

THERMAL VOLTAGE CONVERTER
 TVC04A, TVC05B
 TVC06A, TVC06B



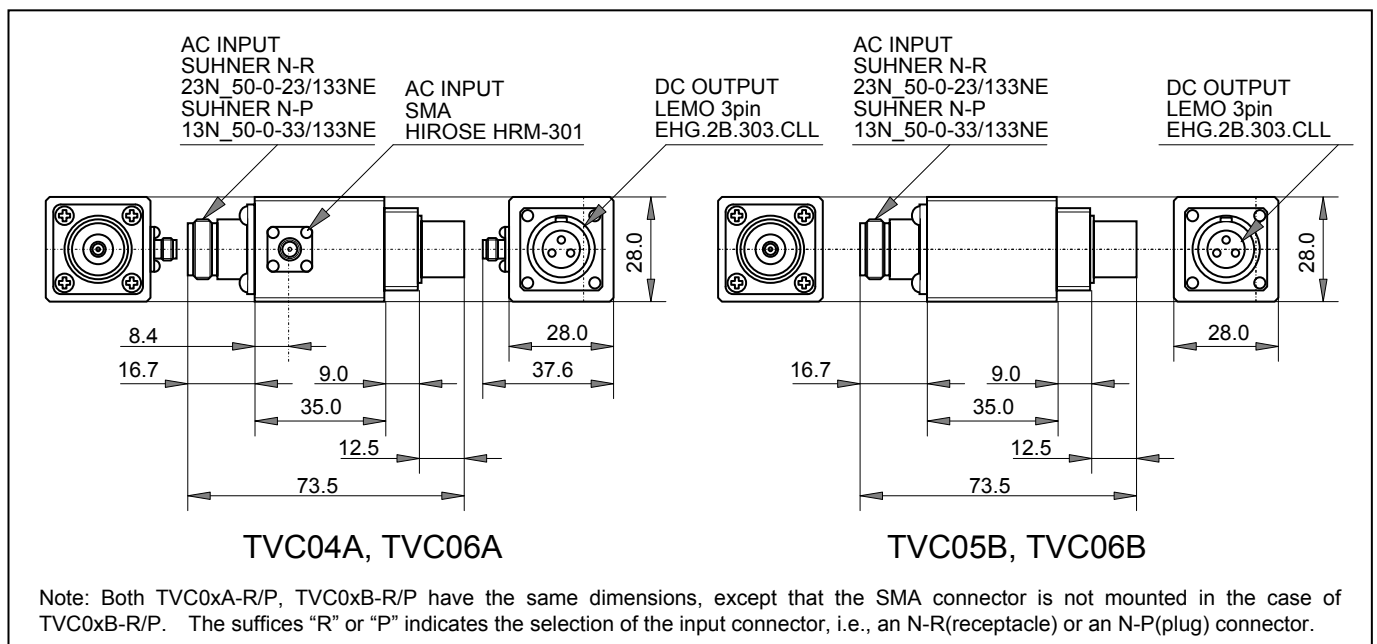
Features and Applications

The Thermal Voltage Converters TVC04/05/06(A/B) are fully assembled version of the JSTC04/05/06 series thermal converter elements, and may readily be used as the AC-DC transfer standard with input and output connectors. The TVC0xA thermal voltage converter employs the virtual-TEE configuration ("internal" or "built-in" TEE). Combined with the JSTC04 element, precise evaluation of frequency characteristic of the ac-dc transfer difference is possible at 10⁻⁶ level up to 1MHz. While the TVC0xB has similar configuration as the TVC0xA, except that the second input connector for the virtual-TEE configuration is not installed. The TVC0xA is best suited for the use with JSTC05 or JSTC06 elements.

All the HF-TVC modules are identified by serial production numbers, and are individually inspected and guaranteed for the specifications. The inspection data include input resistance, output resistance, sensitivity (output voltage), reversal error. The ac-dc transfer difference data with respect to the NIKKOHM's reference standard will also be attached to the TVC.

The HF-TVC has been developed through the collaboration with AIST (National Institute of Advanced Industrial Science and Technology, Japan).

