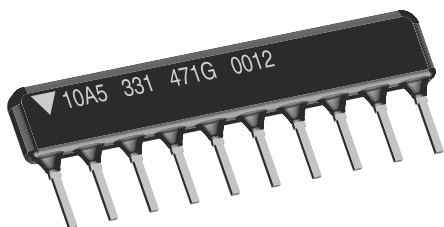


Thick Film Resistor Networks Single-In-Line, Coated SIP 01, 03, 05 Schematics



FEATURES

- Body height: “A” profile = 0.195" [4.95 mm]; “B” profile = 0.295" [7.50 mm]
- “A” profile standard in 4 thru 12 pins
- Thick film resistive elements
- Reduces total assembly costs
- Resistor elements protected by tough epoxy conformal coating
- Wide resistance range (10 Ω to 2.2 MΩ)
- Available in bulk pack (preferred) or tube pack
- Lead (Pb)-free version is RoHS Compliant (RoHS Directive 2002/95/EC)



RoHS*
COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

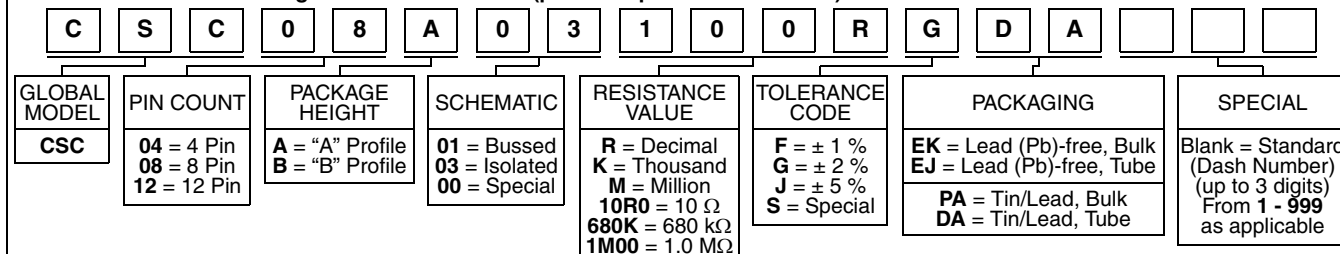
GLOBAL MODEL/ SCHEMATIC	PACKAGE HEIGHT	RESISTOR POWER RATING max. at 70 °C ¹⁾	RESISTANCE RANGE Ω	TEMP. COEFFICIENT (- 55 °C to + 125 °C) ppm/°C	STANDARD TOLERANCE %	TCR TRACKING ¹⁾ (- 55 °C to + 125 °C) ppm/°C	OPERATING VOLTAGE V _{DC} max.
CSCxxx01	A	0.20 W	10 - 50	± 250	± 2 (1 %) ²⁾	± 50	100
	B	0.25 W	50.1 - 2.2M	± 100			
CSCxxx03	A	0.30 W	10 - 50	± 250	± 2 (1 %) ²⁾	± 50	100
	B	0.40 W	50.1 - 2.2M	± 100			
CSCxxx05	A	0.20 W	10 - 50	± 250	± 2 (1 %) ²⁾	± 150	100
	B	0.25 W	50.1 - 2.2M	± 100			

Notes

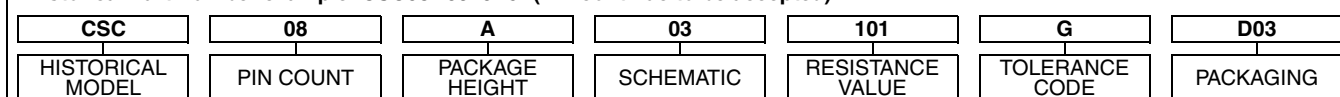
1. For resistor power ratings at + 25 °C see derating curves.
• See derating curves for Package Power Rating.
2. Contact factory for 1 %.

