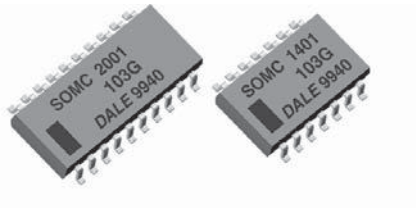
Thick Film Resistor Networks, Dual-In-Line, Medium Body, Small Outline, Molded DIP, Surface Mount



FEATURES

- Isolated, bussed and dual terminator schematics available
- 14, 16, or 20 terminal package
- Molded case construction
- Thick film resistive elements
- Reflow solderable
- Compatible with automatic surface mounting equipment
- Reduces total assembly costs
- For wave flow soldering contact factory
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb Available

e1 RoHS* Available

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

GLOBAL MODEL	CIRCUIT	POWER RATING ELEMENT $P_{70\,°C}$ W	POWER RATING PACKAGE $P_{70\,°C}$ W	TOLERANCE (3) ± %	RESISTANCE RANGE Ω	MAXIMUM WORKING VOLTAGE (2) V_{DC}	TEMPERATURE COEFFICIENT (1) ± ppm/°C
SOMC14	01	0.08	1.05	1, 2, 5	10 to 1M	50	100
	03	0.16	1.125	1, 2, 5	10 to 1M	50	100
	05	0.08	1.05	1, 2, 5	10 to 1M	50	100
SOMC16	01	0.08	1.20	1, 2, 5	10 to 1M	50	100
	03	0.16	1.28	1, 2, 5	10 to 1M	50	100
	05	0.08	1.20	1, 2, 5	10 to 1M	50	100
SOMC20	01	0.08	1.52	1, 2, 5	10 to 1M	50	100
	03	0.16	1.60	1, 2, 5	10 to 1M	50	100
	05	0.08	1.52	1, 2, 5	10 to 1M	50	100

Notes

- DSCC has created series of drawings to support the need for a surface mount gull wing resistor network product. Vishay Dale is listed as a resource on this drawing as follows:

DSCC DRAWING NUMBER	VISHAY DALE MODEL	CIRCUIT	POWER RATING ELEMENT $P_{70\,°C}$ W	POWER RATING PACKAGE $P_{70\,°C}$ W	RESISTANCE RANGE Ω	TOLERANCE ± %	TEMPERATURE COEFFICIENT (0 °C to 70 °C) ± ppm/°C	MAXIMUM WORKING VOLTAGE (2) V_{DC}
87012	SOMC1601..16 SOMC1603..17 SOMC1605..48	01 (B) 03 (A) 05 (J)	0.08 0.16 0.08	1.20	10 to 2.2M	1, 2, 5	100, 300	50
87013	SOMC1401..6 SOMC1403..13 SOMC1405..22	01 (B) 03 (A) 05 (J)	0.08 0.16 0.08	1.00	10 to 2.2M	1, 2, 5	100, 300	50

These drawings can be viewed at: www.landandmaritime.dla.mil/Programs/MilSpec/ListDwgs.aspx?DocTYPE=DSCCdwg.

- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material
- Jumper: 0 Ω-resistor on request (100 mΩ)
- Packaging: According to EIA; see appropriate catalog or web page

(1) Temperature range: -55 °C to +125 °C

(2) Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less

(3) ± 2 % standard, ± 1 % and ± 5 % available

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	01 CIRCUIT	03 CIRCUIT	05 CIRCUIT
Rated dissipation at 70 °C per element	W	0.08	0.16	0.08
Limiting element voltage (1)	V_{DC}	50		
Voltage coefficient	ppm/V	< 50		
Insulation voltage (1 min)	$V_{DC/AC}$ peak	200		
Category temperature range	°C	-55 / +150		
Insulation resistance	Ω	$> 10^{10}$		
TC tracking (-55 °C to +125 °C)	ppm/°C	50		

Note

(1) Rated voltage: $\sqrt{P \times R}$

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: SOMC16011K00GDC (preferred part numbering format)

S	O	M	C	1	6	0	1	1	K	0	0	G	D	C			

GLOBAL MODEL	PIN COUNT	SCHEMATIC	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
SOMC	**14** **16** **20**	**01** = bussed **03** = isolated **00** = special	**R** = Ω **K** = kΩ **M** = MΩ **10R0** = 10 Ω **680K** = 680 kΩ **1M00** = 1.0 MΩ **0000** = 0 Ω jumper	**F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **S** = special **Z** = 0 Ω jumper	**EJ** = lead (Pb)-free, tube **EA** = lead (Pb)-free, tape and reel **DC** = tin / lead, tube **RZ** = tin / lead, tape and reel	Blank = standard (dash number) (up to 3 digits) from **1 to 999** as applicable

Historical Part Number Example: SOMC1601102G (will continue to be accepted)

SOMC	16	01	102	G	D02
HISTORICAL MODEL	PIN COUNT	SCHEMATIC	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

New Global Part Numbering: SOMC2005500BGRZ (preferred part numbering format)

S	O	M	C	2	0	0	5	5	0	0	B	G	R	Z			

GLOBAL MODEL	PIN COUNT	SCHEMATIC	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
SOMC	**14** **16** **20**	**05** = dual terminator	3 digit impedance code, followed by alpha modifier (see Impedance table)	**F** = ± 1 % **G** = ± 2 % **J** = ± 5 %	**EJ** = lead (Pb)-free, tube **EA** = lead (Pb)-free, tape and reel **DC** = tin / lead, tube **RZ** = tin / lead, tape and reel	Blank = standard (dash number) up to 3 digits from **1 to 999** as applicable

Historical Part Number Example: SOMC2005820131G (will continue to be accepted)