Dimensions



MEASUREMENTS – NIKKOHM

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Ordering Information

Type	Input Connector	Input resistance TCR	Input resistance	Input resistance Tolerance	Remarks
TVC04A	R	E	500 Ohm	K	---
TVC04A	R (Receptacle)	N (+/-10ppm/deg C)	100 Ohm	K (+/-10%)	---
TVC05B	P (Plug)	E(+/-25ppm/deg C)	200 Ohm		
TVC06A			500 Ohm		
TVC06B			1k Ohm		
			2k Ohm		

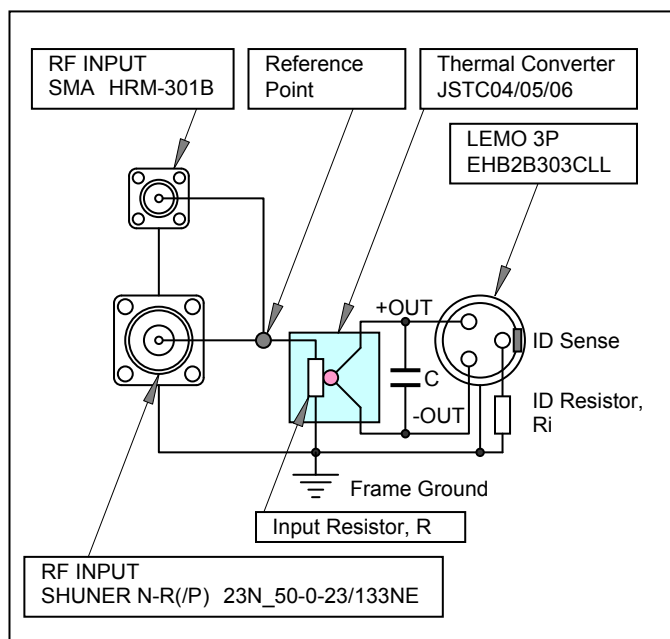
*N applies to TVC05

Specifications and Performances (for type TVC04/05 refer to JSTC04/05 datasheet)

	TVC04A	TVC05B	TVC06A, TVC06B	Conditions
INPUT				
Rated Power	0.1 W	0.1 W	0.1 W	
Max Applied Power	0.5 W	0.5 W	0.5 W	
Resistance (Ohm)	100, 200, 500, 1k, 2k	100 Ohms	100, 200, 500, 1k, 2k	.
TCR	+/-25ppm/K (E)	+/-10ppm/K (N)	+/-25ppm/K (E)	
Tolerance	+/-10% (K)	+/-10% (K)	+/-10% (K)	
Frequency Range	DC, 10kHz-1MHz	DC, 5Hz-10kHz	DC, 10Hz-1MHz	
OUTPUT				
Rating output voltage	More than 60mV	More than 60mV	More than 60mV	
Output resistance	Less than 400Ohm	Less than 400Ohm	Less than 400Ohm	
TC of Output resistance	+/- 300ppm/K	+/- 300ppm/K	+/- 300ppm/K	
INPUT/OUTPUT				
Sensitivity	More than 0.6 V/W	More than 0.6 V/W	More than 0.6 V/W	
TC of Sensitivity	-0.001mV/mW/K	-0.001mV/mW/K	-0.001mV/mW/K	Typical
Response Time	2.5 +/-0.6 seconds	6.0 +/-1.0 seconds	2.5 +/-0.6 seconds	63% response
Reversal Error	Less than 100ppm	Less than 100ppm	Less than 10ppm	Typical
AC-DC Difference, 10Hz-100kHz	*Less than 10ppm	**Less than 10ppm	Less than 10ppm	Typical
AC-DC Difference, 100K-1MHz	Less than 100ppm		Less than 100ppm	Typical
Environmental				
Operating Temp.	25 +/- 5 degree C	25 +/- 5 degree C	25 +/- 5 degree C	
Storage Temp.	-20 to 80 degree C	-20 to 80 degree C	-20 to 60 degree C	
Mechanical				
Weight (Net)	275 gram	275 gram	275 gram	

(*) 10kHz-100kHz, (**) 10Hz-10kHz

Internal schematic



Values of the ID Resistor (Ri)

Input Resistance, R	ID Sense Resistors, Ri
50 Ohm	50 - (56) - 82 Ohms
100 Ohm	100 - (120) - 180 Ohms
200 Ohm	200 - (220) - 470 Ohms
500 Ohm	500 - (560) - 820 Ohms
1K Ohm	1k - (1.2K) - 1.8k Ohms
2K Ohm	2k - (2.2K) - 4.7k Ohms

Note: The values in parenthesis are nominal values. Other values are available on request..

Note: Output Capacitance

The shunting capacitance between the output pins is 10 nF. Other values are available on request.

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