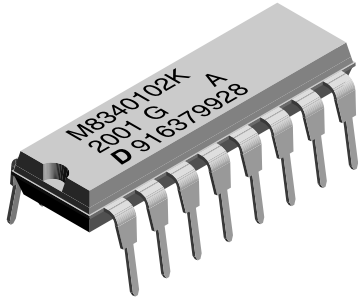


## Thick Film Resistor Networks Military, MIL-PRF-83401 Qualified, Type RZ Dual-In-Line Package, 01, 03, 05 Schematics



### FEATURES

- MIL-PRF-83401 qualified
- Epoxy molded construction
- All device leads are hot-solder dipped
- Available in tube pack
- TCR available in "K" ( $\pm 100$  ppm/ $^{\circ}$ C) or "M" ( $\pm 300$  ppm/ $^{\circ}$ C) depending on style
- 100 % screen tested per Group A, Subgroup 1 of MIL-PRF-83401
- All devices are capable of passing the MIL-STD-202, Method 210, Condition D, "Resistance to Soldering Heat" test

### STANDARD ELECTRICAL SPECIFICATIONS

VISHAY DALE MODEL/ PINS NO	SCHEMATIC	RESISTOR POWER RATING MAX. at 70 $^{\circ}$ C W	PACKAGE POWER RATING MAX. at 70 $^{\circ}$ C W	RESISTANCE RANGE $\Omega$	STANDARD TOLERANCE $\pm$ %	TEMPERATURE COEFFICIENT (- 55 $^{\circ}$ C to + 125 $^{\circ}$ C)	WEIGHT g
MDM 14	01	0.10	1.30	10 - 1M	$\pm 2$ ( $\pm 1, \pm 5$ ) <sup>(2)</sup>	K, M <sup>(1)</sup>	1.3
MDM 14	03	0.20	1.40	10 - 1M	$\pm 2$ ( $\pm 1, \pm 5$ ) <sup>(2)</sup>	K, M <sup>(1)</sup>	1.3
MDM 14	05	0.05	1.20	Consult factory	$\pm 2$ ( $\pm 1, \pm 5$ ) <sup>(2)</sup>	K, M <sup>(1)</sup>	1.3
MDM 16	01	0.10	1.50	10 - 1M	$\pm 2$ ( $\pm 1, \pm 5$ ) <sup>(2)</sup>	K, M <sup>(1)</sup>	1.5
MDM 16	03	0.20	1.60	10 - 1M	$\pm 2$ ( $\pm 1, \pm 5$ ) <sup>(2)</sup>	K, M <sup>(1)</sup>	1.5
MDM 16	05	0.05	1.40	Consult factory	$\pm 2$ ( $\pm 1, \pm 5$ ) <sup>(2)</sup>	K, M <sup>(1)</sup>	1.5

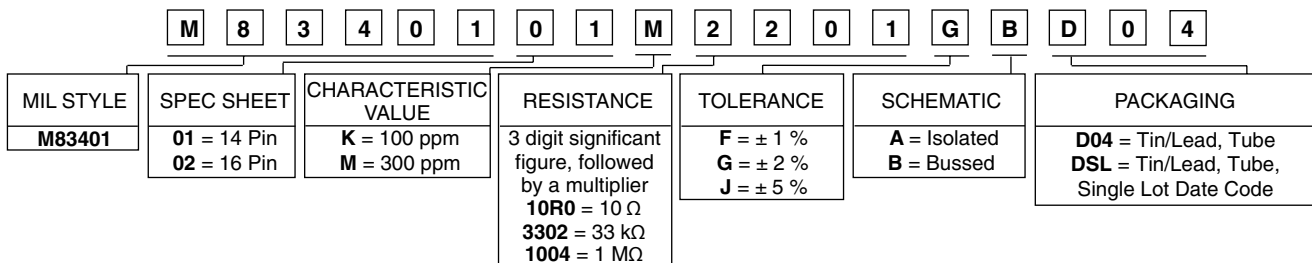
#### Notes

<sup>(1)</sup> K =  $\pm 100$  ppm/ $^{\circ}$ C; M =  $\pm 300$  ppm/ $^{\circ}$ C

