

Resistor-Capacitor Networks Enhance Performance of ECL Circuits

Digital systems incorporating Emitter Coupled Logic (ECL) or other ultra-high switching speed logic families will require signal termination to prevent transmission line effects such as reflections and ringing due to fast transition times.

Bourns 800 series resistor capacitor networks are ideal for termination of high speed transmission lines. Each network is composed of resistors for parallel termination and bypass capacitor(s) for cross talk noise reduction.

The 5 conformal coated SIP circuit variations offered are as follows.

For additional information, see application note on pages 147 and 148.

Model 800 Series

B® Resistor Networks

FOR SCHEMATICS, SEE FOLLOWING PAGE.

Electrical Characteristics

Resistance Tolerance $\pm 2\%$
 Resistance Power 0.1 watt
 Capacitance Tolerance $\pm 20\%$
 Capacitor Dielectric Type X7R
 Capacitance Voltage Rating 50 Volts

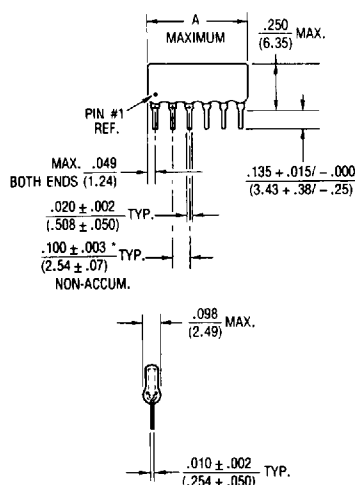
Physical Characteristics

Flammability Conforms to UL94V-0
 Leadframe Copper (Olin 194)
 Body Material Epoxy/Anhydride
 (Conformal Material)

Custom Resistance Range
 10 ohms to 10 megohms
 Custom Capacitance Range
 39pF to 39,000pF

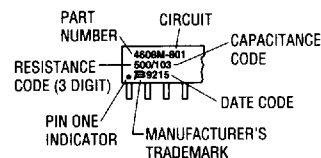
NPO and Z5U dielectrics available on a custom basis.

MEDIUM PROFILE



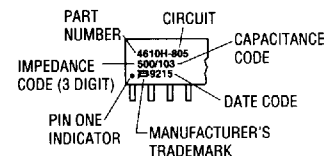
TYPICAL PART MARKING 801 AND 802

Represents total content. Layout may vary.

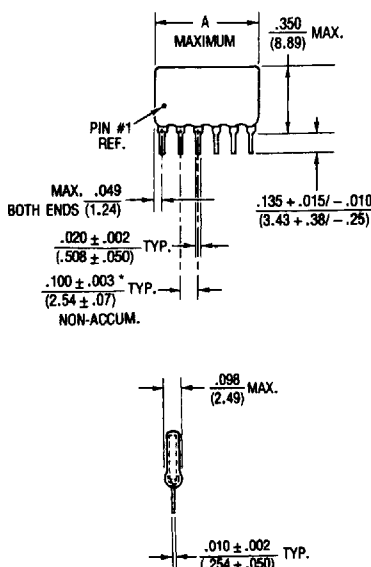


TYPICAL PART MARKING 803 AND 805

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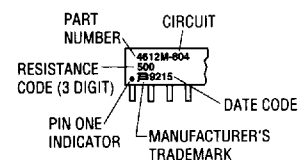


HIGH PROFILE



TYPICAL PART MARKING 804

Represents total content. Layout may vary.



- Optimize data transmission in ECL systems through proper termination between drivers and receivers
- Minimize overshoot, undershoot, and ringing while increasing noise immunity
- Provide decoupling capacitors
- Minimize space and routing problems, and reduce manufacturing cost per installed resistive function
- Increase board yields and reliability by reducing component count

Model 800 Series

® Resistor Networks

FOR PRODUCT SPECIFICATIONS, SEE PRIOR PAGE.

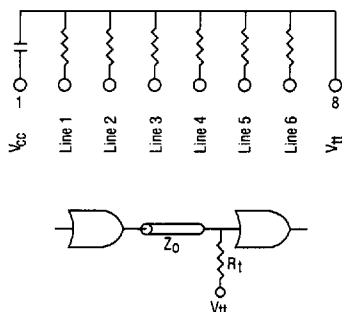
801 8, 10 AND 12 PIN SIP (4608M-801-RC/CC)

Designed to terminate 6 to 10 transmission lines using parallel termination techniques. Standard resistance values include 50, 68, 75, 82, 90 or 100 ohms and are chosen to match the characteristic impedance (Z_0) of the transmission line. A 0.01 μ F capacitor is provided to help maintain a solid power supply level within the network package, mitigating any cross talk or feedthrough effects. Values for R and C not shown in the following table are available on a custom basis.

