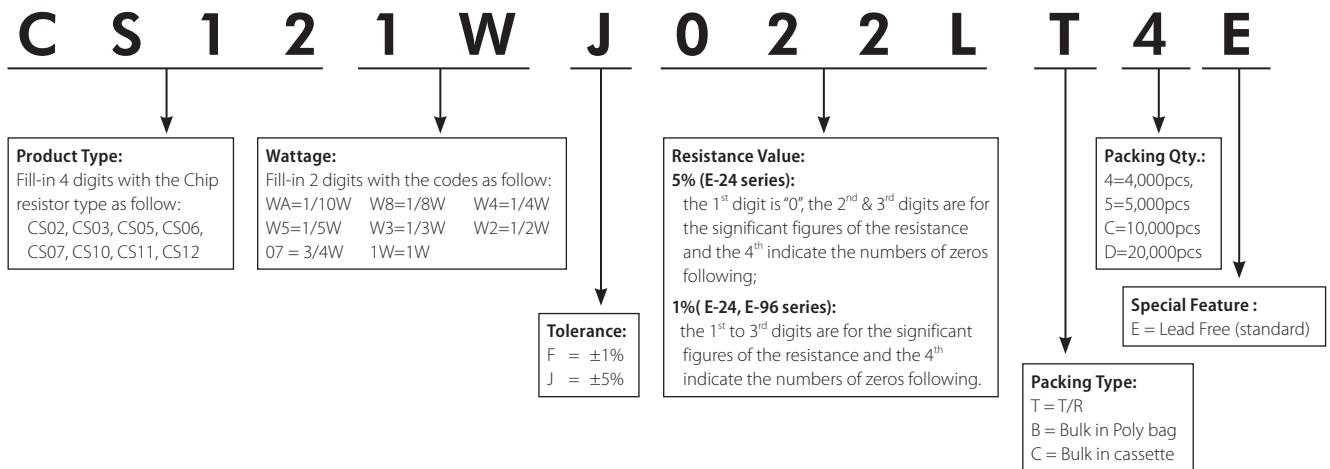
Type	Size	Power Rating 70°C	L(mm)	W(mm)	H(mm)	A(mm)	B(mm)	Resistance Range 1% & 5%	T.C.R.
CS02	0402 (1005)	1/8W	1.00±0.10	0.50±0.05	0.35±0.05	0.20±0.10	0.25±0.10	50mΩ~1Ω	50mΩ≤R<100mΩ: ±700 ppm/°C 100mΩ≤R≤1Ω: ±200 ppm/°C
CS03	0603 (1608)	1/5W	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	10mΩ~1Ω	10mΩ≤R<15mΩ: ±1500ppm/°C 15mΩ≤R<20mΩ: ±1000ppm/°C 20mΩ≤R<30mΩ: ±800 ppm/°C 30mΩ≤R<33mΩ: ±600 ppm/°C 33mΩ≤R≤50mΩ: ±400 ppm/°C 50mΩ<R≤0.1Ω: ±300 ppm/°C 0.1Ω<R≤1Ω: ±200 ppm/°C
CS05	0805 (2012)	1/4W	2.00±0.15	1.25 ^{+0.15} -0.10	0.55±0.10	0.40±0.20	0.40±0.20	10mΩ~1Ω	10mΩ≤R≤15mΩ: ±800 ppm/°C 15mΩ<R≤25mΩ: ±600 ppm/°C 25mΩ<R≤50mΩ: ±400 ppm/°C 50mΩ<R≤0.2Ω: ±200 ppm/°C 0.2Ω<R≤1Ω: ±100 ppm/°C
CS06	1206 (3216)	1/3W	3.10±0.15	1.55 ^{+0.15} -0.10	0.55±0.10	0.45±0.20	0.45±0.20	10mΩ~1Ω	10mΩ≤R<15mΩ: ±700ppm/°C 15mΩ≤R≤30mΩ: ±400ppm/°C 30mΩ<R≤50mΩ: ±300ppm/°C 50mΩ<R≤0.1Ω: ±200ppm/°C 0.1Ω<R≤1Ω: ±150ppm/°C
CS07	1210 (3225)	1/2W	3.10±0.10	2.60±0.20	0.55±0.10	0.50±0.25	0.50±0.20	10mΩ~1Ω	10mΩ≤R<15mΩ: ±500ppm/°C 15mΩ≤R<20mΩ: ±400ppm/°C 20mΩ≤R≤50mΩ: ±300ppm/°C 50mΩ<R≤1Ω: ±100ppm/°C
CS10	2010 (5025)	3/4W	5.00±0.10	2.50±0.20	0.55±0.10	0.60±0.25	0.50±0.20	10mΩ~1Ω	10mΩ≤R<15mΩ: ±600ppm/°C 15mΩ≤R<20mΩ: ±500ppm/°C 20mΩ≤R≤30mΩ: ±300ppm/°C 30mΩ<R≤50mΩ: ±200ppm/°C 50mΩ<R≤0.1Ω: ±150ppm/°C 0.1Ω<R≤1Ω: ±100ppm/°C
CS11	1812 (4532)	3/4W	4.50±0.20	3.20±0.20	0.55±0.20	0.50±0.20	0.80±0.30	10mΩ~1Ω	10mΩ≤R<20mΩ: ±500ppm/°C 20mΩ≤R<50mΩ: ±400ppm/°C 50mΩ≤R≤0.1Ω: ±200ppm/°C 0.1Ω<R≤1Ω: ±100ppm/°C
CS12	2512 (6432)	1W	6.35±0.10	3.20±0.20	0.55±0.10	0.60±0.25	0.80±0.30	10mΩ~1Ω	10mΩ≤R<15mΩ: ±600ppm/°C 15mΩ≤R<20mΩ: ±400ppm/°C 20mΩ≤R≤30mΩ: ±300ppm/°C 30mΩ<R≤50mΩ: ±200ppm/°C 50mΩ<R≤0.1Ω: ±150ppm/°C 0.1Ω<R≤1Ω: ±100ppm/°C

