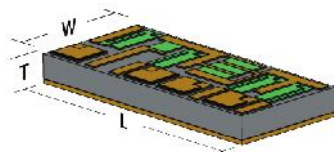


RC NETWORKS



The MRCN series offers the **high stability, low noise, and low T.C.R./T.C.C. tracking** of thin film resistors combined with MOS capacitors. Designed to your specifications, this series provides the flexibility needed for your custom applications

GENERAL CHARACTERISTICS

Termination Material	Gold (Standard) Aluminum (Optional)
Backing Material	Gold
Substrate Material	Silicon
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +150°C
Insulation Resistance	10 ¹² Ω Min.
Dielectric Breakdown	400V Min.
Operating Frequency	DC to 500MHz

RESISTOR CHARACTERISTICS

Resistance Range	1Ω to 5MΩ
Resistance Tolerance	±0.1% to ±10%
Resistor	Tantalum Nitride
Passivation	Ta ₂ O ₅ (Self Passivating)
T.C.R	±150 ppm/°C
T.C.R Tracking	±2 ppm/°C

CAPACITOR CHARACTERISTICS

Capacitance Range	2.3pF to 1500pF
Capacitance Tolerance	±5% to ±20%
Dielectric	SiO ₂
Dielectric Constant @ 1MHz	3.9
T.C.C	+45 ±25 ppm/°C
Insulation Resistance (@ Working Voltage)	10 ⁹ Ω
Dissipation Factor (1kHz, 1Vrms, 25 °C)	0.1%
Q Factor (1MHz, 50Vrms, 25 °C)	1000 Min

SUBSTRATE CHARACTERISTICS

SUBSTRATE MATERIAL	Available Thickness	Dielectric Constant @ 1MHz	Thermal Conductivity W/m•K	Current Noise	
				101Ω to 250kΩ	≤ 100Ω > 250kΩ
Silicon (with 12kÅ SiO ₂)	0.005" - 0.015"	N/A (SiO ₂ , 3.9)	149 (SiO ₂ , 1.38)	-40 dB	-30 dB

PERFORMANCE SPECIFICATIONS

PROPERTY	COMPONENT	TEST CONDITION	REQUIRED LIMITS	MSI TYPICAL LIMITS
SHORT TERM OVERLOAD	RESISTOR	2.5xWVDC (6.25xRATED POWER)MIL-PRF-55342, +25°C, 5 SEC	±0.25 MAX ΔR/R	±0.10 MAX ΔR/R
	CAPACITOR	1.5X WORKING VOLTAGE, 5 SEC	±0.5pF or 1% OF ΔC MAX	±0.10pF
HIGH TEMP EXPOSURE	RESISTOR	+150°C, 100HRS	±0.20 MAX ΔR/R	±0.03 MAX ΔR/R
	CAPACITOR	+150°C, 100HRS	±0.5pF or 1% of ΔC MAX	±0.05pF
THERMAL SHOCK	RESISTOR	MIL-STD 202, METHOD 107	±0.25 MAX ΔR/R	±0.10 MAX ΔR/R
	CAPACITOR	MIL-STD 202, METHOD 107	±0.5pF MAX	±0.1pF
MOISTURE RESISTANCE	RESISTOR	MIL-STD 202, METHOD 106	±0.40 MAX ΔR/R	±0.10 MAX ΔR/R
	CAPACITOR	MIL-STD 202, METHOD 106	±1pF or 2% of ΔC MAX	-----
STABILITY	RESISTOR	1000 HRS, +70°C, @ RATED POWER	±0.50 MAX ΔR/R	±0.10 MAX ΔR/R
	CAPACITOR	1000 HRS, +70°C, @ WORKING VOLTAGE	±2.5pF or 2.5% MAX	-----



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