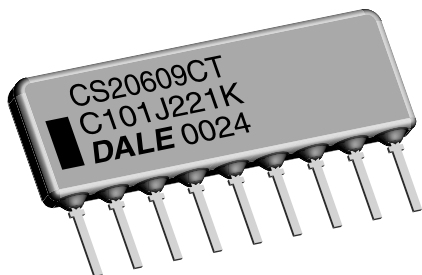


Thick Film Resistor / Capacitor Networks, Single-In-Line, Conformal Coated SIP



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
- 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 www.vishay.com/doc?99912



RoHS*
Available
**HALOGEN
FREE**

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 $P_{70\text{ }^{\circ}\text{C}}$ W	RESISTANCE RANGE Ω	RESISTANCE TOL. $\pm \%$	TEMP. COEFF. $\pm \text{ppm}/^{\circ}\text{C}$	TCR TRACKING $\pm \text{ppm}/^{\circ}\text{C}$	TYPE ⁽¹⁾	CAP. RANGE	CAP. TOL. $\pm \%$
CS206	B	E, M	0.125	10 to 1M	2, 5	200	100	X7R	0.01 μF	10, 20
CS206	C	T	0.125	10 to 1M	2, 5	200	100	C0G	33 pF to 3900 pF	10, 20
								X7R	470 pF to 0.1 μF	
CS206	E	A	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 $^{\circ}\text{C}$)	V_{AC}	50 maximum
Dissipation factor (maximum)	%	C0G = 0.15; X7R = 2.5
Insulation resistance (at +25 $^{\circ}\text{C}$ /rated voltage)	$M\Omega$	100 000
Dielectric test	V	2.5 x rated voltage
Operating temperature range	$^{\circ}\text{C}$	-55 to +125 $^{\circ}\text{C}$

Capacitor Temperature Coefficient:

C0G maximum 0.15 %, X7R maximum 2.5 %

Package Power Rating (maximum at 70 $^{\circ}\text{C}$):

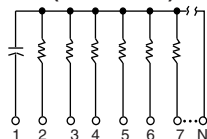
8 pins = 0.80 W

9 pins = 0.90 W

10 pins = 1.00 W

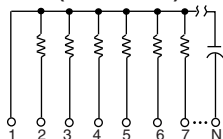
SCHEMATICS in inches (millimeters)

0.250 (6.35) High
("B" Profile)



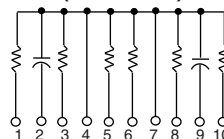
Circuit E

0.250 (6.35) High
("B" Profile)



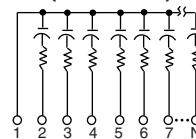
Circuit M

0.325 (8.26) High
("E" Profile)



Circuit A

0.350 (8.89) High
("C" Profile)



Circuit T

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: 20608EC103G471KP (preferred part numbering format)

2	0	6	0	8	E	C	1	0	3	G	4	7	1	K	P		
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 Ω 333 = 33 k Ω 105 = 1 M Ω	G = $\pm 2\%$ J = $\pm 5\%$ S = special	(in pF) 2 digit significant figure, followed by a multiplier 330 = 33 pF 392 = 3900 pF 104 = 0.1 μ F	K = $\pm 10\%$ M = $\pm 20\%$ S = special	E = lead (Pb)-free, bulk P = tin / lead, bulk	Blank = standard (dash number) (up to 2 digits)								

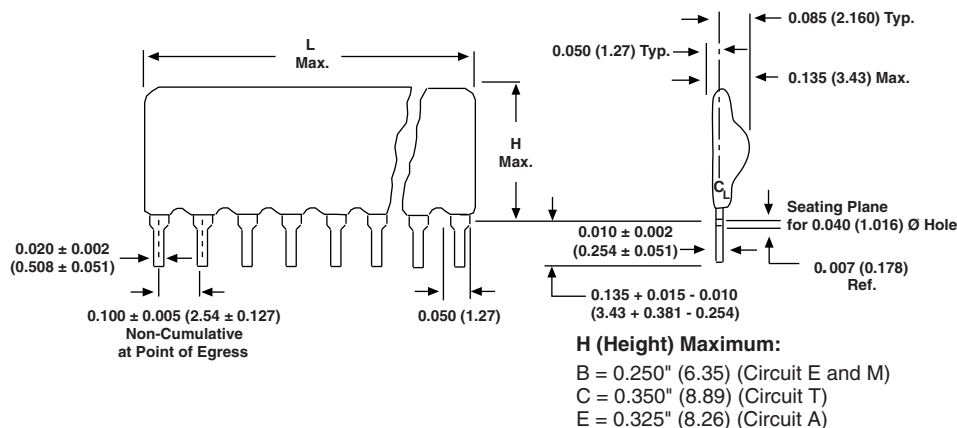
Historical Part Number example: CS20608BEC103G471KP03 (will continue to be accepted)

CS206	08	B	E	C	103	G	471	K	P03
HISTORICAL MODEL	PIN COUNT	PACKAGE HEIGHT	SCHEMATIC	CHARACTERISTIC	RES. VALUE	RES. TOLERANCE	CAP. VALUE	CAP. TOLERANCE	PACKAGING

Note

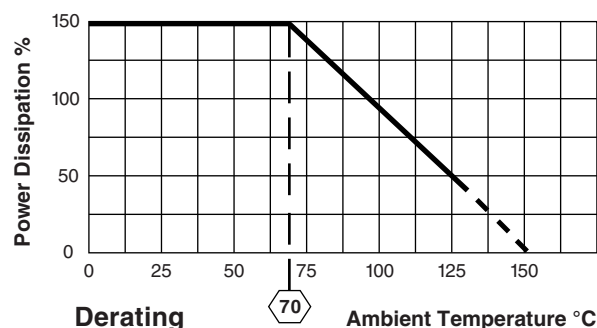
- For additional information on packaging, refer to the "Through-Hole Network Packaging" document (www.vishay.com/doc?31542)

DIMENSIONS in inches (millimeters)



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

NUMBER OF PINS	L MAXIMUM	NUMBER OF PINS	L MAXIMUM	NUMBER OF PINS	L MAXIMUM	NUMBER OF PINS	L MAXIMUM	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)


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. ΔR (TYPICAL TEST LOTS)
Thermal shock	Subject to 5 cycles from -65 °C to +125 °C	$\pm 0.5 \% \Delta R$
Short time overload	2.5 x rated working voltage for 5 s at +25 °C	$\pm 0.25 \% \Delta R$
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	$\pm 0.5 \% \Delta R$
Resistance to soldering heat	Immerse pins in melted solder to the lead standoffs at +350 °C for 3 s max.	$\pm 0.25 \% \Delta R$
Mechanical shock	18 shocks of 100 g's and 6 ms	$\pm 0.25 \% \Delta R$
Vibration	12 cycles varied logarithmically from 10 Hz to 2000 Hz to 10 Hz over 20 min	$\pm 0.25 \% \Delta R$
Load life	1000 h at +70 °C, rated power applied 1.5 h "ON", 0.5 h "OFF"	$\pm 1.0 \% \Delta R$
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	$\pm 0.25 \% \Delta R$
Case insulation resistance	100 V applied between case and terminals tied together	IR = 10 000 M Ω minimum



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