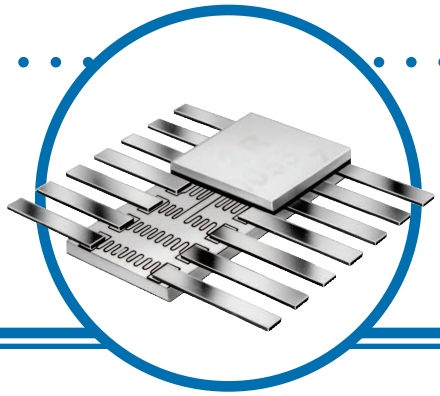
# Space Flight Surface Mount Flat Packs Resistor Networks

**8900 Space Series**

- 100% screened to NASA EEE-INST-002 Level 1
- Gold to gold bonded lead construction - no internal solder connections or wire bonds
- Excellent passive solution for space flight hardware
- Self Passivating TaNFilm® element with superior moisture performance



The 8900 Space Series features our TaNFilm® Flat Pack Network superior moisture performance of tantalum nitride resistor film system. Rugged, welded lead construction eliminates fragile wire bond construction and provides superior surface mount reliability. These parts are screened per MIL-PRF-83401 then upgraded to the stringent screening requirements for NASA space flight requirements.

## Electrical Data

| Package | Range | Available Absolute Tolerances | Available Ratio Tolerance (reference R1) | Available Absolute TCR (ppm/°C) | Tracking TCR (reference to R1) (ppm/°C) | MIL-PRF-83401 Ratings | |
|---|---|---|---|---|---|---|---|
| | | | | | | Voltage (not to exceed $\sqrt{P \times R}$) | Element Power Rating 70°C |
| Isolated Schematic | 20Ω - 99Ω | F G J | F G J | ±100 | ±10 | 50V | 50mW |
| | 100Ω - 121KΩ | B F G J | A B F G | ±25, ±50, ±100 | ±5 | | |
| Bussed Schematic | 20Ω - 499Ω | F G J | F G J | ±100 | ±20 | 50V | 25mW |
| | 500.0Ω - 100KΩ | B F G J | A B F G | ±25, ±50, ±100 | ±5 | | |

## Screening Data

| Series Type | Precap per MIL-STD-883 | Optional Precap Source Verification | Screening per MIL-PRF-83401 | Addition Screening IAW EEE-INST-002 Level 1 | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Serialized | Thermal Shock 25 Cycles | Power Conditioning 100 Hours | Optional Final Source Inspection | Marking P/N |
| 89xxSQ | Yes | Yes | Yes | Yes | Yes | Yes | Yes | 89xxSQ -xx-yyyyzz |

**General Note**
IRC reserves the right to make changes in product specification without notice or liability.
All information is subject to IRC's own data and is considered accurate at time of going to print.

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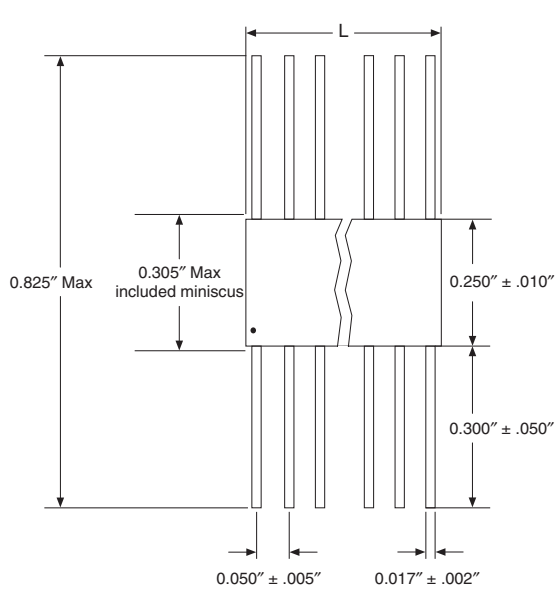
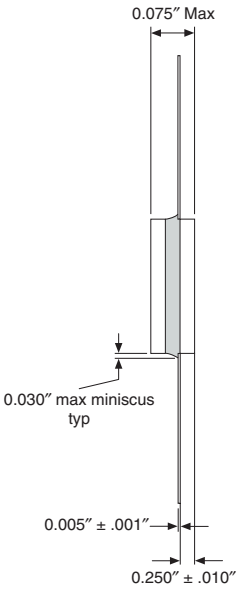
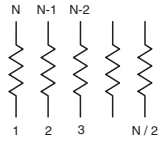
## Environmental Data

| Environnmental Test MIL-PRF-83401 | Maximum ΔR per Characteristic H | Performance | |
|---|---|---|---|
| | | Typical | Maximum |
| **Thermal Shock and Power Conditioning** | ±0.50% | ±0.02% | ±0.10% |
| **Low Temperature Operation** | ±0.10% | ±0.01% | ±0.01% |
| **Short Time Overload** | ±0.10% | ±0.01% | ±0.05% |
| **High Temperature Exposure** | ±0.20% | ±0.03% | ±0.10% |
| **Effects of Solder** | ±0.10% | ±0.02% | ±0.10% |
| **Moisture Resistance** | ±0.40% | ±0.03% | ±0.10% |
| **Life** | ±0.50% | ±0.03% | ±0.10% |

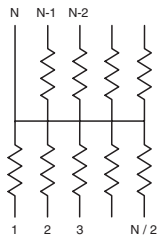
## Physical and Schematic Data



Isolated Schematic A



Bussed Schematic B

| # of leads | Dimension L |
|---|---|
| 14 | 0.375″ ± .010″ |
| 16 | 0.390″ ± .020″ |

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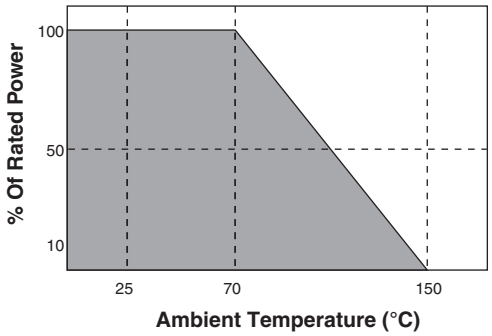
## Power Derating Curve




## Ordering Data

**Prefix** FP - 8989 SQ - 05 - 1001 - B B - 1

**Model**
8987 = 14-pin bussed schematic B
8989 = 14-pin isolated schematic A
8998 = 16-pin bussed schematic B
8999 = 16-pin isolated schematic A

**Special Screening Indicator**
SQ = EEE-INST-002 Level 1

**TCR Code**
04 = ±300ppm/°C; 05 = ±100ppm/°C; 06 = ±50ppm/°C
07 = ±25ppm/°C

**Resistance Code**
4-Digit resistance code. Ex: 1002 = 10KΩ; 50R0 = 50Ω

**Absolute Tolerance Code**
J = ±5%; G = ±2%; F = ±1%; B = ±0.1%

**Optional R1 Ratio Tolerance Code**
G = ±2%; F = ±1%; D = ±0.5%; B = ±0.1%; A = ±0.05%

**Terminal Finish Option**
0 = gold plating; 1 = 60/40 Sn/Pb hot solder dip

For additional information or to discuss your specific requirements, please contact our Applications Team using the contact details below.