<sup>(2)</sup>  $\pm 1$  % and  $\pm 5$  % tolerances available on request

### GLOBAL PART NUMBER INFORMATION

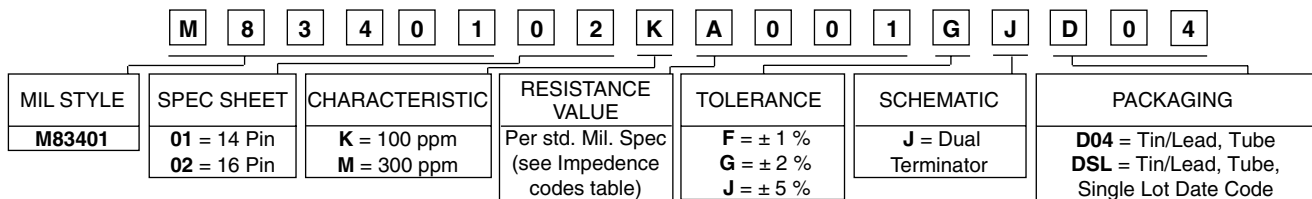
New Global Part Numbering: M8340101M2201GBD04 (preferred part numbering format)



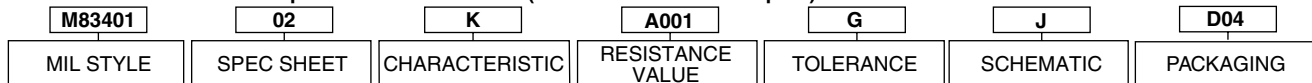
Historical Part Number example: M8340101M2201GB (will continue to be accepted)



New Global Part Numbering: M8340102KA001GJD04 (preferred part numbering format)



Historical Part Number example: M8340102KA001GJ (will continue to be accepted)

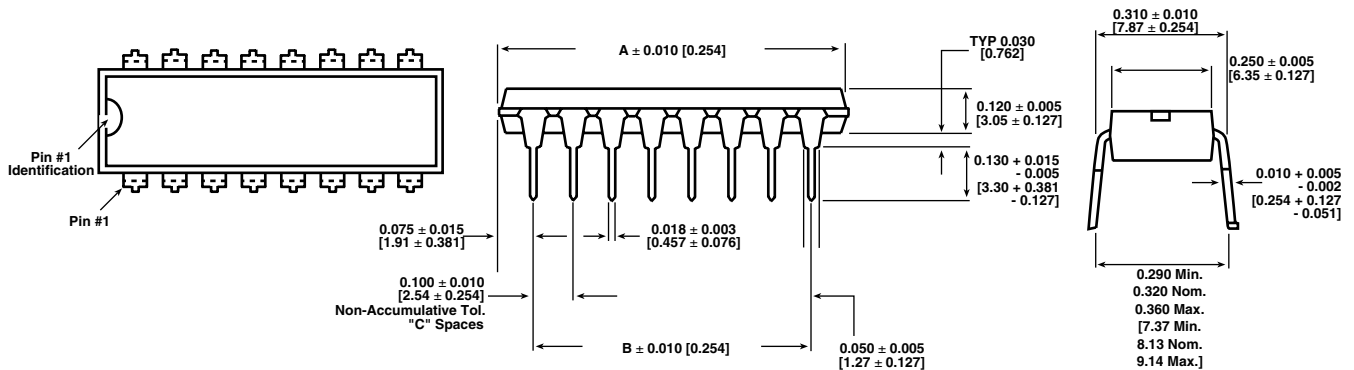




# MDM (Military M83401)

Thick Film Resistor Networks Military, MIL-PRF-83401 Qualified, Vishay Dale  
Type RZ Dual-In-Line Package, 01, 03, 05 Schematics