STANDARD 801 PART NUMBERS

R $\pm 2\%$	C $\pm 20\%$	Bourns Part Number
50 Ω	0.01 μ F	4608M-801-500/103
68 Ω	0.01 μ F	4608M-801-680/103
75 Ω	0.01 μ F	4608M-801-750/103
82 Ω	0.01 μ F	4608M-801-820/103
90 Ω	0.01 μ F	4608M-801-900/103
100 Ω	0.01 μ F	4608M-801-101/103

801 ELECTRICAL SCHEMATIC AND APPLICATION



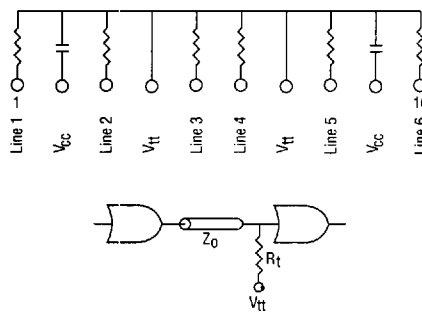
802 10 PIN SIP (4610M-802-RC/CC)

Designed to terminate 6 transmission lines using parallel termination techniques. Popular resistance values include 50, 68, 75, 82, 90 or 100 ohms and are chosen to match the characteristic impedance (Z_0) of the transmission line. Two 0.01 μ F capacitors are provided to reduce cross talk between lines and to decrease network package inductance. Values for R and C not shown in the following table are available on a custom basis.

STANDARD 802 PART NUMBERS

R $\pm 2\%$	C $\pm 20\%$	Bourns Part Number
50 Ω	0.01 μ F	4610M-802-500/103
68 Ω	0.01 μ F	4610M-802-680/103
75 Ω	0.01 μ F	4610M-802-750/103
82 Ω	0.01 μ F	4610M-802-820/103
90 Ω	0.01 μ F	4610M-802-900/103
100 Ω	0.01 μ F	4610M-802-101/103

802 ELECTRICAL SCHEMATIC AND APPLICATION



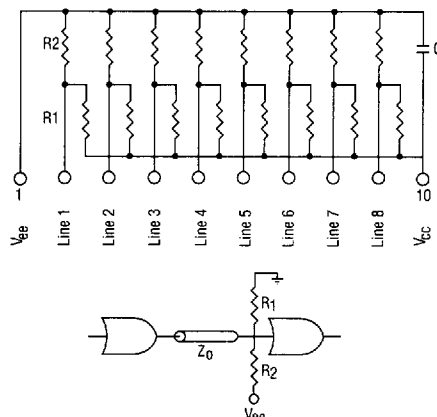
803 8, 10 AND 12 PIN SIP 10K ECL (4610H-803-Z0C/CC)

Designed to terminate 6 to 10 transmission lines using Thevenin equivalent parallel termination techniques in systems using 10K ECL. Popular impedance values include 50, 70, 75, 80, 90, 100, 120, 150 or 200 ohms. Standard values for R1 and R2, based on Z_0 , have been chosen to accommodate 10K ECL designs. A 0.01 μ F capacitor is provided to reduce cross talk noise within the network package. Values for Z_0 and C not shown in the following table are available on a custom basis. This type of termination is an alternative to parallel termination used when a separate V_{tt} power supply is not available.

STANDARD 803 PART NUMBERS

Z_0 $\pm 2\%$	R1	R2	C $\pm 20\%$	Bourns Part Number
50 Ω	81 Ω	130 Ω	0.1 μ F	4610H-803-500/104
70 Ω	113 Ω	182 Ω	0.1 μ F	4610H-803-700/104
75 Ω	121 Ω	195 Ω	0.1 μ F	4610H-803-750/104
80 Ω	130 Ω	208 Ω	0.1 μ F	4610H-803-800/104
90 Ω	146 Ω	234 Ω	0.1 μ F	4610H-803-900/104
100 Ω	162 Ω	260 Ω	0.1 μ F	4610H-803-101/104
120 Ω	194 Ω	312 Ω	0.1 μ F	4610H-803-121/104
150 Ω	243 Ω	390 Ω	0.1 μ F	4610H-803-151/104
200 Ω	325 Ω	520 Ω	0.1 μ F	4610H-803-201/104

803 ELECTRICAL SCHEMATIC AND APPLICATION



Specifications are subject to change without notice.

Model 800 Series

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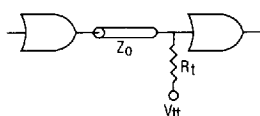
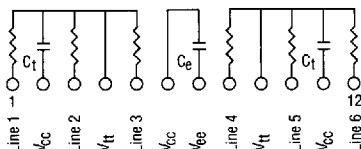
804 12 PIN SIP ECL (4612M-804-RC)

Designed to terminate 6 transmission lines using parallel termination techniques. Popular resistance values include 50 or 100 ohms. A $0.1 \mu\text{F}$ capacitor is provided for connection to V_{ee} . Two $0.01 \mu\text{F}$ capacitors are provided for connection to V_{tt} . Values for R and C not shown in the following table are available on a custom basis.

