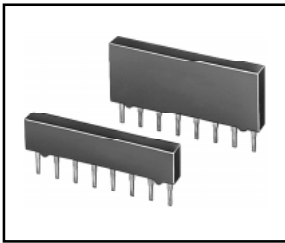


MODEL MSM Thick Film Resistor Networks

Military, MIL-R-83401 Qualified, Type RZ
Single-In-Line, Molded SIP; 01, 03, 05 Schematics

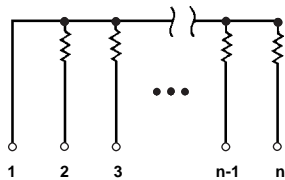


FEATURES

- MIL-R-83401 qualified
- .195" [4.95mm] "A" and .350" [8.89mm] "C" maximum seated heights
- Highly stable thick film
- TCR available in "K" ($\pm 100\text{PPM}/^\circ\text{C}$) or "M" ($\pm 300\text{PPM}/^\circ\text{C}$) characteristic
- All device leads are hot-solder dipped
- Rugged molded case construction
- Compatible with automatic insertion equipment
- 100% screen tested per Group A, Subgroup 1 of MIL-R-83401
- All devices are capable of passing the MIL-STD-202, Method 210, Condition E "Resistance to Soldering Heat" test
- Available in tube pack

CIRCUIT APPLICATION

01 Schematic



5, 7 or 9 resistors with one pin common

"A" Profile

MSM06A-01 (M8340107xxxxxC)

MSM08A-01 (M8340108xxxxxC)

MSM10A-01 (M8340109xxxxxC)

"C" Profile

MSM06C-01 (M8340104xxxxxC)

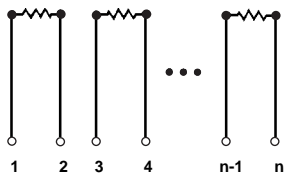
MSM08C-01 (M8340105xxxxxC)

MSM10C-01 (M8340106xxxxxC)

The MSM06A-01, MSM08A-01, MSM10A-01, MSM06C-01, MSM08C-01 and MSM10C-01 molded single-in-line resistor networks provide the user with a choice of 5, 7 or 9 nominally equal resistors, each connected to a common pin (Pin No. 1). Commonly used in the following applications:

- "Wired OR" Pull-up
- Power Gate Pull-up
- MOS/ROM Pull-up/Pull-down
- Open Collector Pull-up
- TTL Input Pull-down
- TTL Unused Gate Pull-up

03 Schematic



3, 4 or 5 isolated resistors

"A" Profile

MSM06A-03 (M8340107xxxxxG)

MSM08A-03 (M8340108xxxxxG)

MSM10A-03 (M8340109xxxxxG)

"C" Profile

MSM06C-03 (M8340104xxxxxG)

MSM08C-03 (M8340105xxxxxG)

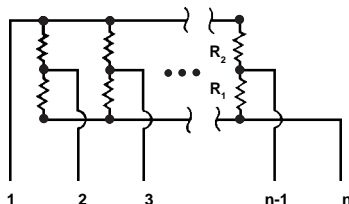
MSM10C-03 (M8340106xxxxxG)

The MSM06A-03, MSM08A-03, MSM10A-03, MSM06C-03, MSM08C-03 and MSM10C-03 molded single-in-line resistor networks provide the user with a choice of 3, 4 or 5 nominally equal resistors. Each resistor is isolated from all others.

Commonly used in the following applications:

- "Wired OR" Pull-up
- Power Driven Pull-up
- Power Gate Pull-up
- Line Termination
- Long-Line Impedance Balance
- LED Current Limiting
- ECL Output Pull-down
- TTL Input Pull-down

05 Schematic



4, 6 or 8 isolated resistors

"A" Profile

MSM06A-05 (M8340107xxxxxH)

MSM08A-05 (M8340108xxxxxH)

MSM10A-05 (M8340109xxxxxH)

"C" Profile

MSM06C-05 (M8340104xxxxxH)

MSM08C-05 (M8340105xxxxxH)

MSM10C-05 (M8340106xxxxxH)

The MSM06A-05, MSM08A-05, MSM10A-05, MSM06C-05, MSM08C-05 and MSM10C-05 molded single-in-line resistor networks provide the user with a choice of 4, 6 or 8 pair of R_1/R_2 resistor values for pulse squaring and TTL dual-line terminating requirements.

MODEL MSM

ELECTRICAL SPECIFICATIONS

Resistance Range: 01 and 03 Schematics: 10 ohm to 1 Megohm. 05 Schematic: See values in table.

