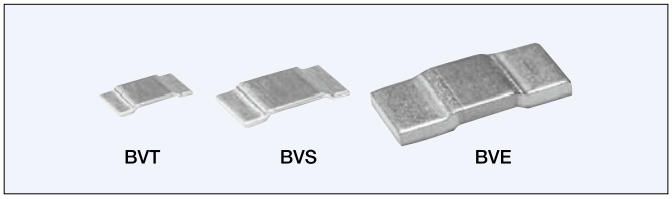
ISA-WELD SHUNT CHIP RESISTORS

BVT, BVS, BVE

Features

- Simple and robust structure shunt resistors
- Suitable for large current detection
- Outstanding temperature characteristics achieved due to the carefully selected resistor materials

BVT Max.Current (Continuous) 100A / 0.3mΩ
BVS Max.Current (Continuous) 160A / 0.2mΩ
BVE Max.Current (Continuous) 220A / 0.2mΩ



Type	Load Capacity (W) *	Resistance (Ω)	Tolerance (%)	Temp. Coefficient (20℃～60℃)	Internal Heat Resistance (℃/W)*Note	Thickness D1 (mm)	Thickness D2 (mm)
BVT-Z-R0003	3	0.3m	±1	±150ppm/℃	4	1.00	1.00
BVT-M-R0005	3	0.5m		±115ppm/℃	7	0.84	0.85
BVT-M-R001	3	1m		±50ppm/℃	14	0.42	0.42
BVT-I-R002	3	2m		±50ppm/℃	20	0.64	0.72
BVT-I-R003	2	3m		±50ppm/℃	30	0.42	0.48
BVT-I-R004	2	4m		±50ppm/℃	40	0.42	0.36

Resistance Material Z : Zeranin
M : ISA Manganin
I : ISA-Ohm

Specification
Operating Temp. : -55℃～+170℃
Free Air Load Capacity : 0.3W
Solder Reflow : Max.255℃ (t < 40sec)
Weight : 0.15g

⚠Precautions Refer to the power derating curve. Proper measures for heat radiation should be taken.

*Note: Measured between a & b after being mounted on a PCB. See Fig. below.

Type	Load Capacity (W) *	Resistance (Ω)	Tolerance (%)	Temp. Coefficient (20℃～60℃)	Internal Heat Resistance (℃/W)*Note	Thickness D1 (mm)	Thickness D2 (mm)
BVS-Z-R0002	5	0.2m	±1	±200ppm/℃	3	1.42	1.42
BVS-M-R0003	5	0.3m		±150ppm/℃	4.5	1.42	1.42
BVS-M-R0005	5	0.5m		±70ppm/℃	8	0.84	0.84
BVS-M-R0007	5	0.7m		±60ppm/℃	11	0.60	0.60
BVS-M-R001	4	1m		±50ppm/℃	15	0.42	0.42
BVS-A-R002	4	2m		±50ppm/℃	16	0.64	0.66
BVS-A-R003	3	3m		±50ppm/℃	22	0.42	0.43
BVS-A-R004	2.5	4m		±50ppm/℃	30	0.32	0.31
BVS-I-R002	4	2m		±50ppm/℃	16	0.64	0.66
BVS-I-R003	3	3m		±50ppm/℃	24	0.42	0.44
BVS-I-R004	2.5	4m		±50ppm/℃	32	0.40	0.35
BVS-I-R005	2	5m		±50ppm/℃	50	0.40	0.35

Resistance Material Z : Zeranin
M : ISA Manganin
A : Alu-Chrom
I : ISA-Ohm

Specification
Operating Temp. : -55℃～+170℃
Free Air Load Capacity : 0.5W
Solder Reflow : Max.255℃ (t < 40sec)
Weight : 0.2g

⚠Precautions Refer to the power derating curve. Proper measures for heat radiation should be taken.

*Note: Measured between a & b after being mounted on a PCB. See Fig. below.

Type	Load Capacity (W) *	Resistance (Ω)	Tolerance (%)	Temp. Coefficient (20℃～60℃)	Internal Heat Resistance (℃/W)*Note	Thickness D1 (mm)	Thickness D2 (mm)
BVE-M-R0002	10	0.2m	±1	±100ppm/℃	3	1.42	1.42
BVE-M-R0003	7	0.3m		±100ppm/℃	4.5	0.84	0.94
BVE-M-R0005	6	0.5m		±75ppm/℃	8	0.56	0.56
BVE-A-R0005	7	0.5m		±75ppm/℃	5	1.42	1.63
BVE-A-R001	6	1m		±50ppm/℃	8	0.86	0.91

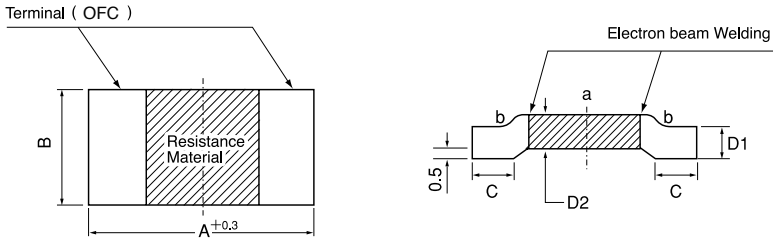
Resistance Material M : ISA Manganin
A : Alu-Chrom

Specification
Operating Temp. : -55℃～+170℃
Free Air Load Capacity : 1W
Solder Reflow : Max.255℃ (t < 40sec)
Weight : 1.2g

⚠Precautions Refer to the power derating curve. Proper measures for heat radiation should be taken.

