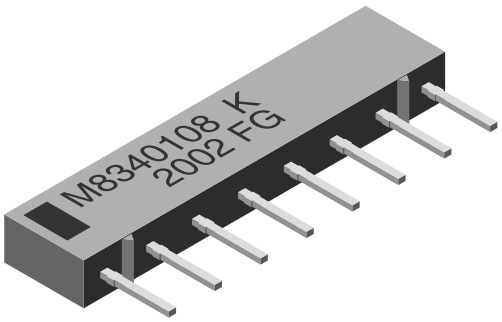
Thick Film Resistor Networks
Military, MIL-PRF-83401 Qualified, Type RZ
Single-In-Line, Molded SIP; 01, 03, 05 Schematics



FEATURES

- MIL-PRF-83401 qualified
- 0.195" [4.95mm] "A" and 0.350" [8.89mm] "C" maximum seated heights
- Highly stable thick film
- TCR available in "K" (± 100ppm/°C) or "M" (± 300ppm/°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-PRF-83401
- All devices are capable of passing the MIL-STD-202, Method 210, Condition D "Resistance to Soldering Heat" test
- Available in tube pack

STANDARD ELECTRICAL SPECIFICATIONS

MODEL/ PROFILE	SCHEMATIC	RESISTOR POWER RATING Max. @ 70°C W	PACKAGE POWER RATING Max. @ 70°C W	RESISTANCE RANGE Ω	STANDARD TOLERANCE* %	TEMPERATURE COEFFICIENT** (- 55°C to + 125°C)	WEIGHT g
MSM06A	01	0.12	0.60	10 - 1M	± 2	K, M	0.4
MSM08A	01	0.12	0.84				0.5
MSM10A	01	0.12	1.08				0.6
MSM06A	03	0.12	0.36	10 - 1M	± 2	K, M	0.4
MSM08A	03	0.12	0.48				0.5
MSM10A	03	0.12	0.60				0.6
MSM06A	05	0.07	0.60	Consult	± 2	K, M	0.4
MSM08A	05	0.07	0.84	factory			0.5
MSM10A	05	0.07	1.08				0.6
MSM06C	01	0.20	1.00	10 - 1M	± 2	K, M	0.7
MSM08C	01	0.20	1.40				0.9
MSM10C	01	0.20	1.80				1.1
MSM06C	03	0.20	0.60	10 - 1M	± 2	K, M	0.7
MSM08C	03	0.20	0.80				0.9
MSM10C	03	0.20	1.00				1.1
MSM06C	05	0.11	0.88	Consult	± 2	K, M	0.7
MSM08C	05	0.11	1.32	factory			0.9
MSM10C	05	0.11	1.80				1.1

* ± 1% and ± 5% available
** K = ± 100ppm/°C; M = ± 300ppm/°C

TECHNICAL SPECIFICATIONS

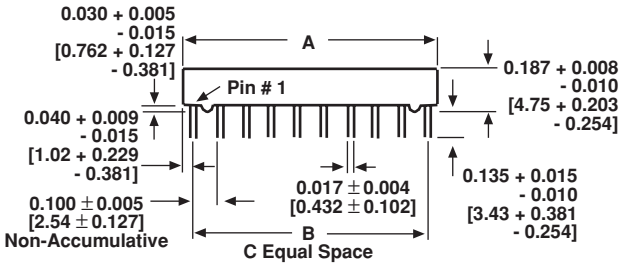
PARAMETER	UNIT	MSM Series
Maximum Operating Voltage	VDC	50
Voltage Coefficient of Resistance	V_{eff}	< 50ppm
Dielectric Strength	VAC	200 min.
Insulation Resistance	Ω	10,000M
Operating Temperature Range	°C	- 55 to + 125
Storage Temperature Range	°C	- 55 to + 150

MECHANICAL SPECIFICATIONS

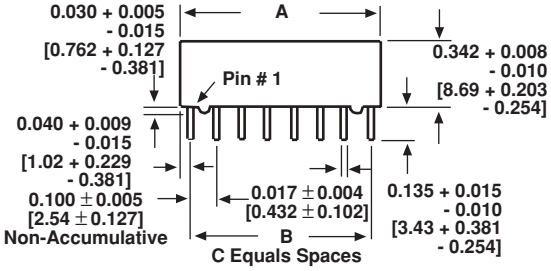
Body:	Molded epoxy.
Terminals:	Copper alloy, hot-solder dipped.
Solderability:	Per MIL-PRF-83401.