GLOBAL PART NUMBER INFORMATION

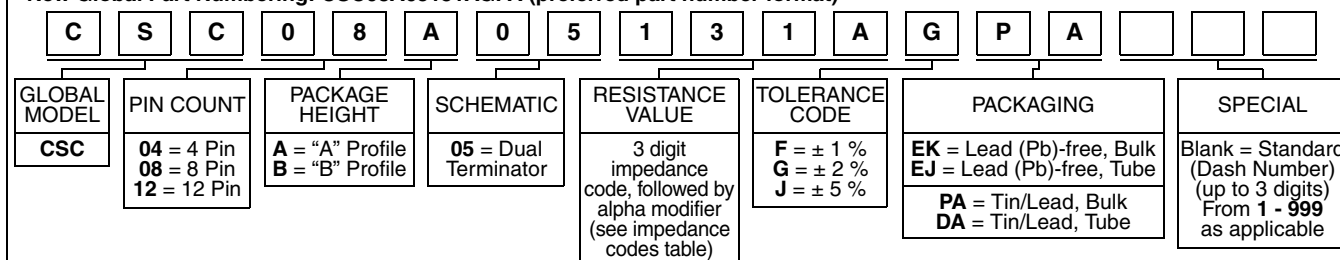
New Global Part Numbering: **CSC08A03100RGA** (preferred part number format)



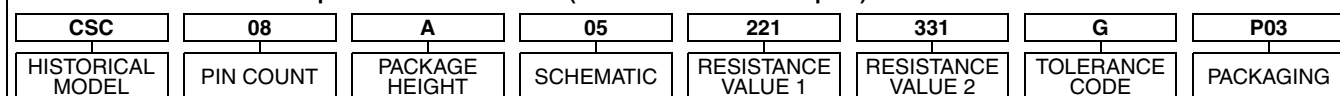
Historical Part Number example: **CSC08A03101G** (will continue to be accepted)



New Global Part Numbering: **CSC08A05131AGPA** (preferred part number format)

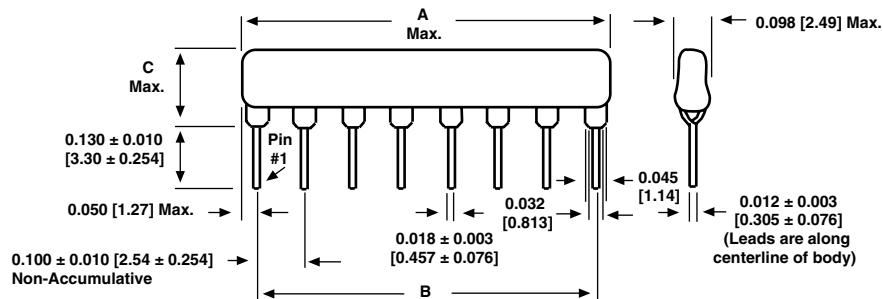


Historical Part Number example: **CSC08A05221331G** (will continue to be accepted)



* Pb containing terminations are not RoHS compliant, exemptions may apply. Lead (Pb)-free version meets EIA/ECA-CB23 Rev. G whisker test requirements for Class 1A products.

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	CSC SERIES
Voltage Coefficient of Resistance	V_{eff}	< 50 ppm typical
Dielectric Strength	V_{AC}	200
Isolation Resistance (03 Schematic)	Ω	> 100M
Operating Temperature Range	$^{\circ}C$	- 55 to + 125

DIMENSIONS in inches [millimeters]