*Note: Measured between a & b after being mounted on a PCB. See Fig. below.

Shape & Dimensions



Type	A	B	C
BVT	6.35	3.05	1.14
BVS	10	5.2	2
BVE	15	7.75	4.2

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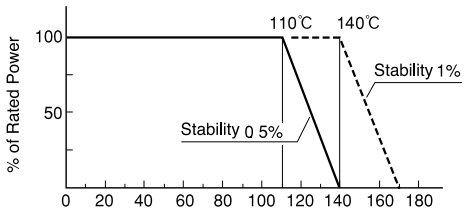
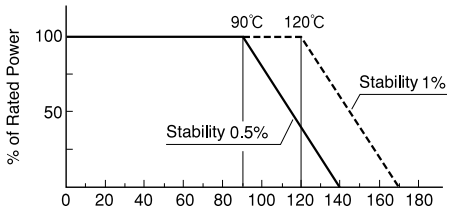
ISA-WELD SHUNT CHIP RESISTORS

BVT, BVS, BVE

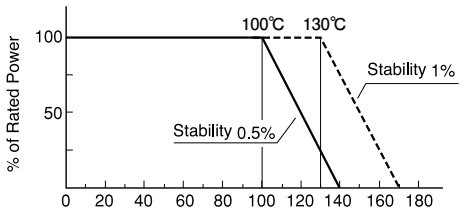
Power Derating Curve BVT



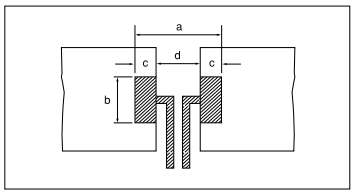
Power Derating Curve BVS



Power Derating Curve BVE

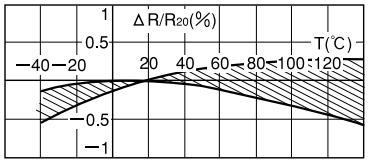


Recommended PCB layout

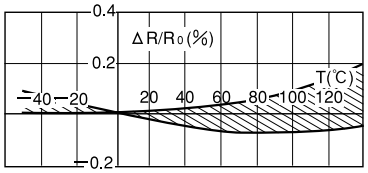


Type	Dimensions (mm)			
	a	b	c	d
BVT	7	3.4	1.8	3.4
BVS	11	6.2	2.7	5.6
BVE	16	8.7	5.2	5.6

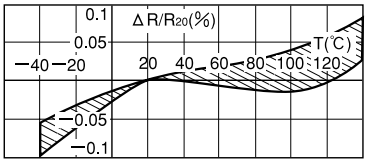
Resistance Change Versus Temp.(ISA-Manganin)



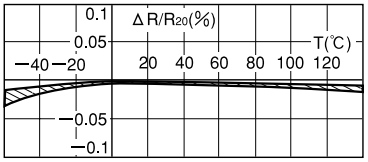
Resistance Change Versus Temp.(Alu-Chrom)



Resistance Change Versus Temp.(Zeranin)



Resistance Change Versus Temp.(ISA-Ohm)



How to order

BVE-M-R0002 (Type) 0.2mΩ (Resistance) ±1% (Tolerance)

●Taping Specification

BVT : DIN EN 60286-3 Tape width 12mm 5000 pcs
BVS : DIN EN 60286-3 Tape width 16mm 3000 pcs
BVE : DIN EN 60286-3 Tape width 24mm 2000 pcs

●Order for a single piece of standard in-stock items accepted

Standard Resistance (Stock)

BVS-Z	0.2				(mΩ) ±1%
BVS-M	0.3	0.5	0.1		(mΩ) ±1%
BVS-A		0.2	0.3	0.4	(mΩ) ±1%
BVE-M	0.2	0.3	0.5	0.1	(mΩ) ±1%
BVE-A		0.5	0.1		(mΩ) ±5%

■Performance

Parameters	Test Conditions	Specification	Typical Test Data
Thermal Shock	-65°C, 25°C, 125°C, 25°C 25cycles	±0.2%	±0.1%
Over load	5×Wattage Rating 5sec	±0.2%	±0.1%
Resistance to Solvents	IPA 3min	no damage	no damage
Low Temp. Storage and Operation	MIL-R-26E	±0.1%	±0.05%
Resistance to Soldering Heat	260°C 10sec	±0.2%	±0.05%
Moisture Resistance	Near 100%RH, +25°C, +65°C, -10°C 10cycles (10days)	±0.2%	±0.04%
Shock	50g's, 11ms	±0.2%	±0.1%
Vibration, High Frequency	MIL-STD-202 Method 204D-B	±0.2%	±0.05%
Load Life(Terminal Temp.★1)	Wattage Rating(1.5Hr ON-0.5Hr OFF) 2000Hr	±0.5%	±0.05%
Load Life(Terminal Temp.★2)	Wattage Rating(1.5Hr ON-0.5Hr OFF) 2000Hr	± 1 %	±0.1%
Storage Life at Elevated Temp.	MIL-STD-202 method 108A-F	±0.3%	±0.1%
High Temperature Exposure	140°C, 2000Hr	±0.3%	±0.2%
Current Noise	MIL-STD-202 method 308	±0.01%	none
Voltage Coefficient	MIL-STD-202 method 309	linearity error less than 120dB	
Thermal EMF(μV / °C)	0~100°C	2μV/°C max	2μV/°C
Frequency Characteristic	Inductance	<3nH	3nH

★1 BVT :Max.110°C, BVS :Max. 90°C , BVE :Max.100°C
★2 BVT :Max.140°C, BVS :Max.120°C, BVE :Max.130°C

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