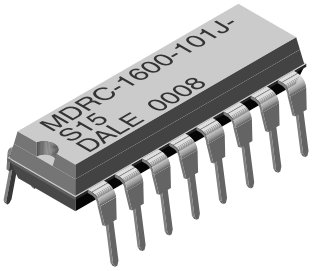
Thick Film Resistor/Capacitor Networks, Dual-In-Line, Molded DIP



FEATURES

- ECL terminator, ECL pull-down and thevenin equivalent terminator schematics available
- 0.190" (4.83 mm) maximum seated height
- Rugged molded case construction
- Thick film resistive elements
- Reduces total assembly cost
- Low temperature coefficient (-30 °C to +85 °C) ± 100 ppm/°C
- Compatible with automatic insertion equipment
- Reduces PC board space
- 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	SCHEMATIC	RESISTOR CHARACTERISTICS						CAPACITOR CHARACTERISTICS		
		POWER RATING ELEMENT $P_{25\,°C}$ (max.) W	POWER RATING PACKAGE $P_{25\,°C}$ (max.) W	RESISTANCE RANGE Ω	RES. TOL. (1) ± %	TEMP. COEFF. (-20 °C to +85 °C) (typ.) ± ppm/°C	TCR TRACKING ± ppm/°C	CAP. VALUES	CAP. TOL. %	CAP. VOLTAGE V_{DC}
MDRC	1641	0.15	2.0	50, 68, 75, 100	2	100	50	0.1 µF	+ 40, - 20	25
MDRC	1642	0.15	2.0	510	2	100	50	0.1 µF	+ 40, - 20	25
MDRC	1643	0.20	2.0	81/130, 121/195, 162/260	2	100	50	0.1 µF	+ 40, - 20	25

Note

(1) ± 2 % or 2 Ω, whichever is greater

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: MDRC1641500GD04 (preferred part numbering format)

M	D	R	C	1	6	4	1	5	0	0	G	D	0	4			

GLOBAL MODEL	PIN COUNT	SCHEMATIC	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
MDRC	**16** = 16 pin	**41** = ECL terminator **42** = ECL pull-down **00** = special	2 digit significant figure, followed by a multiplier **680** = 68 Ω **511** = 510 Ω	**G** = ± 2 % **S** = special	**E04** = lead (Pb)-free, tube **D04** = tin/lead, tube	Blank = standard (dash number) (up to 1 digit)

Historical Part Number example: MDRC1641500G (will continue to be accepted)

MDRC	16	41	500	G	D04
HISTORICAL MODEL	PIN COUNT	SCHEMATIC	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

New Global Part Numbering: MDRC1643750GD04 (preferred part numbering format)

M	D	R	C	1	6	4	3	7	5	0	G	D	0	4			

GLOBAL MODEL	PIN COUNT	SCHEMATIC	IMPEDANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
MDRC	**16** = 16 pin	**43** = thevenin terminator	2 digit significant figure, followed by a multiplier **500** = 50 Ω	**G** = ± 2 % **S** = special	**E04** = lead (Pb)-free, tube **D04** = tin/lead, tube	Blank = standard (dash number) (up to 1 digit)

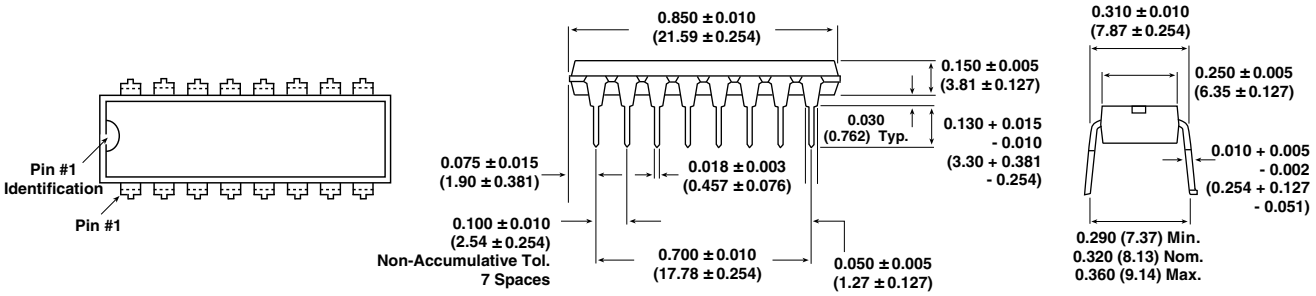
Historical Part Number example: MDRC1643750G (will continue to be accepted)

MDRC	16	43	750	G	D04
HISTORICAL MODEL	PIN COUNT	SCHEMATIC	IMPEDANCE VALUE	TOLERANCE CODE	PACKAGING

Note

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

DIMENSIONS in inches (millimeters)



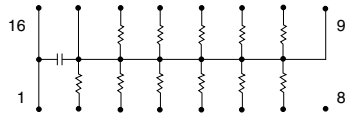
RESISTANCE VALUE IN Ω (G Tolerance)			
	MDRC1643		
MDRC1641 50, 68, 75, 100	**R1**	**R2**	**Z0**
	81	130	50
MDRC1642 510	121	195	75
	162	260	100