Performance Specifications

Test Item	Reference standard	Test Methods	Evaluation Criteria
Pre- and Post-Stress Electrical Test (Short time Overload)	AEC-Q200 TEST 1 IEC60115 4.13	2.5x Rated voltage or Max. Overload Voltage whichever is lower for 5 seconds, then check the resistance.	±1%: ±(1.0%+0.05Ω) ±5%: ±(2.0%+0.05Ω)
Biased Humidity	AEC-Q200 TEST 7 MIL-STD-202 Method 103	1000 hours 85°C/85%RH. Note: Specified conditions:10% of operating power. Measurement at 24±4 hours after test conclusion.	±1%: ±(1.0%+0.05Ω) ±5%: ±(3.0%+0.05Ω)
Operational Life	AEC-Q200 TEST 8 MIL-STD-202 Method 108	1,000 hours at 125°C, applied de-rated (36%) power of continuous working voltage, 1.5 hours on, 0.5 hour off.	±1%: ±(1.0%+0.1Ω) ±5%: ±(3.0%+0.1Ω)
Resistance to Soldering Heat	AEC-Q200 TEST 15 MIL-STD-202 Method 210	Condition B No pre-heat of samples. Note: Single Wave Solder - Procedure 2 for SMD and Procedure 1 for Leaded with solder within 1.5mm of device body.	±(1.0%+0.05Ω)
Solderability	AEC-Q200 TEST 18 J-STD-002	SMD. Electrical test not required. Magnification 50 X. Conditions: 1. Baking 4 hours@155°C dry heat, dipping @ 245±3°C for 5±0.5 second. 2. Steam aging 8 hours, dipping @ 260±3°C for 30±0.5 second.	Coverage must be over 95%.
Board Flex	AEC-Q200 TEST 21 AEC-Q200-005	Bending 3mm(CS02-CS05)/2mm(CS06-CS12)for 60±5sec	±(1.0%+0.05Ω)

* CS07 size in 0.75W 0.1~1Ω 100PPM/°C could be provided specially

Ordering Procedure (Example: CS12 1W 5% 22mΩ T/R-4000)



Remark: For more details, please check page 135, Part No. System

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