01 SCHEMATIC	GLOBAL MODEL	NUMBER OF RESISTORS	A (Maximum)	B	C (Maximum)	
		CSC04	3	0.390 [9.90]	0.300 [7.62]	"A" Profile = 0.195 [4.95] "B" Profile = 0.295 [7.50]
CSC05		4	0.490 [12.45]	0.400 [10.16]		
CSC06		5	0.590 [14.99]	0.500 [12.70]		
CSC07		6	0.690 [17.53]	0.600 [15.24]		
CSC08		7	0.790 [20.07]	0.700 [17.78]		
CSC09		8	0.890 [22.61]	0.800 [20.32]		
CSC10		9	0.990 [25.15]	0.900 [22.86]		
CSC11		10	1.09 [27.69]	1.00 [25.40]		
CSC12		11	1.19 [30.23]	1.100 [27.94]		
03 SCHEMATIC		GLOBAL MODEL	NUMBER OF RESISTORS	A (Maximum)	B	
		CSC04	2	0.390 [9.90]	0.300 [7.62]	"A" Profile = 0.195 [4.95] "B" Profile = 0.295 [7.50]
		CSC06	3	0.590 [14.99]	0.500 [12.70]	
		CSC08	4	0.790 [20.07]	0.700 [17.78]	
		CSC10	5	0.990 [25.15]	0.900 [22.86]	
		CSC12	6	1.19 [30.23]	1.100 [27.94]	
05 SCHEMATIC		GLOBAL MODEL	NUMBER OF RESISTORS	A (Maximum)	B	
		CSC04	4	0.390 [9.90]	0.300 [7.62]	"A" Profile = 0.195 [4.95] "B" Profile = 0.295 [7.50]
		CSC05	6	0.490 [12.45]	0.400 [10.16]	
		CSC06	8	0.590 [14.99]	0.500 [12.70]	
		CSC07	10	0.690 [17.53]	0.600 [15.24]	
		CSC08	12	0.790 [20.07]	0.700 [17.78]	
		CSC09	14	0.890 [22.61]	0.800 [20.32]	
		CSC10	16	0.990 [25.15]	0.900 [22.86]	
		CSC11	18	1.09 [27.69]	1.00 [25.40]	
		CSC12	20	1.19 [30.23]	1.100 [27.94]	

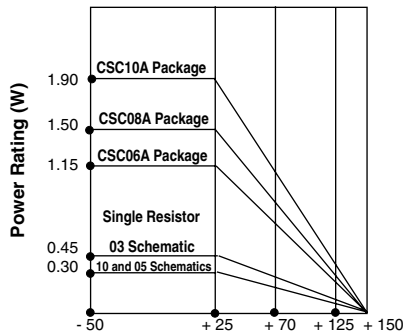
MECHANICAL SPECIFICATIONS	
Marking Resistance to Solvents:	Permanency testing per MIL-STD-202, Method 215
Solderability:	Per MIL-STD-202, Method 208E, RMA flux
Body:	High alumina, epoxy coated
Terminals:	Solder plated leads

STOCKED RESISTANCE VALUES IN OHMS (“G” TOLERANCE)

Standard E-24 resistance values stocked. Consult factory.
Many dual terminator resistance values stocked. Consult factory.

IMPEDANCE CODES					
CODE	R ₁ (Ω)	R ₂ (Ω)	CODE	R ₁ (Ω)	R ₂ (Ω)
500B	82	130	141A	270	270
750B	120	200	181A	330	390
800C	130	210	191A	330	470
990A	160	260	221B	330	680
101C	180	240	281B	560	560
111C	180	270	381B	560	1.2K
121B	180	390	501C	620	2.7K
121C	220	270	102A	1.5K	3.3K
131A	220	330	202B	3K	6.2K

”A“ Profile

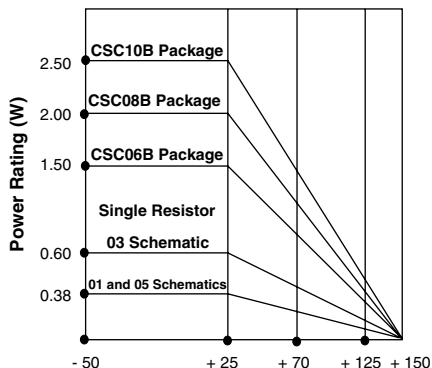


Derating Ambient Temperature °C

”A“ PROFILE + 70 °C PACKAGE RATINGS

CSC12A	1.5 W
CSC11A	1.37 W
CSC10A	1.25 W
CSC09A	1.12 W
CSC08A	1.00 W
CSC07A	0.87 W
CSC06A	0.75 W
CSC05A	0.62 W
CSC04A	0.40 W