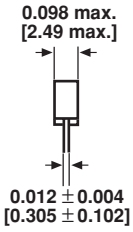
DIMENSIONS in inches [millimeters]

"A" Profile

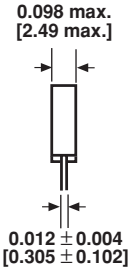


"C" Profile





MODEL	A	B	C
MSM06	0.583 ± 0.015 [14.81 ± 0.381]	0.500 [12.70]	5
MSM08	0.783 ± 0.015 [19.89 ± 0.381]	0.700 [17.78]	7
MSM10	0.983 ± 0.015 [24.97 ± 0.381]	0.900 [22.86]	9



ORDERING INFORMATION - MILITARY PART NUMBER

01, 03 Schematics

"A" PROFILE M8340107 "C" PROFILE M8340104	K K	1003 1003	G G	C or G C or G
DETAIL SPEC. NO.	CHARACTERISTIC	RESISTANCE VALUE	TOLERANCE	SCHEMATIC

"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 = ± 100ppm/°C
M = ± 300ppm/°C

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

F = ± 1%
G = ± 2%
J = ± 5%

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	K K	A001* A001*	G G	H H
DETAIL SPEC. NO.	CHARACTERISTIC	RESISTANCE VALUE	TOLERANCE	SCHEMATIC

"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 = ± 100ppm/°C
M = ± 300ppm/°C

M83401 assigned code for values of R_1 and R_2.

F = ± 1%
G = ± 2%
J = ± 5%

EXAMPLE:
M8340107KA001GH = A low profile single-in-line resistor network with 6 pins, a TCR of ± 100ppm/°C, R_1 resistance value of 82 ohm, R_2 resistance value of 130 ohm, tolerance of ± 2% and "H" Schematic.

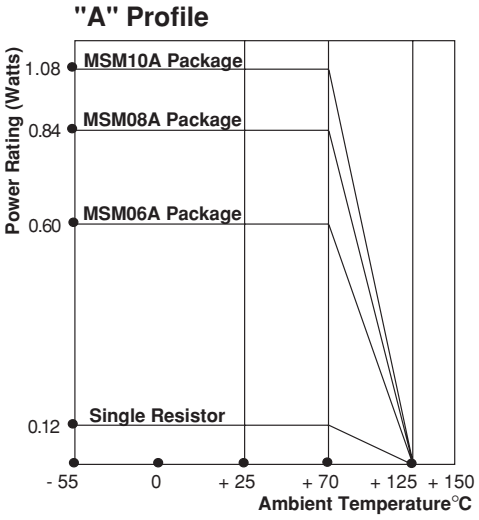
EXAMPLE:
M8340104KA001GH = A high profile single-in-line resistor network with 6 pins, a TCR of ± 100ppm/°C, R_1 resistance value of 82 ohm, R_2 resistance value of 130 ohm, tolerance of ± 2% and "H" Schematic.

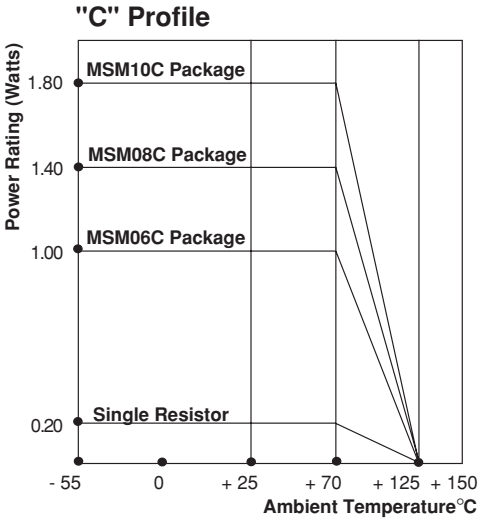
* The H Schematic resistance values are specified by a 4-digit code, which comes from MIL-R-83401.
The codes and corresponding resistance values are:

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

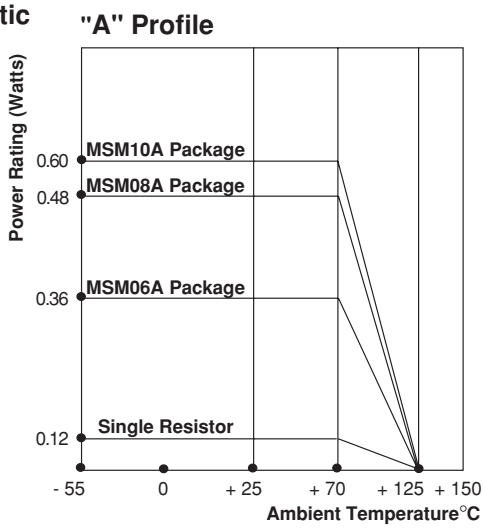
Derating

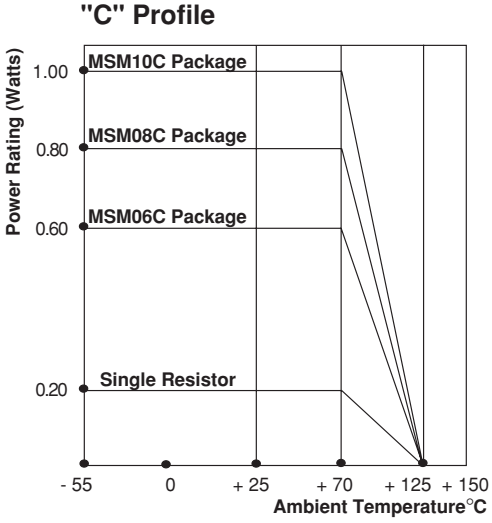
01 Schematic



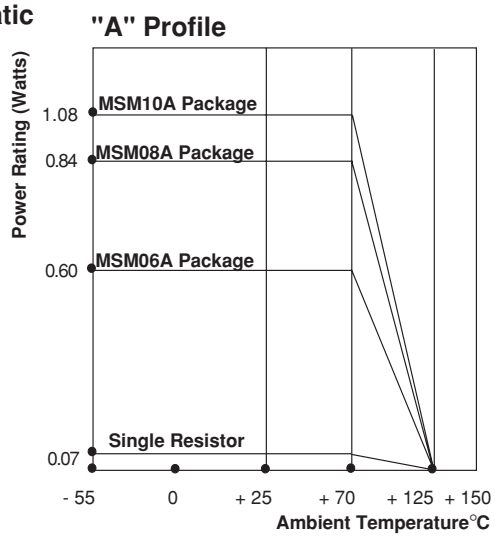


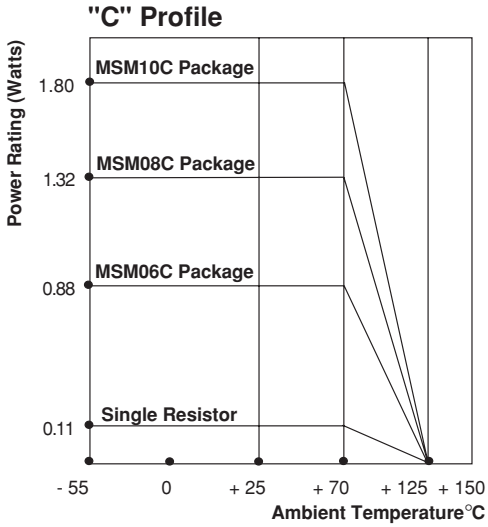
03 Schematic





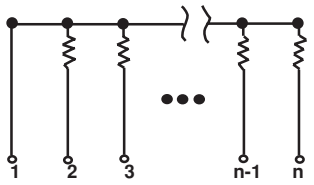
05 Schematic





CIRCUIT APPLICATION

01 Schematic



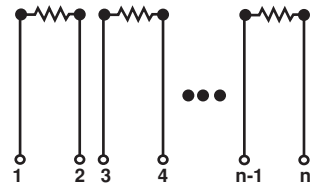
5, 7 or 9 resistors with one pin common

"A" Profile	"C" Profile
MSM06A-01 (M8340107xxxxxC)	MSM06C-01 (M8340104xxxxxC)
MSM08A-01 (M8340108xxxxxC)	MSM08C-01 (M8340105xxxxxC)
MSM10A-01 (M8340109xxxxxC)	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



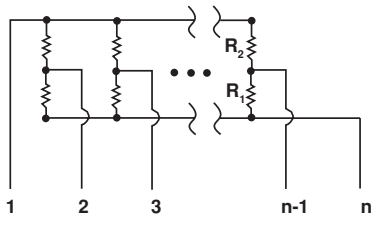
3, 4 or 5 isolated resistors

"A" Profile	"C" Profile
MSM06A-03 (M8340107xxxxxG)	MSM06C-03 (M8340104xxxxxG)
MSM08A-03 (M8340108xxxxxG)	MSM08C-03 (M8340105xxxxxG)
MSM10A-03 (M8340109xxxxxG)	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	"C" Profile
MSM06A-05 (M8340107xxxxxH)	MSM06C-05 (M8340104xxxxxH)
MSM08A-05 (M8340108xxxxxH)	MSM08C-05 (M8340105xxxxxH)
MSM10A-05 (M8340109xxxxxH)	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.

PERFORMANCE

TEST	CONDITIONS	MAX. ΔR (Typical Test Lots)
Power Conditioning	1.5 x rated power, applied 1.5 hours “ON” and 0.5 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	2.5 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 + 260°C solder to within 1/16" of body for 10 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	1000 hours at + 70°C, rated power applied 1.5 hours “ON”, 0.5 hour “OFF” for full 1000 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)	—