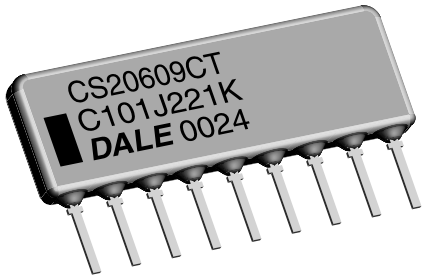
Thick Film Resistor/Capacitor Networks, Single-In-Line, Conformal Coated SIP



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
- Compliant to RoHS directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition

Pb Available

e1

RoHS* COMPLIANT

HALOGEN FREE

STANDARD ELECTRICAL SPECIFICATIONS

VISHAY DALE MODEL	PROFILE	SCHEMATIC	RESISTOR CHARACTERISTICS					CAPACITOR CHARACTERISTICS	
			POWER RATING ELEMENT $P_{70\,°C}$ W	RES. RANGE Ω	RES. TOL. ± %	TEMP. COEFF. ± ppm/°C	TCR TRACKING ± ppm/°C	CAP. RANGE	CAP. TOL. ± %
CS206	B	**E, M**	0.125	10 to 1M	2, 5	200	100	0.01 µF	10, 20
CS206	C	T	0.125	10 to 1M	2, 5	200	100	33 pF to 0.1 µF	10, 20
CS206	E	A	0.125	10 to 1M	2, 5	200	100	0.01 µF	10, 20

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

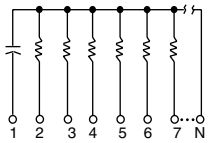
Capacitor Temperature Coefficient:
C0G maximum 0.15 %, X7R maximum 2.5 %

Package Power Rating (maximum at 70 °C):
8 pins = 0.80 W
9 pins = 0.90 W
10 pins = 1.00 W

EIA Characteristics:
C0G and X7R (C0G capacitors may be substituted for X7R capacitors)

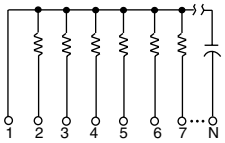
SCHEMATICS in inches (millimeters)

0.250 (6.35) High ("B" Profile)



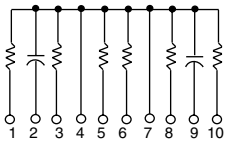
Circuit E

0.250 (6.35) High ("B" Profile)



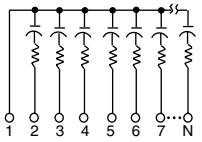
Circuit M

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	CHARACTERISTIC	RESISTANCE VALUE	RES. TOLERANCE	CAPACITANCE VALUE	CAP. TOLERANCE	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 kΩ **105** = 1 MΩ	**G** = ± 2 % **J** = ± 5 % **S** = Special	(in pF) 2 digit significant figure, followed by a multiplier **330** = 33 pF **392** = 3900 pF **104** = 0.1 µF	**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)

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

* Pb containing terminations are not RoHS compliant, exemptions may apply

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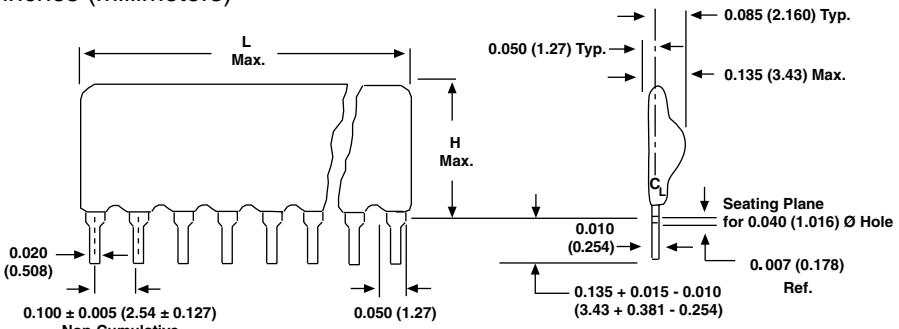
DIMENSIONS in inches (millimeters)

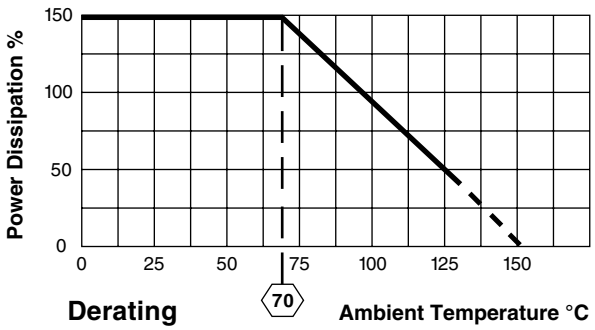


H (Height) Maximum:

B = 0.250" (6.35) (Circuit E and M)
C = 0.350" (8.89) (Circuit T)
E = 0.325" (8.26) (Circuit A)

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)



TECHNICAL 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	± 0.5 % Δ*R*
Short Time Overload	2.5 x rated working voltage for 5 s at + 25 °C	± 0.25 % Δ*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	± 0.5 % Δ*R*
Resistance to Soldering Heat	Immerse pins in melted solder to the lead standoffs at + 350 °C for 3 s max.	± 0.25 % Δ*R*
Mechanical Shock	18 shocks of 100 *g*'s and 6 ms	± 0.25 % Δ*R*
Vibration	12 cycles varied logarithmically from 10 Hz to 2000 Hz to 10 Hz over 20 min	± 0.25 % Δ*R*
Load Life	1000 h at + 70 °C, rated power applied 1.5 h "ON", 0.5 h "OFF"	± 1.0 % Δ*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	± 0.25 % Δ*R*
Case Insulation Resistance	100 V applied between case and terminals tied together	IR = 10 000 MΩ minimum

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