Tolerance: ± 2% standard. ± 1% and ± 5% available.

Temperature Coefficient: (- 55°C to + 125°C)
 "K" = ± 100PPM/°C, "M" = ± 300PPM/°C.

Resistor Power Rating: (Maximum at + 70°C)
 MSMxxC-01 and MSMxxC-03 = .2 watt
 MSMxxA-01 and MSMxxA-03 = .12 watt
 MSMxxC-05 = .11 watt
 MSMxxA-05 = .07 watt

Package Power Rating: (Maximum at + 70°C)
 MSM06A-01 = .60 watt MSM06A-03 = .36 watt
 MSM08A-01 = .84 watt MSM08A-03 = .48 watt
 MSM10A-01 = 1.08 watt MSM10A-03 = .60 watt
 MSM06C-01 = 1.00 watt MSM06C-03 = .60 watt
 MSM08C-01 = 1.40 watt MSM08C-03 = .80 watt
 MSM10C-01 = 1.80 watt MSM10C-03 = 1.00 watt

MSM06A-05 = .56 watt MSM06C-05 = .88 watt
 MSM08A-05 = .84 watt MSM08C-05 = 1.32 watt
 MSM10A-05 = 1.12 watt MSM10C-05 = 1.76 watt

Maximum Operating Voltage: 50 VDC.

Operating Temperature Range: - 55°C to + 125°C.

MECHANICAL SPECIFICATIONS

Body: Molded epoxy.

Terminals: Copper alloy, hot-solder dipped.

Solderability: Per MIL-R-83401.

Weight:

"A" Profile	"C" Profile
6 pin = .4 gram	6 pin = .7 gram
8 pin = .5 gram	8 pin = .9 gram
10 pin = .6 gram	10 pin = 1.1 gram

DIMENSIONAL CONFIGURATIONS [Numbers in brackets indicate millimeters]

"A" Profile

"C" Profile

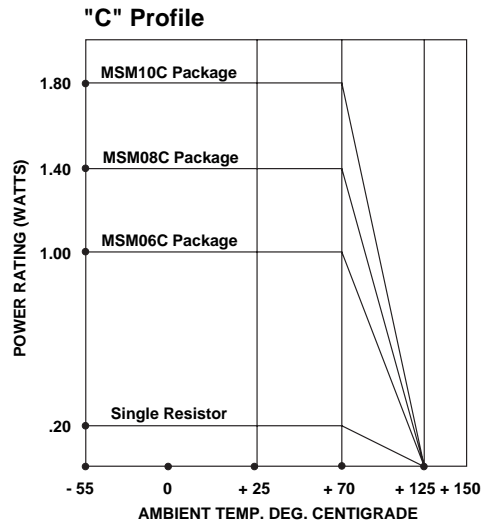
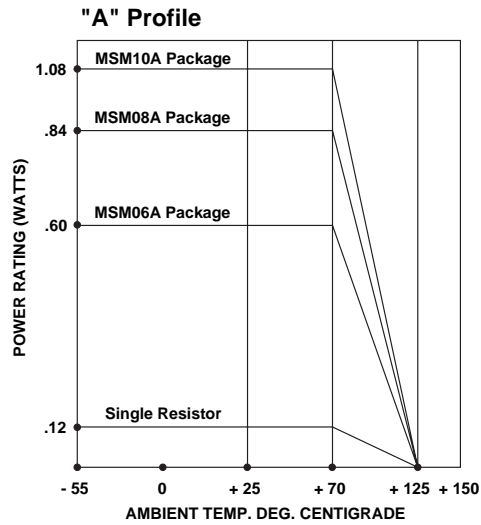
MODEL	A	B	C
MSM06	.583 ± .015 [14.81 ± .381]	.500 [12.70]	5
MSM08	.783 ± .015 [19.89 ± .381]	.700 [17.78]	7
MSM10	.983 ± .015 [24.97 ± .381]	.900 [22.86]	9