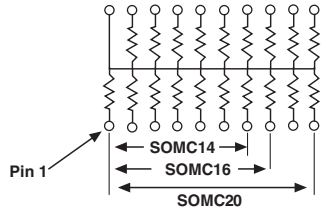
SOMC	20	05	820	131	G	R61
HISTORICAL MODEL	PIN COUNT	SCHEMATIC	RESISTANCE VALUE 1	RESISTANCE VALUE 2	TOLERANCE CODE	PACKAGING

Note

- For additional information on packaging, refer to the Surface Mount Network Packaging document (www.vishay.com/doc?31540)

CIRCUIT APPLICATIONS

01 Schematic

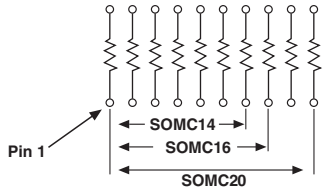


13, 15, or 19 resistors with one pin common

The SOMCxx01 circuit provides a choice of 13, 15, or 19 nominally equal resistors, each connected between a common lead (14, 16, or 20) and a discrete PC board pin. Commonly used in the following applications:

- MOS/ROM pull-up/pull-down
- Open collector pull-up
- "Wired OR" pull-up
- Power driven pull-up
- TTL input pull-down
- Digital pulse squaring
- TTL unused gate pull-up
- High speed parallels pull-up

03 Schematic

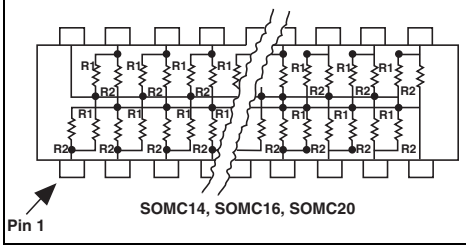


7, 8, or 10 isolated resistors

The SOMCxx03 circuit provides a choice of 7, 8, or 10 nominally equal resistors with each resistor isolated from all others and wired directly across. Commonly used in the following applications:

- "Wired OR" pull-up
- Power driven pull-up
- Powergate pull-up
- Line termination
- Long-line Impedance balancing
- LED current limiting
- ECL output pull-down
- TTL input pull-down

05 Schematic

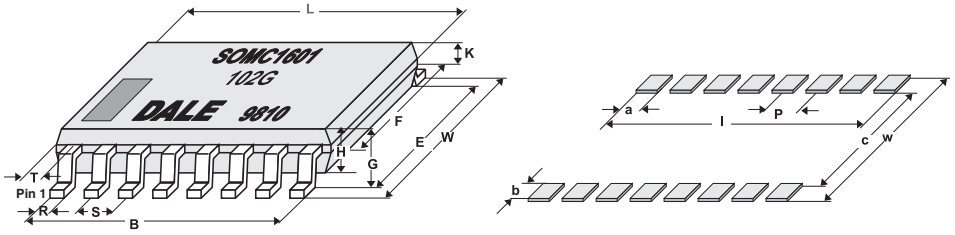


TTL dual-line terminator; pulse squaring, 12, 14, or 18 pairs of resistors
(R_1 resistors are common to leads 14, 16, or 20)
(R_2 resistors are common to leads 7, 8, or 10)

The SOMCxx05 circuit contains 12, 14, or 18 pairs of resistors. Each pair is connected between ground and a common line. The junctions of these resistor pairs are connected to the input leads.

The 05 circuits are designed for TTL dual-line termination and pulse squaring.

DIMENSIONS



SOLDER PAD DIMENSIONS in millimeters

	a	b	c	l	p	w
WAVE	0.64	1.91	5.34	9.53	1.27	9.15
REFLOW	0.64	1.91	5.34	9.53	1.27	9.15

Notes

- The dimension shown are for a 16 pin part. For parts with different pin numbers use the same pitch and add or subtract pads as required
- Maximum solder reflow temperature +255 °C

DIMENSIONS in millimeters

PIN NO#	L	W	B	E	F	G	H	K	R	S	T
14	9.91	7.62	7.62	6.20	5.59	2.16	2.03	0.914	0.457	1.27	1.14
16	11.18	7.62	8.89	6.20	5.59	2.16	2.03	0.914	0.457	1.27	1.14
20	13.72	7.62	11.43	6.20	5.59	2.16	2.03	0.914	0.457	1.27	1.14
Tol.	± 0.254	± 0.381	± 0.254	± 0.381	± 0.127	± 0.127	± 0.127		± 0.076	± 0.254	

MARKING INFORMATION

1 % parts have 4 digits while 2 % and 5 % parts have 3 digits.

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

Note

- For additional impedance codes, refer to the Dual Terminator Impedance Code Table document (www.vishay.com/doc?31530)

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST RESULTS (TYPICAL TEST LOTS)
Power conditioning	MIL-STD-202	± 0.5 %
Load life at 70 °C	MIL-STD-202	± 0.5 %
Short time overload	MIL-STD-202	± 0.25 %
Thermal shock	MIL-STD-202	± 0.5 %
Moisture resistance	MIL-STD-202	± 0.5 %
Resistance to soldering heat	MIL-STD-202	± 0.25 %
Low temperature operation	MIL-STD-202	± 0.25 %
Vibration	MIL-STD-202	± 0.25 %
Shock	MIL-STD-202	± 0.25 %
Terminal strength	MIL-STD-202	± 0.25 %

MECHANICAL SPECIFICATIONS	
Marking	Model number, schematic number, value tolerance, pin 1 indicator, date code
Marking resistance to solvents	Permanency testing per MIL-STD-202, method 215
Maximum solder reflow temperature	+255 °C
Solderability	Per MIL-STD-202, method 208E
Terminals	Copper alloy. Solder dipped terminal
Body	Molded epoxy

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