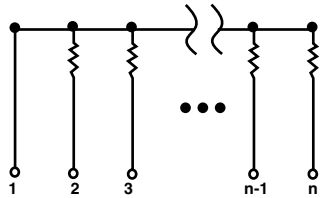
”B“ Profile



Derating Ambient Temperature °C

”B“ PROFILE + 70 °C PACKAGE RATINGS

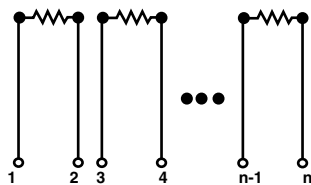
CSC12B	1.90 W
CSC11B	1.75 W
CSC10B	1.60 W
CSC09B	1.45 W
CSC08B	1.30 W
CSC07B	1.15 W
CSC06B	1.00 W
CSC05B	0.80 W
CSC04B	0.60 W

CIRCUIT APPLICATIONS
01 Schematic

Bussed

The CSCxxx01 single-in-line resistor networks provide the user with nominally equal resistors, each connected to a common pin (Pin No. 1). Commonly used in the following applications:

- "Wired OR" Pull-up
- Power Gate Pull-up
- MOS/ROM Pull-up/Pull-down
- Open Collector Pull-up
- TTL Input Pull-down
- TTL Unused Gate Pull-up

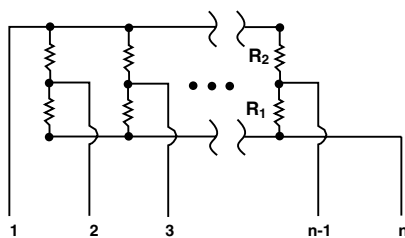
* "A" profile standard, "B" Profile available.

03 Schematic

Isolated

The CSCxxx03 single-in-line resistor networks provide the user with nominally equal resistors. Each resistor is isolated from all others. Commonly used in the following applications:

- "Wired OR" Pull-up
- Power Driven Pull-up
- Power Gate Pull-up
- Line Termination
- Long-Line Impedance Balancing
- LED Current Limiting
- ECL Output Pull-down
- TTL Input Pull-down

* "A" Profile standard, "B" Profile available.

05 Schematic

Dual Terminator

The CSCxxx05 circuits contain series pairs of resistors. Each series pair is connected between two common lines. The junction of these resistor pairs is connected to the input terminals. The 05 circuits are designed for TTL dual-line termination and pulse squaring.

* "A" profile standard, "B" Profile available.

PERFORMANCE

TEST	CONDITIONS	MAX. ΔR (Typical Test Lots)
Thermal Shock	5 cycles between - 65 °C and + 125 °C	$\pm 0.50 \% \Delta R$
Short Time Overload	2.5 x rated working voltage, 5 seconds	$\pm 0.25 \% \Delta R$
Low Temperature Operation	45 minutes at full rated working voltage at - 65 °C	$\pm 0.25 \% \Delta R$
Moisture Resistance	240 hours with humidity ranging from 80 % RH to 98 % RH	$\pm 1.00 \% \Delta R$
Resistance to Soldering Heat	Leads immersed in + 350 °C solder to within 1/16" of body for 3 seconds	$\pm 0.25 \% \Delta R$
Shock	Total of 18 shocks at 100 g's	$\pm 0.25 \% \Delta R$
Vibration	12 hours at maximum of 20 g's between 10 and 2000 Hz	$\pm 0.25 \% \Delta R$
Load Life	1000 hours at + 70 °C, rated power applied 1.5 hours "ON", 0.5 hours "OFF" for full 1000 hours period. Derated according to the curve.	$\pm 1.00 \% \Delta R$
Terminal Strength	4.5 pound pull for 30 seconds	$\pm 0.25 \% \Delta R$
Insulation Resistance	10 000 M Ω (minimum)	-
Dielectric Withstanding Voltage	No evidence of arcing or damage (200 V _{rms} for 1 minute)	-



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.