## DIMENSIONS in inches [millimeters]



VISHAY DALE MODEL	A	B	C
MDM14	0.750 [19.05]	0.600 [15.24]	6
MDM16	0.850 [21.59]	0.700 [17.78]	7

IMPEDANCE CODES					
CODE	R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)	CODE	R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)
A001	82	130	A010	330	470
A002	120	200	A011	330	680
A003	130	210	A012	1.5K	3.3K
A004	160	260	A013	3K	6.2K
A005	180	240	A014	180	270
A006	180	390	A015	270	270
A007	220	270	A016	560	560
A008	220	330	A017	560	1.2K
A009	330	390	A018	620	2.7K

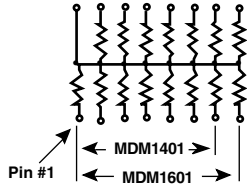
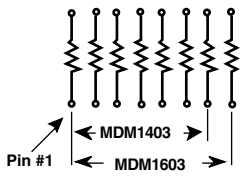
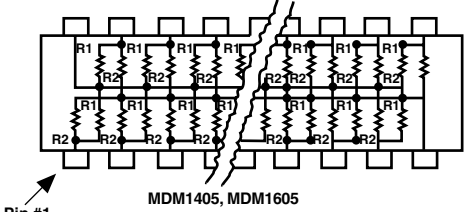
TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	MDM SERIES
Maximum Operating Voltage	V <sub>DC</sub>	100
Voltage Coefficient of Resistance	V <sub>eff</sub>	< 50 ppm
Dielectric Strength	V <sub>AC</sub>	200 per min.
Insulation Resistance	Ω	10 000 M
Operating Temperature Range	°C	- 55 to + 125
Storage Temperature Range	°C	- 55 to + 150

MECHANICAL SPECIFICATIONS	
Marking Resistance to Solvents	Permanency testing per MIL-PRF-83401
Solderability	Per MIL-PRF-83401
Body	Molded epoxy
Terminals	Copper alloy, hot-solder dipped

# MDM (Military M83401)

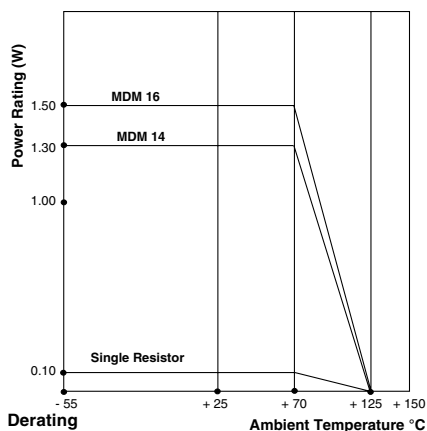


Vishay Dale Thick Film Resistor Networks Military, MIL-PRF-83401 Qualified, Type RZ Dual-In-Line Package, 01, 03, 05 Schematics

