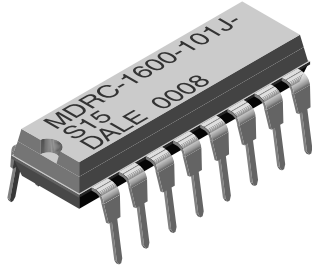


## Thick Film Resistor/Capacitor Networks, Dual-In-Line, Molded DIP



### 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
- Compliant of RoHS directive 2002/95/EC



**RoHS\***  
COMPLIANT

### STANDARD ELECTRICAL SPECIFICATIONS

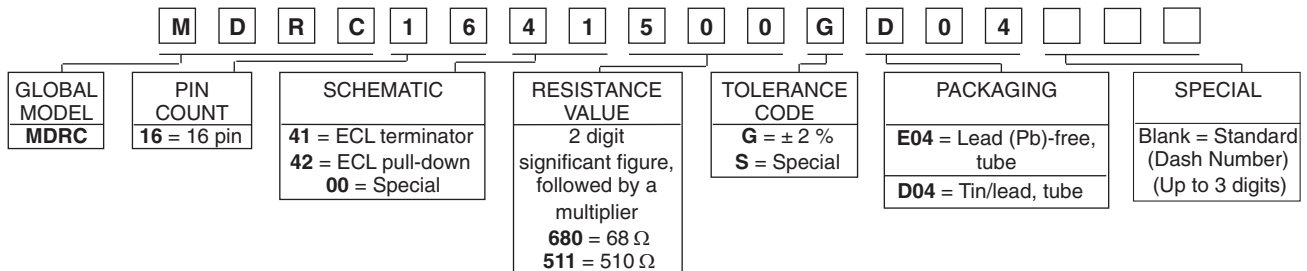
GLOBAL MODEL	SCHEMATIC	RESISTOR CHARACTERISTICS					CAPACITOR CHARACTERISTICS	
		POWER RATING		RESISTANCE TOLERANCE ± %	TEMPERATURE COEFFICIENT (- 20 °C to + 85 °C) ± ppm/°C	TCR TRACKING ± ppm/°C	CAPACITANCE TOLERANCE	CAPACITANCE VOLTAGE V <sub>DC</sub>
		ELEMENT P <sub>25 °C</sub> W	PACKAGE P <sub>25 °C</sub> W					
MDRC	1641	0.15 max.	2.0 max.	2 <sup>(1)</sup>	100 (typical)	50	0.1 μF + 40 %, - 20 %	25
MDRC	1642	0.15 max.	2.0 max.	2 <sup>(1)</sup>	100 (typical)	50	0.1 μF + 40 %, - 20 %	25
MDRC	1643	0.20 max.	2.0 max.	2 <sup>(1)</sup>	100 (typical)	50	0.1 μF + 40 %, - 20 %	25

**Note**

<sup>(1)</sup> ± 2 % or 2 Ω, whichever is greater

### GLOBAL PART NUMBER INFORMATION

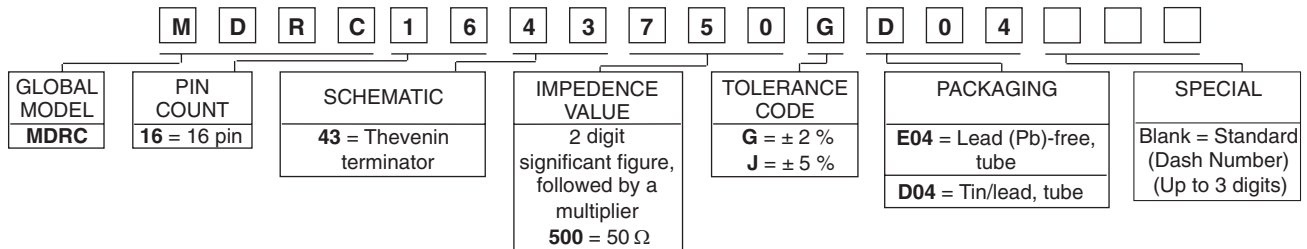
New Global Part Numbering: MDRC1641500GD04 (preferred part numbering format)



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



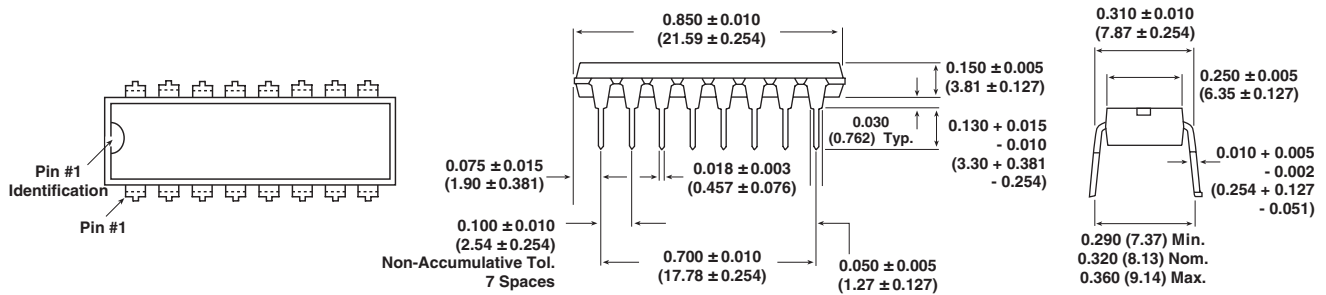
New Global Part Numbering: MDRC1643750GD04 (preferred part numbering format)



