CS206



Vishay Dale

Thick Film Resistor / Capacitor Networks, Single-In-Line, Conformal Coated SIP



FEATURES

- 10K ECL terminators, circuits E and M 100K ECL terminators, circuit A Line terminator, circuit T
- 4 to 18 pins available
- X7R and C0G capacitors available

Capacitor Temperature Coefficient: COG maximum 0.15 %, X7R maximum 2.5 % Package Power Rating (maximum at 70 °C):

8 pins = 0.80 W 9 pins = 0.90 W 10 pins = 1.00 W

- Low cross talk
- Custom design capability
- "B" 0.250" (6.35 mm), "C" 0.350" (8.89 mm), and "E" 0.325" (8.26 mm) maximum seated height available, dependent on schematic
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

Note

^{*} This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details.

STANDARD ELECTRICAL SPECIFICATIONS											
VISHAY DALE MODEL	PROFILE	SCHEMATIC	RESISTOR CHARACTERISTICS						CAPACITOR CHARACTERISTICS		
			POWER RATING ELEMENT P _{70 °C} W	RESISTANCE RANGE Ω	RESISTANCE TOL. ± %	TEMP. COEFF. ± ppm/°C	TCR TRACKING ± ppm/°C	TYPE ⁽¹⁾	CAP. RANGE	CAP. TOL. ± %	
CS206	В	E, M	0.125	10 to 1M	2, 5	200	100	X7R	0.01 µF	10, 20	
C \$ 206	C	т	0 125	10 to 1M	2.5	200	100	C0G	33 pF to 3900 pF	10.20	
03200	C		0.120		2, 3	200	100	X7R	470 pF to 0.1 μF	10, 20	
CS206	E	А	0.125	10 to 1M	2, 5	200	100	X7R	0.01 µF	10, 20	

Note

⁽¹⁾ C0G capacitors may be substituted for X7R capacitors.

TECHNICAL SPECIFICATIONS								
PARAMETER	UNIT	CS206						
Operating voltage (at +25 °C)	V _{AC}	50 maximum						
Dissipation factor (maximum)	%	C0G = 0.15; X7R = 2.5						
Insulation resistance (at +25 °C/rated voltage)	MΩ	100 000						
Dielectric test	V	2.5 x rated voltage						
Operating temperature range	°C	-55 to +125 °C						

SCHEMATICS in inches (millimeters)



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1 For technical questions, contact: <u>ff2aresistors@vishay.com</u> Document Number: 31519

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GLOBAL PART NUMBER INFORMATION										
New Global Part Numbering: 20608EC103G471KP (preferred part numbering format)										
20608EC103G471KP										
GLOBAL MODEL	PIN COUNT	PACKAGE / SCHEMATIC	CHARACT.	RESISTANCE VALUE	RES. TOLERANCE	CAPACITANCE VALUE	CAP. TOLERANCE VALUE	PACKAGING	SPECIAL	
206 = CS206	04 to 18 pin available 04 = 4 pin 08 = 8 pin 18 = 18 pin	E = BE M = BM A = EA T = CT S = special	C = C0G X = X7R S = special	2 digit significant figure, followed by a multiplier $100 = 10 \Omega$ $333 = 33 k\Omega$ $105 = 1 M\Omega$	$G = \pm 2 \%$ $J = \pm 5 \%$ S = special	$\begin{array}{l} (\text{in pF})\\ 2 \text{ digit}\\ \text{significant}\\ \text{figure, followed}\\ \text{by a multiplier}\\ \textbf{330} = 33 \text{ pF}\\ \textbf{392} = 3900 \text{ pF}\\ \textbf{104} = 0.1 \mu\text{F} \end{array}$	K = ± 10 % M = ± 20 % S = special	E = lead (Pb)- free, bulk P = tin / lead, bulk	Blank = standard (dash number) (up to 2 digits)	
Historical Part Number example: CS20608BEC103G471KP03 (will continue to be accepted)										
CS20 HISTORI MODE	6 08 CAL PIN COUNT	B PACKAGE HEIGHT	E SCHEMATIC	CHARACTER	RISTIC VALUE	G I RES. TOLERANCE	471 CAP. VALUE TOL	K CAP. LERANCE	P03 CKAGING	

Note

For additional information on packaging, refer to the "Through-Hole Network Packaging" document (<u>www.vishay.com/doc?31542</u>)

DIMENSIONS in inches (millimeters)



Pin #1 is extreme left-hand terminal on side with marking.

NUMBER OF PINS	L MAXIMUM								
4 pin	0.400 (10.16)	7 pin	0.700 (17.78)	10 pin	1.000 (25.40)	13 pin	1.300 (33.02)	16 pin	1.600 (40.64)
5 pin	0.500 (12.70)	8 pin	0.800 (20.32)	11 pin	1.100 (27.94)	14 pin	1.400 (35.56)	17 pin	1.700 (43.18)
6 pin	0.600 (15.24)	9 pin	0.900 (22.86)	12 pin	1.200 (30.48)	15 pin	1.500 (38.10)	18 pin	1.800 (45.72)

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MATERIAL SPECIFICATIONS						
Flammability	UL 94 V-0					
Lead material	Phosphorus-bronze, solder plated					
Body material	Epoxy coated					
Solderability	Per MIL-STD-202, method 208E					
Part marking	Pin #1 identification, part number (abbreviated as space allows), DALE or D, date code					
Moisture resistance	Meets requirements of MIL-STD-202, method 106					

PERFORMANCE								
TEST	CONDITION	MAX. ∆R (TYPICAL TEST LOTS)						
Thermal shock	Subject to 5 cycles from -65 °C to +125 °C	± 0.5 % ∆R						
Short time overload	2.5 x rated working voltage for 5 s at +25 °C	± 0.25 % ΔR						
Moisture resistance	Cycle from +25 °C to +65 °C to +25 °C over 8 h at 90 % to 98 % relative humidity, with 10 % of rated power applied, for 20 cycles. Stop cycling after an even number of cycles and stabilize networks at high humidity for 1 h to 4 h. Condition networks at -10 °C for 3 h, then return to temperature cycling. On completion of cycling condition networks at +25 °C at 50 % R.H. for 22 h to 24 h	± 0.5 % ∆R						
Resistance to soldering heat	Immerse pins in melted solder to the lead standoffs at +350 °C for 3 s max.	± 0.25 % ∆R						
Mechanical shock	18 shocks of 100 g 's and 6 ms	± 0.25 % ΔR						
Vibration	12 cycles varied logarithmically from 10 Hz to 2000 Hz to 10 Hz over 20 min	± 0.25 % ΔR						
Load life	1000 h at +70 °C, rated power applied 1.5 h "ON", 0.5 h "OFF"	± 1.0 % ΔR						
Resistance to solvents	Immerse and scrub samples with isopropyl alcohol, trichlorethylene and Freon TMC	Marking remains legible						
Solderability	Immerse leads in 60/40 tin-lead solder using R flux at +245 °C for 5 s maximum	Minimum 95 % solder coverage						
Terminal strength	Withstand 2.2 kg pull 1 min	± 0.25 % ΔR						
Case insulation resistance	100 V applied between case and terminals tied together	IR = 10 000 MΩ minimum						

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