TECHNICAL SPECIFICATIONS		
PARAMETER	**UNIT**	**MDRC**
Operating voltage (at +25 °C)	V_{AC}	50 maximum
Capacitor dissipation factor	%	< 3
Voltage coefficient of resistance (typical)	ppm/V	< 50
Operating temperature range	°C	-30 to +85
Storage temperature range	°C	-30 to +85

MATERIAL SPECIFICATIONS	
Marking resistance to solvents	Permanency testing per MIL-STD-202, method 215
Solderability	Per MIL-STD-202, method 208E
Terminals	Copper alloy, solder plated
Body	Molded epoxy
Weight	1.5 g

CIRCUIT APPLICATIONS

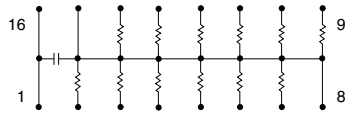
MDRC1641 Schematic



- 2.0 V and - 5.2 V ECL Terminator

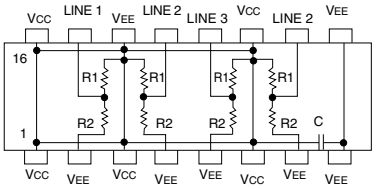
The MDRC1641 circuit contains 11 resistors of nominally equal value and a 0.01 mF decoupling capacitor. The MDRC1641 is designed for ECL line termination to a - 2.0 V buss. The 0.01 mF decoupling capacitor is for bypassing transients between supply voltages.

MDRC1642 Schematic



The MDRC1642 circuit contains 12 resistors of 510 Ω each and a 0.01 mF decoupling capacitor. The MDRC1642 is designed for ECL pull-down to a - 5.2 V buss. The 0.01 mF decoupling capacitor is for bypassing voltage transients on the voltage buss.

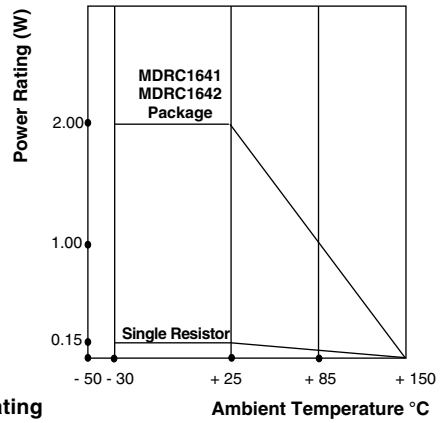
MDRC1643 Schematic



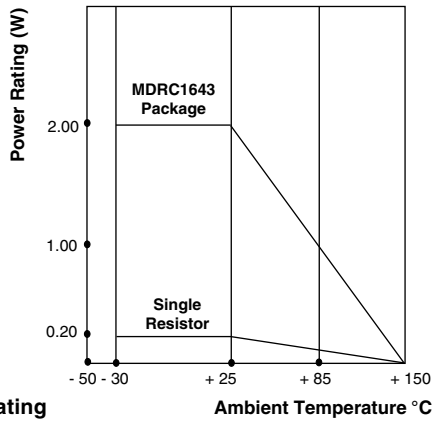
Thevenin Equivalent Terminator

The MDRC1643 contains four pair of series resistors. The circuit is compatible with ECL pin configurations. Each terminator section (series pair) contains a voltage divider between V_{CC} (0 V) and V_{EE} (- 5.2 V) providing a thevenin equivalent voltage of - 2.0 V. A 0.01 mF decoupling capacitor bypasses the V_{EE} buss.

MDRC1641 and MDRC1642



MDRC1643



PERFORMANCE		
TEST	**CONDITIONS**	**MAX. Δ*R* (TYPICAL TEST LOTS)**
Thermal shock	MDRC1641 and MDRC1642, 5 cycles between -30 °C and +85 °C MDRC1643, 5 cycles between -65 °C and +125 °C	± 0.50 % Δ*R*
Short time overload	2.5 x rated working voltage 5 s	± 0.25 % Δ*R*
Low temperature operation	MDRC1641 and MDRC1642, 45 min at full rated working voltage at -30 °C MDRC1643, 45 min at full rated working voltage at -65 °C	± 0.25 % Δ*R*
Moisture resistance	240 h with humidity ranging from 80 % RH to 98 % RH	± 0.50 % Δ*R*
Resistance to soldering heat	Leads immersed in +350 °C solder to within 1/16" of device body for 3 s	± 0.25 % Δ*R*
Shock	Total of 18 shocks at 100 *g*'s	± 0.25 % Δ*R*
Vibration	12 h at maximum of 20 *g*'s between 10 Hz and 2000 Hz	± 0.25 % Δ*R*
Load life	1000 h at +70 °C, rated power applied 1.5 h “ON”, 0.5 hour “OFF” for full 1000 h period. Derated according to the curve.	± 0.50 % Δ*R*
Terminal strength	4.5 pound pull for 30 s	± 0.25 % Δ*R*
Insulation resistance	10 000 MΩ (minimum)	-
Dielectric withstanding voltage	(200 V_{RMS} for 1 min)	-

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