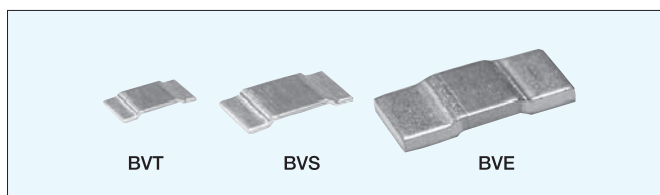


## ISA-WELD SHUNT CHIP RESISTORS

BVT, BVS, BVE

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



Type	Load Capacity (W) *	Resistance (Ω)	Tolerance (%)	Temp. Coefficient (20°C~60°C)	Internal Heat Resistance (°C/W)a-b	Thickness D1 (mm)	Thickness D2 (mm)
BVT-Z-R0003	3	0.3m	±1	±175ppm/°C	4	1.00	1.00
BVT-M-R0005	3	0.5m		±115ppm/°C	7	0.85	0.84
BVT-M-R001	3	1m		±100ppm/°C	14	0.42	0.42
BVT-I-R002	3	2m		±50ppm/°C	16	0.72	0.64
BVT-I-R003	2	3m		±50ppm/°C	24	0.48	0.42
BVT-I-R004	2	4m		±50ppm/°C	32	0.36	0.42

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

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

**CAUTION** Referring to power derating curve. Proper measures for heat radiation should be taken.

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

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

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

**CAUTION** Referring to power derating curve. Proper measures for heat radiation should be taken.

Type	Load Capacity (W) *	Resistance (Ω)	Tolerance (%)	Temp. Coefficient (20°C~60°C)	Internal Heat Resistance (°C/W)a-b	Thickness D1 (mm)	Thickness D2 (mm)
BVE-Z-R0001	10	0.1m	±5	±220ppm/°C	2	1.42	1.42
BVE-M-R0002	10	0.2m	±1	±100ppm/°C	3	1.42	1.42
BVE-M-R0003	7	0.3m		±100ppm/°C	4.5	0.94	0.84
BVE-M-R0005	6	0.5m		±75ppm/°C	8	0.56	0.56
BVE-A-R0005	7	0.5m		±75ppm/°C	5	1.62	1.42
BVE-A-R001	6	1m		±50ppm/°C	8	0.91	0.86

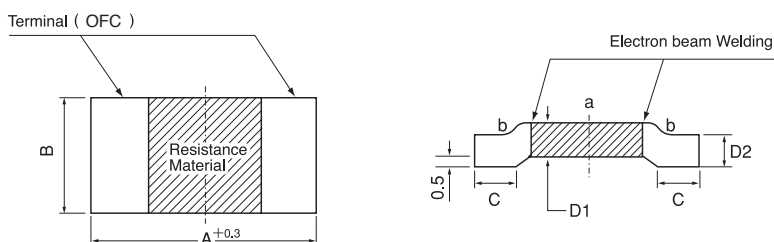
Resistance Material Z : Zeranin  
 M : ISA Manganin  
 A : Alu-Chrom

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

**CAUTION** Referring to power derating curve. Proper measures for heat radiation should be taken.

16  
24  
32

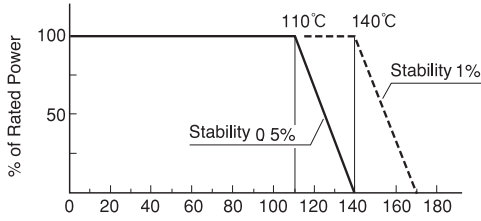
### Shape & Dimensions



Type	A	B	C
BVT	6.35	3.02	1.14
BVS	10	5.2	2
BVE	15	7.75	4.2

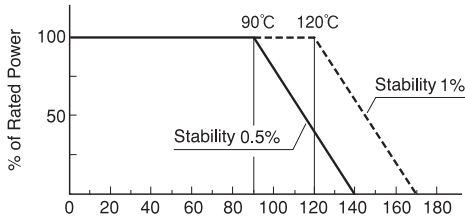
**ISA-WELD SHUNT CHIP RESISTORS** **BVT, BVS, BVE**

**Power Derating Curve BVT**



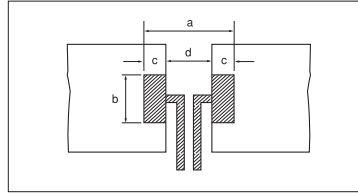
**CAUTION** b Terminal Temperature (°C)

**Power Derating Curve BVS, BVE**



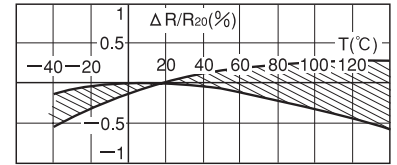
**CAUTION** b Terminal Temperature (°C)

**Proposal for PCB-Layout**

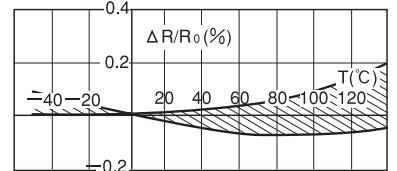


Type	Dimensions (mm)			
	a	b	c	d
BVT	7	3.4	1.8	3.4
BVS	11	6.2	2.7	5.6
BVE	16	8.7	5.2	5.6

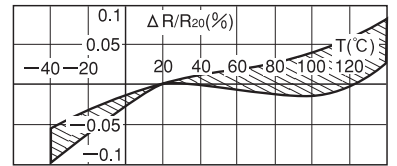
**Resistance Change Versus Temp.(ISA-Manganin)**



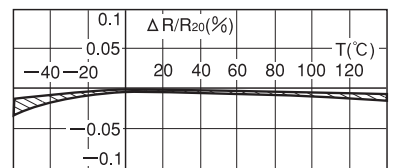
**Resistance Change Versus Temp.(Alu-Chrom)**



**Resistance Change Versus Temp.(Zeratin)**



**Resistance Change Versus Temp.(ISA-Ohm)**



**How to order**

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

● **AEC-Q200 Qualified**

● **Taping Specification**

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

**Standard Resistance (Stock)**

BVS-Z	0.2			(mΩ)	±1%
BVS-M	0.3	0.5	1	(mΩ)	±1%
BVS-A		2	3	(mΩ)	±1%
BVE-M	0.3	0.5	1	(mΩ)	±1%
BVE-A	0.5		1	(mΩ)	±1%

■ **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 <sub>(T1)</sub>	Wattage Rating(1.5Hr ON-0.5Hr OFF) 2000Hr	±0.5%	±0.05%
Load Life <sub>(T2)</sub>	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. 90°C

★2 BVT :Max.140°C, BVS:Max.120°C, BVE :Max.120°C



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