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



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

**DIMENSIONS** in inches (millimeters)


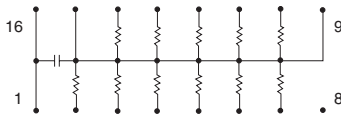
RESISTANCE VALUE IN $\Omega$ (G Tolerance)			
<b>MDRC1641</b> 50, 68, 75, 100	<b>MDRC1643</b>		
	<b>R1</b>	<b>R2</b>	<b>Z0</b>
	81	130	50
<b>MDRC1642</b> 510	121	195	75
	162	260	100

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 °C
Storage Temperature Range	°C	- 30 to + 85 °C

MECHANICAL 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**

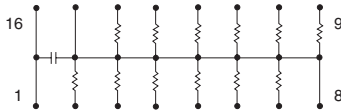
**MDRC1641 Schematic**



- 2.0 V and - 5.2 V ECL Terminator

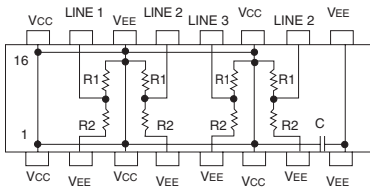
The MDRC1641 circuit contains 11 resistors of nominally equal value and a 0.01 mF decoupling capacitor. The MDRC-1641 is designed for ECL Line Termination to a - 2.0 V buss. The 0.01 mF decoupling capacitor is for bypassing transients between supply voltages.

**MDRC1642 Schematic**



The MDRC1642 circuit contains 12 resistors of 510 Ω each and a 0.01 mF decoupling capacitor. The MDRC-1642 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.

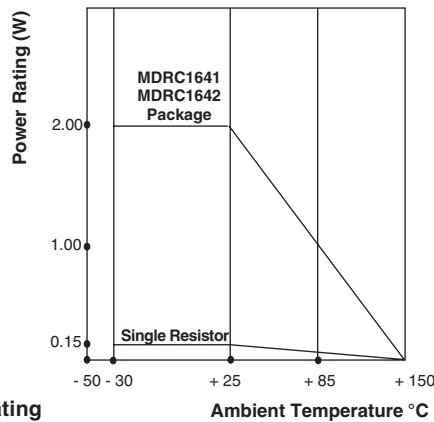
**MDRC1643 Schematic**



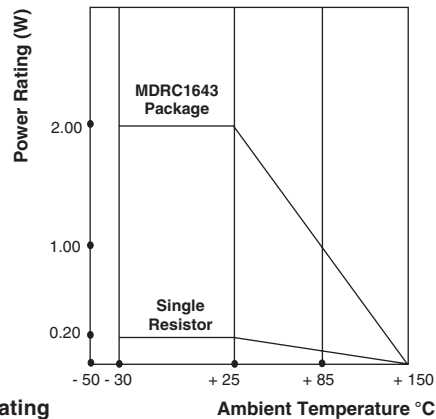
Thevenin Equivalent Terminator

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**



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

Vishay Dale

<b>PERFORMANCE</b>		
<b>TEST</b>	<b>CONDITIONS</b>	<b>MAX. <math>\Delta R</math> (TYPICAL TEST LOTS)</b>
Thermal Shock	MDRC1641 and MDRC1642, 5 cycles between - 30 °C and + 85 °C MDRC1643, 5 cycles between - 65 °C and + 125 °C	$\pm 0.50 \% \Delta R$
Short Time Overload	2.5 x rated working voltage 5 s	$\pm 0.25 \% \Delta R$
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	$\pm 0.25 \% \Delta R$
Moisture Resistance	240 h with humidity ranging from 80 % RH to 98 % RH	$\pm 0.50 \% \Delta R$
Resistance to Soldering Heat	Leads immersed in + 350 °C solder to within 1/16" of device body for 3 s	$\pm 0.25 \% \Delta R$
Shock	Total of 18 shocks at 100 g's	$\pm 0.25 \% \Delta R$
Vibration	12 h at maximum of 20 g's between 10 Hz and 2000 Hz	$\pm 0.25 \% \Delta R$
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.	$\pm 0.50 \% \Delta R$
Terminal Strength	4.5 pound pull for 30 s	$\pm 0.25 \% \Delta R$
Insulation Resistance	10 000 M $\Omega$ (minimum)	-
Dielectric Withstanding Voltage	(200 V <sub>RMS</sub> for 1 min)	-



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