ENVIRONMENTAL PERFORMANCE

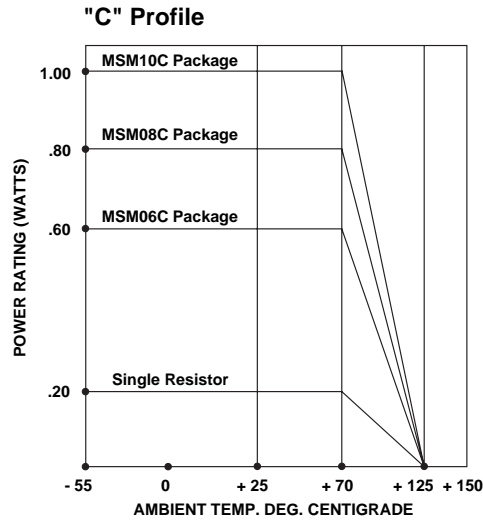
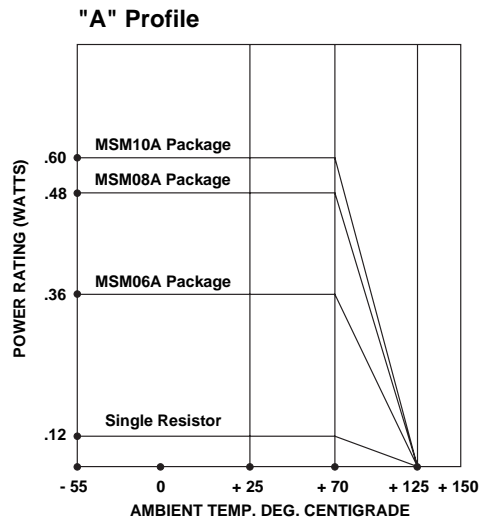
TEST	CONDITIONS	MAX. ΔR (Typical Test Lots)
Power Conditioning	1 1/2 x rated power, applied 1 1/2 hours on and 1/2 hour off for 100 hours ± 4 hours at + 25°C ambient temperature	± 0.50% ΔR
Thermal Shock	5 cycles between - 65°C and + 125°C	± 0.50% ΔR
Short Time Overload	2 1/2 x rated working voltage 5 seconds	± 0.25% ΔR (Characteristic K) ± 0.50% ΔR (Characteristic M)
Low Temperature Operation	45 minutes at full rated working voltage at - 65°C	± 0.25% ΔR (Characteristic K) ± 0.50% ΔR (Characteristic M)
Moisture Resistance	240 hours with humidity ranging from 80% RH to 98% RH	± 0.50% ΔR
Resistance to Soldering Heat	Leads immersed in + 350°C solder to within 1/16" of body for 3 seconds	± 0.25% ΔR
Shock	Total of 18 shocks at 100 G's	± 0.25% ΔR
Vibration	12 hours at maximum of 20 G's between 10 and 2,000 Hz	± 0.25% ΔR
Load Life	1,000 hours at + 70°C, rated power applied 1 1/2 hours on, 1/2 hour off for full 1,000 hour period	± 0.50% ΔR (Characteristic K) ± 2.00% ΔR (Characteristic M)
Terminal Strength	4 1/2 pound pull for 30 seconds	± 0.25% ΔR
Insulation Resistance	10,000 Megohm (minimum)	—
Dielectric Withstanding Voltage	No evidence of arcing or damage (200 V RMS for 1 minute)	—

DERATING

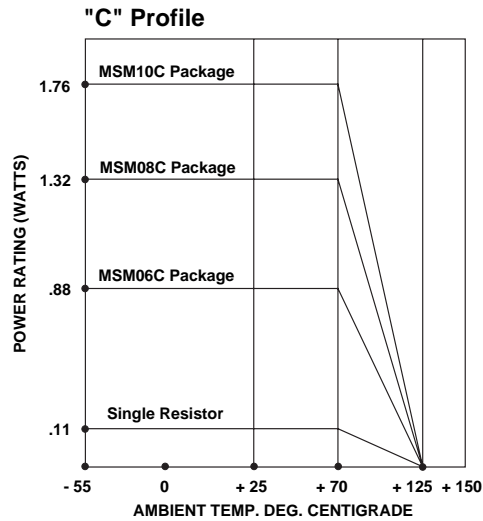
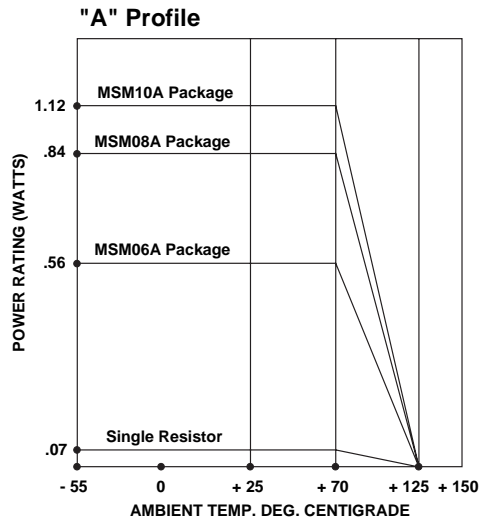
01 Schematic



