

### AVX-M HIGH-SPEED, NARROW-PULSE TRANSFORMERS

The AVX-M series is designed to be used with general-purpose laboratory pulse generators and with Avtech nanosecond pulse generators to match to non-50-Ohm impedance levels, or to obtain higher output currents or voltages.

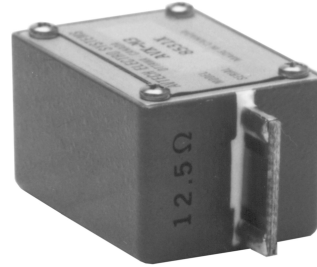
For example, the AVX-M series may be used on the outputs of the AVP, AVI or AVL series to double or quadruple the peak output current, as may be required for pulse testing of high current laser diodes and other low impedance loads (see the application note at <http://www.avtechpulse.com/appnote/general> for details).

Models with rise times of 1, 2 or 5 ns are packaged in a 1.5"x1.1"x0.9" aluminum chassis with microstrip solder terminals as shown in the photo to the right.

Model AVX-M4-H is similar, but has larger dimensions to support its higher peak output currents (up to 63A) and pulse widths (up to 200 ns).

Models with sub-nanosecond rise times (-S units) are packaged in a miniature epoxy coated module as shown below.

For all models, the load is soldered directly to the pads of the microstrip area. Any lead lengths should be kept very short. Both sides of the transformers are ground-referenced (not floating).



AVX-M3 chassis



-S unit chassis  
15x15x15 mm, approx.

Model:	AVX-M4-S	AVX-M4	AVX-M4-H	AVX-M3-S	AVX-M3	AVX-M1-S	AVX-M1A
Impedance match:	50Ω to 3Ω			50Ω to 12.5Ω		50Ω to 200Ω	
Basic function:	current quadrupling			current doubling		voltage doubling	
Max. voltage in	30 V	350 V	750V	30 V	350 V	30 V	350 V
Max. voltage out	7.5 V	87 V	188V	15 V	175 V	60 V	700 V
Max. current out	2.5 A	28 A	63A	1.2 A	14 A	0.3 A	3.5 A
Max. pulse width:	250 ns @ 15V 125 ns @ 30V	100 ns	200 ns	10 ns	100 ns	10 ns	100 ns
Rise time (20%-80%):	300 ps	2 ns	5 ns	100 ps	1 ns	100 ps	1 ns
Drop (max):	< 5%						
Dimensions: (HxWxD)	15x15x15mm 0.6x0.6x0.6"	38x28x23mm 1.5x1.1x 0.9"	43x76x76mm 1.7x3x3"	15x15x15mm 0.6x0.6x0.6"	38x28x23mm 1.5x1.1x 0.9"	15x15x15mm 0.6x0.6x0.6"	43x76x76mm 1.7x3.0x3.0"
Connectors:	In: Out:	SMA Microstrip line, with ground plane bordering the output center conductor					

### AVX-MR HIGH-POWER, WIDE-PULSE TRANSFORMERS

- Voltage-doubling units (to 200 Ohms)
- Output amplitudes to 800 Volts
- Current-doubling and quadrupling units (to 3 Ohms)
- Output amplitudes to 16 Amperes
- Pulse widths to 10 us
- 8 models

Avtech offers a complete range of high-amplitude, high-pulse width voltage-boosting (-MRA) and current-boosting matching transformers (-MRB). These models accommodate wider pulse widths than the AVX-M series described above.

For voltage-doubling applications, Avtech offers 3 AVX-MRA series models rated at peak input voltages of 100, 200 and 400 Volts all with maximum pulse width ratings of 5 us and rise times of less than 5 ns. Voltage-doubling transformers require a load impedance of 200 Ohms for proper operation.

For current-boosting applications, the AVX-MRB1, AVX-MRB2, and AVX-MRB4 current-doubling transformers have peak input voltage ratings of 100, 200 and 400 Volts and maximum pulse width ratings of 5 us, and require load impedances of 12.5 Ohms.

In addition, Avtech offers a current-doubling transformer (AVX-MRB5) and a current-quadrupling transformer (AVX-MRB6) specifically designed for use with the AV-1010-C, AV-1011-B and AV-1015-B pulse generators.

Lower voltage models have SMA connectors. Medium voltage models have BNC connectors. Type N output connectors are used on units providing amplitudes greater than 500 Volts. Micro-strip output terminals are used on the AVX-MRB5 and -MRB6. Both sides of the transformer are ground-referred (i.e., not floating).

The input port of the transformer includes a shunt 470Ω or 1kΩ resistance followed by a series DC blocking capacitor. As a result, the input and output ports are not reversible.

Model:	AVX-MRA1	AVX-MRB1	AVX-MRA2	AVX-MRB2	AVX-MRA4	AVX-MRB4	AVX-MRB5	AVX-MRB6
Max. voltage in	100 V	100 V	200 V	200 V	400 V	400 V	100 V	100 V
Max. voltage out	200 V	50 V	400 V	100 V	800 V	200 V	50 V	25 V
Max. current out	1 A	4 A	2 A	8 A	4 A	16 A	4 A	8 A
Function:	voltage-doubling	current-doubling	voltage-doubling	current-doubling	voltage-doubling	current-doubling	current-doubling	current-quadrupling
Max. pulse width:	5 us						10 us	
Impedance (Ohms):	50 to 200	50 to 12.5	50 to 200	50 to 12.5	50 to 200	50 to 12.5	50 to 12.5	50 to 3
Rise time (20%-80%):	1 ns		3 ns		5 ns		20 ns	30 ns
Drop (max):	< 5%							
Dimensions:	mm: 43x66x109 inches: 1.7x2.6x4.3		43x76x76 1.7x3.0x3.0		43x66x109 1.7x2.6x4.3		43x76x152 1.67x3x6 43x76x76 1.7x3.0x3.0	
Connectors:	In: Out:	SMA SMA		BNC BNC		BNC N BNC BNC		BNC 1 cm microstrip PCB <sup>1</sup>

1) If the load can not be soldered directly to the microstrip PCB, consider using AV-LZ12 or AV-LZ3 low-characteristic-impedance transmission lines.