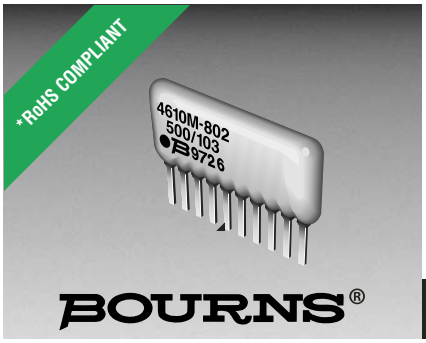


Features

- 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
- RoHS compliant*
- Minimize space and routing problems, and reduce manufacturing cost per installed resistive function
- Increase board yields and reliability by reducing component count

For information on ECL Terminators, download Bourns' ECL Terminator Application Note.

800 Series - RC Networks ECL Terminator Circuits

General Description

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.

Electrical Characteristics

Resistance Tolerance.....±5 %
Resistance Power.....0.1 watt
Capacitance Tolerance .....±20 %
Capacitor Dielectric Type.....X7R
Capacitance Voltage Rating .....50 Volts

Physical Characteristics

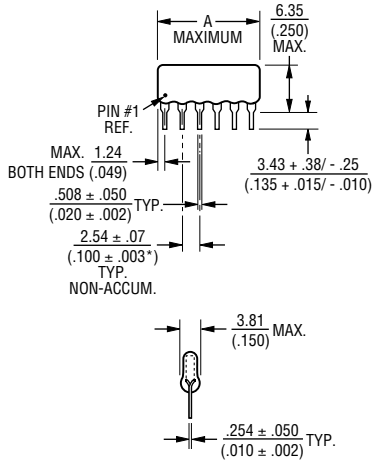
Flammability .....Conforms to UL94V-0
Leadframe .....Copper (Olin 194)
Body Material.....Epoxy/Anhydride (Conformal Material)
Custom Resistance Range .....10 ohms to 50K ohms
Custom Capacitance Range .....39pF to 100,000pF

NPO and Z5U dielectrics available on a custom basis.

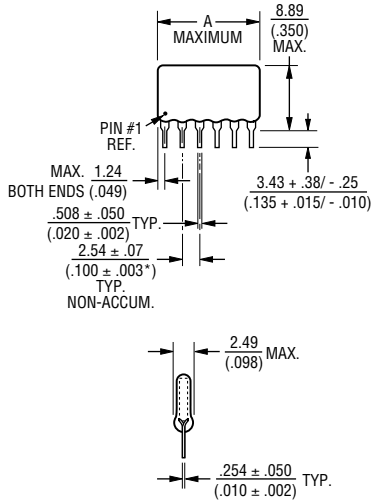
For Standard Values Used in Capacitors, Inductors, and Resistors, click here.

Product Dimensions

MEDIUM PROFILE



HIGH PROFILE

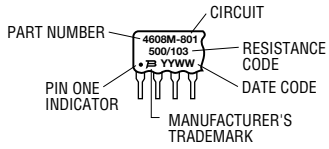


Governing dimensions are metric. Dimensions in parentheses are inches and are approximate.

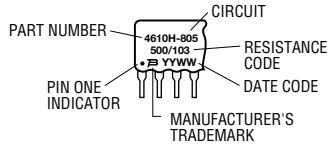
*Terminal centerline to centerline measurements made at point of emergence of the lead from the body.

Typical Part Marking

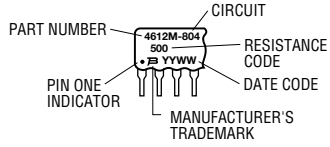
801 AND 802
Represents total content. Layout may vary.



803 AND 805
Represents total content. Layout may vary.



804
Represents total content. Layout may vary.



*RoHS Directive 2002/95/EC Jan 27 2003 including Annex

800 Series - RC Networks ECL Terminator Circuits

BOURNS®

801 8, 10 and 12 Pin SIP

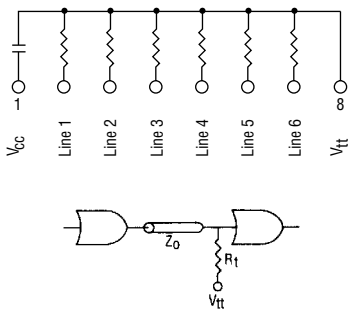
(4608M-801-RC/CCL)

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_O) of the transmission line. A 0.01 mF 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 ±2%	C ±20%	Bourns Part Number
50Ω	0.01μF	4608M-801-500/103L
68Ω	0.01μF	4608M-801-680/103L
75Ω	0.01μF	4608M-801-750/103L
82Ω	0.01μF	4608M-801-820/103L
90Ω	0.01μF	4608M-801-900/103L
100Ω	0.01μF	4608M-801-101/103L

801 Electrical Schematic and Application



802 10 Pin SIP

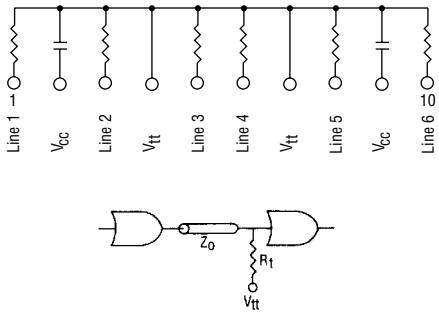
(4610M-802-RC/CCL)

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_O) of the transmission line. Two 0.01 μF 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 ±2%	C ±20%	Bourns Part Number
50Ω	0.01μF	4610M-802-500/103L
68Ω	0.01μF	4610M-802-680/103L
75Ω	0.01μF	4610M-802-750/103L
82Ω	0.01μF	4610M-802-820/103L
90Ω	0.01μF	4610M-802-900/103L
100Ω	0.01μF	4610M-802-101/103L