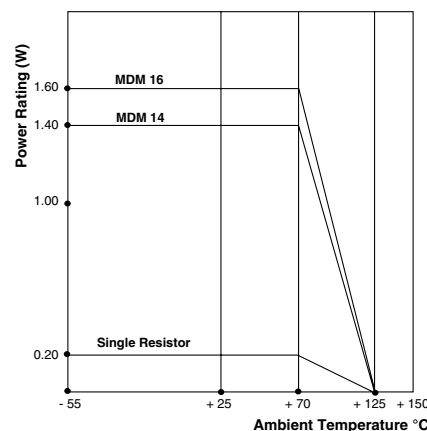
CIRCUIT APPLICATIONS	
<p><b>01 SCHEMATIC</b></p>  <p>Pin #1</p> <p>MDM1401</p> <p>MDM1601</p>	<p><b>MDM1401 (M8340101xxxxxB)</b> <b>MDM1601 (M8340102xxxxxB)</b></p> <p>13 or 15 resistors with one pin common</p> <p>The MDMxx01 provides the user with a choice of 13 or 15 nominally equal resistors, each connected to a common pin. Commonly used in the following applications:</p> <ul style="list-style-type: none"> <li>• MOS/ROM Pull-up/Pull-down</li> <li>• Open Collector Pull-up</li> <li>• "Wired OR" Pull-up</li> <li>• Power Driven Pull-up</li> <li>• TTL Input Pull-down</li> <li>• Digital Pulse Squaring</li> <li>• TTL Unused Gate Pull-up</li> <li>• High Speed Parallel Pull-up</li> </ul>
<p><b>03 SCHEMATIC</b></p>  <p>Pin #1</p> <p>MDM1403</p> <p>MDM1603</p>	<p><b>MDM1403 (M8340101xxxxxA)</b> <b>MDM1603 (M8340102xxxxxA)</b></p> <p>7 or 8 isolated resistors</p> <p>The MDMxx03 provides the user with a choice of 7 or 8 nominally equal resistors, with each resistor isolated from all others. Commonly used in the following applications:</p> <ul style="list-style-type: none"> <li>• "Wired OR" Pull-up</li> <li>• Power Driven Pull-up</li> <li>• Line Termination</li> <li>• Long-line Impedance Balancing</li> <li>• LED Current Limiting</li> <li>• ECL Output Pull-down</li> <li>• TTL Input Pull-down</li> </ul>
<p><b>05 SCHEMATIC</b></p>  <p>Pin #1</p> <p>MDM1405, MDM1605</p>	<p><b>MDM1405 (M8340101xxxxxJ)</b> <b>MDM1605 (M8340102xxxxxJ)</b></p> <p>12 or 14 resistor pairs</p> <p>The MDMxx05 provides the user with a choice of 12 or 14 pairs of R1/R2 resistor values for pulse squaring and TTL dual-line terminating requirements.</p>

**CAGE CODE: 91637**

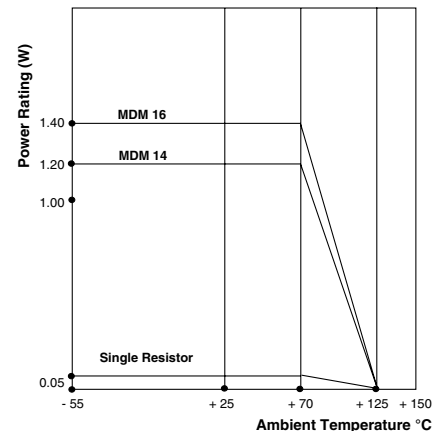
01 Schematic



03 Schematic



05 Schematic





# MDM (Military M83401)

Thick Film Resistor Networks Military, MIL-PRF-83401 Qualified, Vishay Dale  
Type RZ Dual-In-Line Package, 01, 03, 05 Schematics

PERFORMANCE		
TEST	CONDITIONS	MAX. $\Delta R$ (Typical Test Lots)
Power Conditioning	1.5 x rated power, applied 1.5 h "ON" and 0.5 h "OFF" for 100 h $\pm$ 4 h at + 25 °C ambient temperature	$\pm$ 0.50 % $\Delta R$
Thermal Shock	5 cycles between - 65 °C and + 125 °C	$\pm$ 0.50 % $\Delta R$
Short Time Overload	2.5 x rated working voltage for 5 s	$\pm$ 0.25 % $\Delta R$ (Char. K) $\pm$ 0.50 % $\Delta R$ (Char. M)
Low Temperature Operation	45 min at full rated working voltage at - 65 °C	$\pm$ 0.25 % $\Delta R$ (Char. K) $\pm$ 0.50 % $\Delta R$ (Char. M)
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 + 260 °C solder to within 1/16" of body for 10 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 and 2000 Hz	$\pm$ 0.25 % $\Delta R$
Load Life	1000 h at + 70 °C, rated power applied 1.5 h "ON", 0.5 h "OFF" for full 1000 h period	$\pm$ 0.50 % $\Delta R$ (Char. K) $\pm$ 2.00 % $\Delta R$ (Char. M)
Terminal Strength	4.5 pound pull for 30 s	$\pm$ 0.25 % $\Delta R$
Insulation Resistance	10 000 M $\Omega$ (minimum)	-
Dielectric Withstanding Voltage	No evidence of arcing or damage (200 V <sub>RMS</sub> for 1 min)	-



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