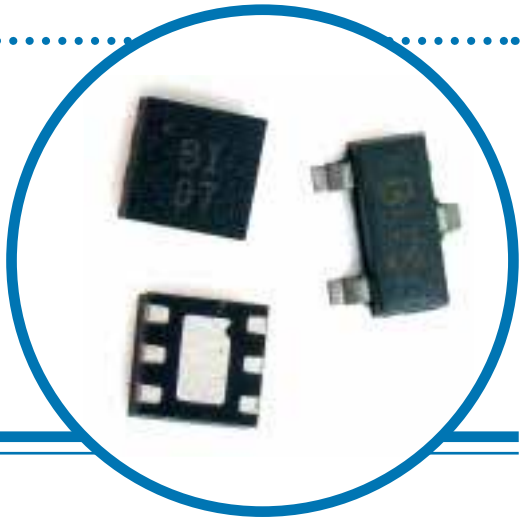
# Nichrome Resistor Networks on Silicon Substrates

SS103VD and SFN06VD series

**Voltage divider circuit**
**Thin film resistor network**
**RoHS compliant**



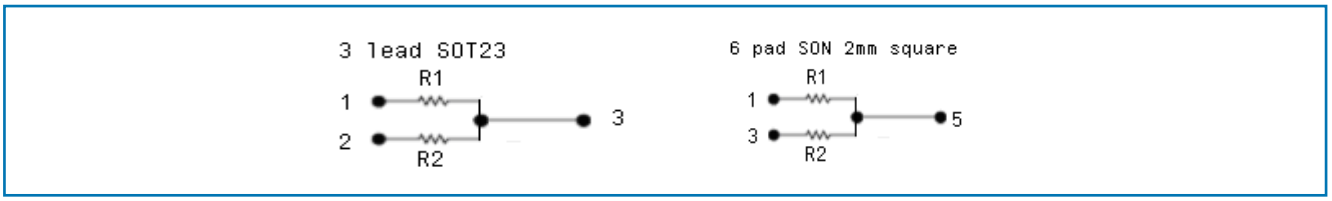
## Not Recommended for New Designs

For alternative see SS1 - http://www.irctt.com/file.aspx?product_id=411&file_type=datasheet, SFN - no alternative

## Features

| | |
|---|---|
| Precision Nichrome Resistors on Silicon | Passivation coating provides protection in humid environments |
| Industry Standard Packaging | 6 pad SON[1] 2mm square with 0.65 mm pitch (JEDEC MO-229D)<br>3 lead SOT23 (JEDEC TO-239) |
| Ratio Tolerances | < ± 0.05% |
| TCR Tracking Tolerances | < ± 5 ppm/°C |

## Circuit Schematic




## Electrical[2]

| | |
|---|---|
| Standard Resistance Range | 1K ohm to 100K ohms |
| Resistor Tolerances | ± 0.25% |
| Ratio Tolerances | ± 0.05% |
| TCR | Reference TCR table |
| Operating Temperature Range | -55°C to +125°C |
| Interlead Capacitance | < 2 pF |
| Insulation Resistance | ≥10,000 Megohms |
| Maximum Operating Voltage | 100 Vdc or v PR |
| Noise, Maximum (MIL-STD-2002, Method 308) | -25 dB |
| Maximum Package Power @ 70°C | 0.2 Watts |

## Resistance Tolerances

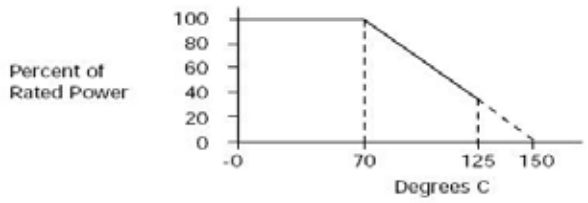
| Accuracy Code at 25°C | CA | CB | D | FA | F | G | J |
|---|---|---|---|---|---|---|---|
| Absolute Resistance Tolerances (%) | ± 0.25 | ± 0.25 | ± 0.5 | ± 1.0 | ± 1.0 | ± 2.0 | ± 5.0 |
| Ratio Tolerances (R1 Ref) (%) | ± 0.05 | ± 0.1 | ± 0.1 | ± 0.05 | ± 1.0 | N/A | N/A |

1 Small outline no lead (SON) package is also referred to as quad flat no lead (QFN) or dual flat no lead (DFN) packages.
2 Specifications subject to change without notice.

