

Vishay Dale

Thick Film Resistor Networks, Military, MIL-PRF-83401 Qualified, Type RZ010 and RZ020 Dual-In-Line, Molded DIP



FEATURES

- Isolated, bussed and dual terminator schematics available
- MIL-PRF-83401 qualified
- Epoxy molded construction
- All device leads are hot-solder dipped
- Available in tube pack
- TCR available in "K" (± 100 ppm/°C) or "M" (± 300 ppm/°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

STAND	STANDARD ELECTRICAL SPECIFICATIONS								
VISHAY DALE MODEL/ PIN NO.	MIL STYLE	MIL SPEC. SHEET	SCHEMATIC	POWER RATING ELEMENT P _{70°C} W	POWER RATING PACKAGE P _{70°C} W	RESISTANCE RANGE Ω	TOLERANCE ⁽²⁾ ± %	TEMPERATURE COEFFICIENT ⁽¹⁾ (-55 °C to +125 °C) ± ppm/°C	WEIGHT g
			01 (B)	0.10	1.30	10 to 1M			
MDM14	RZ010	01	03 (A)	0.20	1.40	10 to 1M	1, 2, 5	100, 300	1.3
			05 (J)	0.05	1.20	Consult factory			
			01 (B)	0.10	1.50	10 to 1M			
MDM16	RZ020	02	03 (A)	0.20	1.60	10 to 1M	1, 2, 5	100, 300	1.5
			05 (J)	0.05	1.40	Consult factory			
NI - I									

Notes (1) K = \pm 100 ppm/°C; M = \pm 300 ppm/°C (2) \pm 2 % standard, \pm 1 % and \pm 5 % available

GLOBAL PART NUMBER INFORMATION									
New Global Part Numbering: M8340101M2201GBD04 (preferred part numbering format)									
М	8 3 4	0 1 0	1 M 2	2 0 1	GB	D 0 4			
MIL STYLE	SPEC SHEET	CHARACTERISTIC	RESISTANCE VALUE	TOLERANCE	SCHEMATIC	PACKAGING			
M83401 01 = 14 pin 02 = 16 pin K = 100 ppm M = 300 ppm		$ \begin{array}{c} 3 \mbox{ digit significant} \\ figure, followed \\ by a multiplier \\ 10R0 = 10 \ \Omega \end{array} \begin{array}{c} \mathbf{F} = \pm 1 \ \% \\ \mathbf{G} = \pm 2 \ \% \\ \mathbf{J} = \pm 5 \ \% \end{array} $		A = Isolated B = Bussed	D04 = Tin/lead, tube DSL = Tin/lead, tube, single lot date code				
			3302 = 33 kΩ 1004 = 1 MΩ						
Historical Da	rt Number Even	ple: M8340101M2201G		acconted)					
M83401	01	М	2201	G	В	D04			
MIL STYLE	SPEC SHEET	CHARACTERISTIC	RESISTANCE VALUE	TOLERANCE	SCHEMATIC	PACKAGING			
New Global	Part Numbering:	M8340102KA001GJD04	4 (preferred part num	bering format)					
М	8 3 4	0 1 0	2 K A	0 0 1	GJ	D 0 4			
MIL STYLE	SPEC SHEET	CHARACTERISTIC	RESISTANCE VALUE	TOLERANCE	SCHEMATIC	PACKAGING			
M83401 01 = 14 pin 02 = 16 pin K = 100 ppm M = 300 ppm		Per Std. MIL. Spec. (see Impedance Codes table)	$ F = \pm 1 \% G = \pm 2 \% J = \pm 5 \% $	J = Dual terminator	D04 = Tin/lead, tube DSL = Tin/lead, tube, single lot date code				
Historical Part Number Example: M8340102KA001GJ (will continue to be accepted)									
M83401	02	K	A001	G	J	D04			
MIL STYLE	SPEC SHEET	CHARACTERISTIC	RESISTANCE VALUE	TOLERANCE	SCHEMATIC	PACKAGING			
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For additional information on packaging, refer to the Through-Hole Network Packaging document (www.vishay.com/doc?31542).

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DIMENSIONS in inches (millimeters)



	~	5	Ū
MDM14	0.750 (19.05)	0.600 (15.24)	6
MDM16	0.850 (21.59)	0.700 (17.78)	7

IMPEDANCE CODES					
CODE	R ₁ (Ω)	R ₂ (Ω)	CODE	R ₁ (Ω)	R ₂ (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	ЗK	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 _{DC}	100		
Voltage Coefficient of Resistance	V _{eff}	< 50 ppm		
Dielectric Strength	V _{AC}	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			



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MDM (Military M83401/01 and /02)

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CIRCUIT APPLICATIONS				
01 Schematic	MDM1401 (M8340101xxxxxB) MDM1601 (M8340102xxxxxB)			
1111111	13 or 15 resistors with one pin common			
	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:			
✓ MDM1401 →	MOS/ROM Pull-up/Pull-down TTL Input Pull-down			
Pin #1	Open Collector Pull-up "Wired OR" Pull-up "Ull-up			
	• Power Driven Pull-up • Power Driven Pull-up • High Speed Parallel Pull-up			
03 Schematic	MDM1403 (M8340101xxxxxA) MDM1603 (M8340102xxxxxA)			
• • • • • • • •	7 or 8 isolated resistors			
	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:			
▼ MDM1403 → Pin #1 <	"Wired OR" Pull-up Power Driven Pull-up Power Gate Pull-up Line Termination "Understanding of the second se			
05 Schematic				
	MDM1405 (M8340101xxxxxJ) MDM1605 (M8340102xxxxxJ)			
	12 or 14 resistor pairs			
	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.			
MDM1405, MDM1605 Pin #1				

CAGE CODE: 91637

DERATING



03 Schematic



05 Schematic



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MDM (Military M83401/01 and /02)

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PERFORMANCE					
TEST	CONDITIONS	MAX. ∆R (TYPICAL TEST LOTS)			
Power Conditioning	1.5 x rated power, applied 1.5 h "ON" and 0.5 h "OFF" for 100 h ± 4 h at +25 °C ambient temperature	± 0.50 % ΔR			
Thermal Shock	5 cycles between -65 °C and +125 °C	\pm 0.50 % ΔR			
Short Time Overload	2.5 x rated working voltage for 5 s	± 0.25 % ∆ <i>R</i> (Char. K) ± 0.50 % ∆ <i>R</i> (Char. M)			
Low Temperature Operation	45 min at full rated working voltage at -65 °C	± 0.25 % $∆R$ (Char. K) ± 0.50 % $∆R$ (Char. M)			
Moisture Resistance	240 h with humidity ranging from 80 % RH to 98 % RH	± 0.50 % ΔR			
Resistance to Soldering Heat	Leads immersed in +260 $^\circ\text{C}$ solder to within 1/16" of body for 10 s	± 0.25 % ΔR			
Shock	Total of 18 shocks at 100 g's	± 0.25 % ΔR			
Vibration	12 h at maximum of 20 g's between 10 Hz and 2000 Hz	± 0.25 % ∆R			
Load Life	1000 h at +70 °C, rated power applied 1.5 h "ON", 0.5 h "OFF" for full 1000 h period	± 0.50 % ∆ <i>R</i> (Char. K) ± 2.00 % ∆ <i>R</i> (Char. M)			
Terminal Strength	4.5 pound pull for 30 s	± 0.25 % ΔR			
Insulation Resistance	10 000 MΩ (minimum)				
Dielectric Withstanding Voltage	No evidence of arcing or damage (200 V_{RMS} for 1 min)	-			



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