03 Schematic



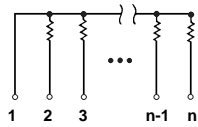
05 Schematic



MODEL MSM

STOCKED RESISTANCE VALUES IN OHMS ("G TOLERANCE)

01 Schematic



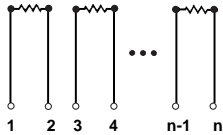
MSM06A-01, MSM08A-01, MSM10A-01

100	1.0k	4.7k	10k	100k	1 Meg.
510	3.3k	5.6k	22k	470k	

MSM06C-01, MSM08C-01, MSM10C-01

33	330	1.5k	6.8k	82k
39	470	2.0k	8.2k	100k
47	510	2.2k	10k	220k
68	560	2.7k	15k	470k
82	680	3.3k	22k	1 Meg.
100	820	4.7k	27k	
150	1.0k	5.1k	47k	
220	1.2k	5.6k	56k	

03 Schematic



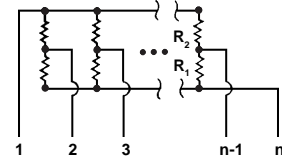
MSM06A-03, MSM08A-03, MSM10A-03

100	1.0k	10k	100k
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MSM06C-03, MSM08C-03, MSM10C-03

10	330	3.3k	10k	100k
100	680	4.7k	20k	220k
220	1.0k	6.8k	22k	680k

05 Schematic



**MSM06A-05, MSM08A-05, MSM10A-05
MSM06C-05, MSM08C-05, MSM10C-05**

Consult factory for stocked values.

HOW TO ORDER - MILITARY PART NUMBER

01, 03 Schematics

"A" PROFILE M8340107
"C" PROFILE M8340104
DETAIL SPEC. NO.

"A" PROFILE
M8340107 = 6 pin SIP RZ070
M8340108 = 8 pin SIP RZ080
M8340109 = 10 pin SIP RZ090

"C" PROFILE
M8340104 = 6 pin SIP RZ040
M8340105 = 8 pin SIP RZ050
M8340106 = 10 pin SIP RZ060

K
K
CHARACTERISTIC
K = ± 100PPM/°C
M = ± 300PPM/°C

1003
1003
RESISTANCE VALUE
The first three digits are significant figures. The last digit specifies number of zeros to follow.

G
G
TOLERANCE
F = ± 1%
G = ± 2%
J = ± 5%

C or G
C or G
SCHEMATIC

EXAMPLE:
M8340107K1003GC = A low profile single-in-line resistor network with 6 pins and a TCR of ± 100PPM/°C, resistance value of 100 kilohm, tolerance of ± 2% and a "C" Schematic.

EXAMPLE:
M8340104K1003GG = A high profile single-in-line resistor network with 6 pins and a TCR of ± 100PPM/°C, resistance value of 100 kilohm, tolerance of ± 2% and "G" Schematic.

05 Schematic

"A" PROFILE M8340107
"C" PROFILE M8340104
DETAIL SPEC. NO.

"A" PROFILE
M8340107 = 6 pin SIP RZ070
M8340108 = 8 pin SIP RZ080
M8340109 = 10 pin SIP RZ090

"C" PROFILE
M8340104 = 6 pin SIP RZ040
M8340105 = 8 pin SIP RZ050
M8340106 = 10 pin SIP RZ060

K
K
CHARACTERISTIC
K = ± 100PPM/°C
M = ± 300PPM/°C

A001*
A001*
RESISTANCE VALUE
M83401 assigned code for values of R₁ and R₂.

G
G
TOLERANCE
F = ± 1%
G = ± 2%
J = ± 5%

H
H
SCHEMATIC

EXAMPLE:
M8340107KA001GH = A low profile single-in-line resistor network with 6 pins, a TCR of ± 100PPM/°C, R₁ resistance value of 82 ohm, R₂ resistance value of 130 ohm, tolerance of ± 2% and "H" Schematic.

EXAMPLE:
M8340104KA001GH = A high profile single-in-line resistor network with 6 pins, a TCR of ± 100PPM/°C, R₁ resistance value of 82 ohm, R₂ resistance value of 130 ohm, tolerance of ± 2% and "H" Schematic.

* The H Schematic resistance values are specified by a 4-digit code, which comes from MIL-R-83401. The codes and corresponding resistance values are:

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