## Temperature Coefficient of Resistance (TCR)

| TCR Code (-55°C to 125°C) | Q | P | S | L |
|---|---|---|---|---|
| Absolute (ppm/°C) | ± 25 | ± 50 | ± 100 | ± 200 |
| Tracking (R1 Ref) (ppm/°C) | ± 5 | ± 5 | N/A | N/A |

## Power Derating Curve




## Environmental (Mil-R-83401)

| | |
|---|---|
| Thermal Shock plus Power Conditioning | ΔR 0.25% |
| Short Time Overload | ΔR 0.1% |
| Moisture Resistance | ΔR 0.2% |
| Mechanical Shock | ΔR 0.25% |
| Vibration | ΔR 0.25% |
| Low Temperature Operation | ΔR 0.1% |
| High Temperature Exposure | ΔR 0.1% |
| Resistance to Solder Heat | ΔR 0.05% |
| Marking Permanency | Per MIL-STD-202, Method 215 |
| Storage Temperature Range | -55°C to +125°C |

## Mechanical

| | |
|---|---|
| Lead Plating | 100 matte Tin (RoHS) |
| Lead Material | Copper Alloy |
| Lead Configurations (SLP/SS1) | No lead, Gull Wing |
| Lead Coplanarity (SS1 only) | 0.003" (0.102 mm) |
| Substrate Material | Silicon |
| Resistor Material | Passivated Nichrome |
| Body Material | Molded Epoxy |
| Package Types | 6 pad SON 2mm square, 3 lead SOT23 |

## Divider Ratio

| Resistance Code | Ratio (R2/R1) | R1 (ohms) | R2 (ohms) |
|---|---|---|---|
| 01 | 1.613 | 12.4K | 20K |
| 02 | 10 | 10K | 100K |
| 03 | 4 | 5K | 20K |
| 05 | 1 | 20K | 20K |
| 06 | 9 | 11.3K | 101.7K |
| 07 | 2 | 10K | 20K |
| 08 | 3 | 3.333K | 10K |
| 09 | 2 | 5K | 10K |
| 10 | 1 | 10K | 10K |
| 11 | 2 | 1K | 2K |
| 12 | 2 | 50K | 100K |

## Ordering Information[3]

S S1 03 VD 05 F S LF 13

Model Series:
S = Passivated Nichrome on Silicon

Package Type:
S1 = SOT-23
FN = SON 2mm sq

Pin Count:

Circuit Type:
VD=Voltage Divider

Resistance Code:
Divider ratio table

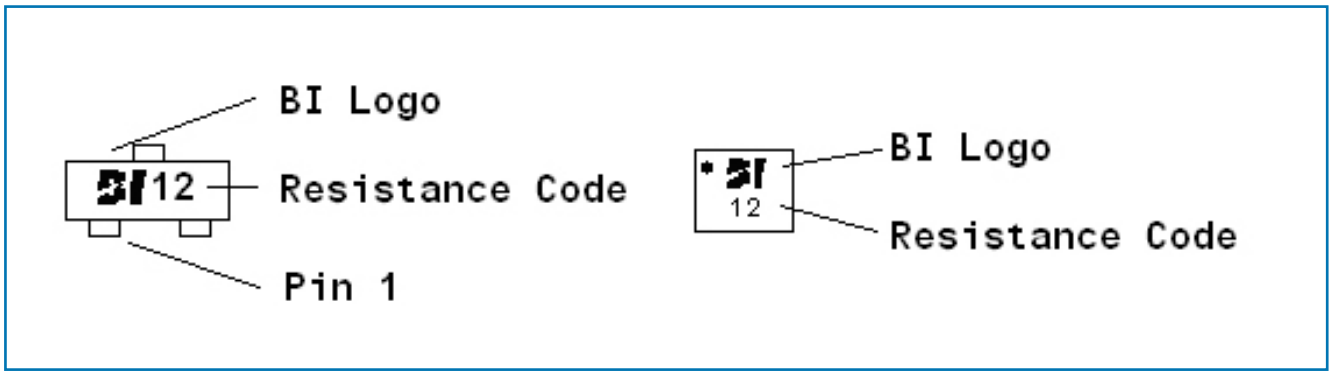
Tolerance Code:
Resistance tolerance table