STANDARD 804 PART NUMBERS

R $\pm 2\%$	Ct $\pm 20\%$	Ce $\pm 20\%$	Bourns Part Number
50 Ω	0.01 μF	0.1 μF	4612M-804-500
100 Ω	0.01 μF	0.1 μF	4612M-804-101

804 ELECTRICAL SCHEMATIC AND APPLICATION



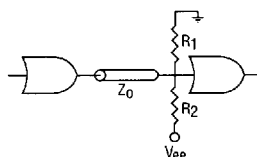
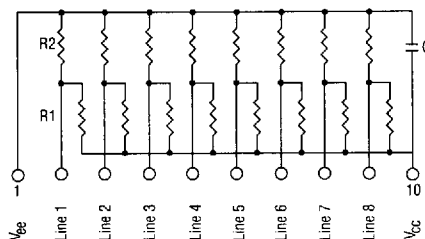
805 8, 10 AND 12 PIN SIP 100K ECL (4610H-805-Z₀C/CC)

Designed to terminate 6 to 10 transmission lines using Thevenin equivalent parallel termination techniques in systems using 100K ECL. Popular impedance values include 50, 70, 75, 80, 90, 100, 120, 150 or 200 ohms. Standard values for R1 and R2, based on Z_0 , have been chosen to accommodate 100K ECL designs. A $0.1 \mu\text{F}$ capacitor is provided to reduce cross talk noise within the network package. Values for Z_0 and C not shown in the following table are available on a custom basis. This type of termination is an alternative to parallel termination used when a separate V_{tt} power supply is not available.

STANDARD 805 PART NUMBERS

Z ₀ $\pm 2\%$	R1	R2	C $\pm 20\%$	Bourns Part Number
50 Ω	90 Ω	113 Ω	0.1 μF	4610H-805-500/104
70 Ω	126 Ω	158 Ω	0.1 μF	4610H-805-700/104
75 Ω	135 Ω	169 Ω	0.1 μF	4610H-805-750/104
80 Ω	144 Ω	180 Ω	0.1 μF	4610H-805-800/104
90 Ω	161 Ω	202 Ω	0.1 μF	4610H-805-900/104
100 Ω	180 Ω	225 Ω	0.1 μF	4610H-805-101/104
120 Ω	216 Ω	270 Ω	0.1 μF	4610H-805-121/104
150 Ω	270 Ω	338 Ω	0.1 μF	4610H-805-151/104
200 Ω	360 Ω	450 Ω	0.1 μF	4610H-805-201/104

805 ELECTRICAL SCHEMATIC AND APPLICATION



HOW TO ORDER 801

46 08 M - 801 - 500 103

Model _____
(46 = Conformal SIP)
Number of Pins _____
(8, 10, 12)
Physical Config. _____
•M = Medium Profile
Electrical Configuration _____
Resistance Code _____
•First 2 digits are significant
•Third digit represents the number of zeros to follow.
•Units = ohms
Capacitance Code _____
•First 2 digits are significant
•Third digit represents the number of zeros to follow.
•Units = picofarads
Consult factory for other available options.

HOW TO ORDER 802

46 10 M - 802 - 500 103

Model _____
(46 = Conformal SIP)
Number of Pins _____
(8, 10, 12)
Physical Config. _____
•M = Medium Profile
Electrical Configuration _____
Resistance Code _____
•First 2 digits are significant
•Third digit represents the number of zeros to follow.
•Units = ohms
Capacitance Code _____
•First 2 digits are significant
•Third digit represents the number of zeros to follow.
•Units = picofarads
Consult factory for other available options.

HOW TO ORDER 803 AND 805

46 08 H - 803 - 101 103

Model _____
(46 = Conformal SIP)
Number of Pins _____
(8, 10, 12)
Physical Config. _____
•H = High Profile
Electrical Configuration _____
•803 •805
Impedance Code _____
•First 2 digits are significant
•Third digit represents the number of zeros to follow.
•Units = ohms
Capacitance Code _____
•First 2 digits are significant
•Third digit represents the number of zeros to follow.
•Units = picofarads
Consult factory for other available options.

HOW TO ORDER 804

46 12 M - 804 - 500

Model _____
(46 = Conformal SIP)
Number of Pins _____
Physical Config. _____
•M = Medium Profile
Electrical Configuration _____
Resistance Code _____
•First 2 digits are significant
•Third digit represents the number of zeros to follow.
•Units = ohms
Consult factory for other available options.