802 Electrical Schematic and Application



803 8, 10 and 12 Pin SIP 10K ECL

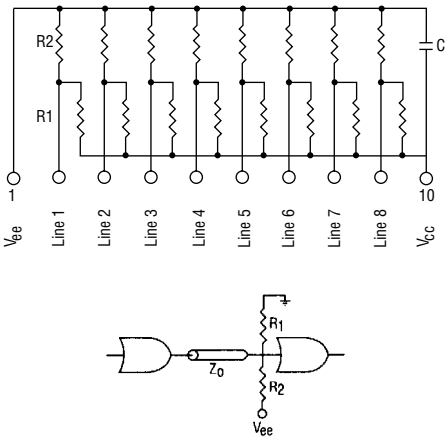
(4610H-803-ZoC/CCL)

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_O, have been chosen to accommodate 10K ECL designs. A 0.1 μF capacitor is provided to reduce cross talk noise within the network package. Values for Z_O 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

Zo ±2%	R1	R2	C ±20%	Bourns Part No.
50Ω	81Ω	130Ω	0.1μF	4610H-803-500/104L
70Ω	113Ω	182Ω	0.1μF	4610H-803-700/104L
75Ω	121Ω	195Ω	0.1μF	4610H-803-750/104L
80Ω	130Ω	208Ω	0.1μF	4610H-803-800/104L
90Ω	146Ω	234Ω	0.1μF	4610H-803-900/104L
100Ω	162Ω	260Ω	0.1μF	4610H-803-101/104L
120Ω	194Ω	312Ω	0.1μF	4610H-803-121/104L
150Ω	243Ω	390Ω	0.1μF	4610H-803-151/104L
200Ω	325Ω	520Ω	0.1μF	4610H-803-201/104L

803 Electrical Schematic and Application



800 Series - RC Networks ECL Terminator Circuits

BOURNS®

804 12 Pin SIP ECL

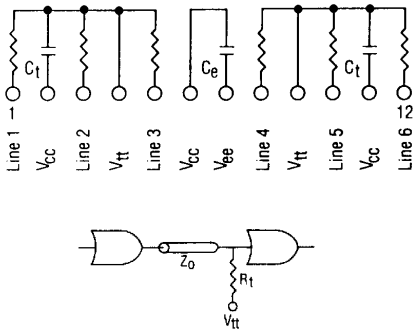
(4612M-804-RCL)

Designed to terminate 6 transmission lines using parallel termination techniques. Popular resistance values include 50 or 100 ohms. A 0.1 μF capacitor is provided for connection to V_{ee}. Two 0.01 μF 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 ±2%	Ct ±20%	Ce ±20%	Bourns Part Number
50Ω	0.01μF	0.1μF	4612M-804-500L
100Ω	0.01μF	0.1μF	4612M-804-101L

804 Electrical Schematic and Application



805 8, 10 and 12 Pin SIP 100K ECL

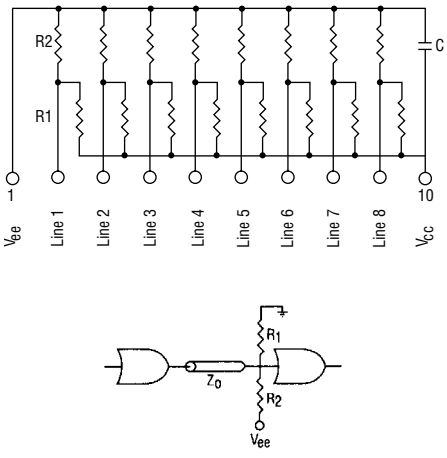
(4610H-805-ZoC/CCL)

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_o, have been chosen to accommodate 100K ECL designs. A 0.1 μF capacitor is provided to reduce cross talk noise within the network package. Values for Z_o 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

Zo ±2%	R1	R2	C ±20%	Bourns Part No.
50Ω	90Ω	113Ω	0.1μF	4610H-805-500/104L
70Ω	126Ω	158Ω	0.1μF	4610H-805-700/104L
75Ω	135Ω	169Ω	0.1μF	4610H-805-750/104L
80Ω	144Ω	180Ω	0.1μF	4610H-805-800/104L
90Ω	161Ω	202Ω	0.1μF	4610H-805-900/104L
100Ω	180Ω	225Ω	0.1μF	4610H-805-101/104L
120Ω	216Ω	270Ω	0.1μF	4610H-805-121/104L
150Ω	270Ω	338Ω	0.1μF	4610H-805-151/104L
200Ω	360Ω	450Ω	0.1μF	4610H-805-201/104L

805 Electrical Schematic and Application



How To Order 801

46 08 M - 801 - 500 103 L

- 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
- Termination L = Lead Free (Sn/Ag/Cu-plated)

Consult factory for other available options.

How To Order 802

46 10 M - 802 - 500 103 L

- 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
- Capacitance Code •First 2 digits are significant •Third digit represents the number of zeros to follow. •Units = picofarads
- Termination L = Lead Free (Sn/Ag/Cu-plated)

Consult factory for other available options.

How To Order 803 and 805

46 08 H - 803 - 101 103 L

- 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
- Termination L = Lead Free (Sn/Ag/Cu-plated)

Consult factory for other available options.

How To Order 804

46 12 M - 804 - 500 L

- 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
- Termination L = Lead Free (Sn/Ag/Cu-plated)

Consult factory for other available options.

REV. 11/06