TCR Code:
TCR table

Lead Finish:
LF=Lead Free (RoHS)

Packaging Option (Qty/reel)
7=7" Tape & Reel (1000 pcs)
13 = 13" Tape & Reel (3000 pcs)

## Typical Marking




3 Contact our customer service for custom designs and features.

# Mouser Electronics

Authorized Distributor

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TT electronics:

SS103VD09CAQLF7 SS103VD12CAQLF7 SS103VD07CAQLF7 SS103VD05FQ13 SS103VD11FAQ13 SS103VD05CBSLF7 SS103VD06FAP7 SS103VD11GQ13 SS103VD03GP7 SS103VD06CBSLF13 SS103VD10CBS13 SS103VD09FAPLF13 SS103VD09DL13 SS103VD02GP13 SS103VD01FAP7 SS103VD06JP13 SS103VD07FPLF13 SS103VD05FAL13 SS103VD03GS7 SS103VD01CBL7 SS103VD06FLLF13 SS103VD07FS13 SS103VD02CBP7 SS103VD09DQ7 SS103VD06GL7 SS103VD09JLLF13 SS103VD07FSLF13 SS103VD07FLLF13 SS103VD09DLLF13 SS103VD06GQ13 SS103VD07JLLF7 SS103VD05DPLF13 SS103VD06GP13 SS103VD03FLLF13 SS103VD09CBLLF13 SS103VD03FALLF7 SS103VD01GS13 SS103VD11CBP13 SS103VD08FAL13 SS103VD11FLLF13 SS103VD01JLLF13 SS103VD08DS13 SS103VD10FAL7 SS103VD01JQ7 SS103VD07JL13 SS103VD11JSLF13 SS103VD03DS7 SS103VD11CBSLF7 SS103VD06FQ13 SS103VD02FAQ13 SS103VD10CBL13 SS103VD10DL7 SS103VD10JPLF7 SS103VD11JSLF7 SS103VD12FAQLF13 SS103VD02FAL7 SS103VD06DL13 SS103VD07DPLF13 SS103VD03FQ7 SS103VD08FALLF7 SS103VD08FL7 SS103VD12GL7 SS103VD02GQ13 SS103VD08DQLF13 SS103VD05CBP13 SS103VD08CBQLF13 SS103VD06FPLF13 SS103VD03FL7 SS103VD03JQLF7 SS103VD01CBSLF7 SS103VD10JS7 SS103VD12CBSLF13 SS103VD06FQ7 SS103VD07CBL7 SS103VD09FP7 SS103VD11DP7 SS103VD11JQLF7 SS103VD06GL13 SS103VD08GPLF13 SS103VD05FLLF7 SS103VD12FPLF7 SS103VD06JS13 SS103VD12JS7 SS103VD03GSLF7 SS103VD08CBSLF13 SS103VD02CBLLF7 SS103VD08CBP7 SS103VD02DLLF7 SS103VD08DP13 SS103VD06DLLF7 SS103VD12FAQ7 SS103VD12FS13 SS103VD07DSLF7 SS103VD05GP7 SS103VD01DPLF7 SS103VD03GQLF13 SS103VD06CBP13 SS103VD08FSLF7 SS103VD12FAS7 SS103VD01FAS7