

RAZ3V010-SS



Device Summary :

The RAZ3V-SS range is a high-speed open loop Hall-effect current transducer which operates from a single +5V supply. It exhibits low drift and gain change across its working temperature range. It is available in a variety of current ranges from 40mA – 100A.*

The whole range displays wide bandwidth - coupled with it's very low hysteresis when used in PWM applications this make it an ideal solution for Variable Frequency Drive and Servo Drive applications. In addition it exhibits very low feed-through of primary dv/dt.

For manufacturing convenience it is housed in a small-footprint, machine-insertable package.

Absolute Maximum Ratings

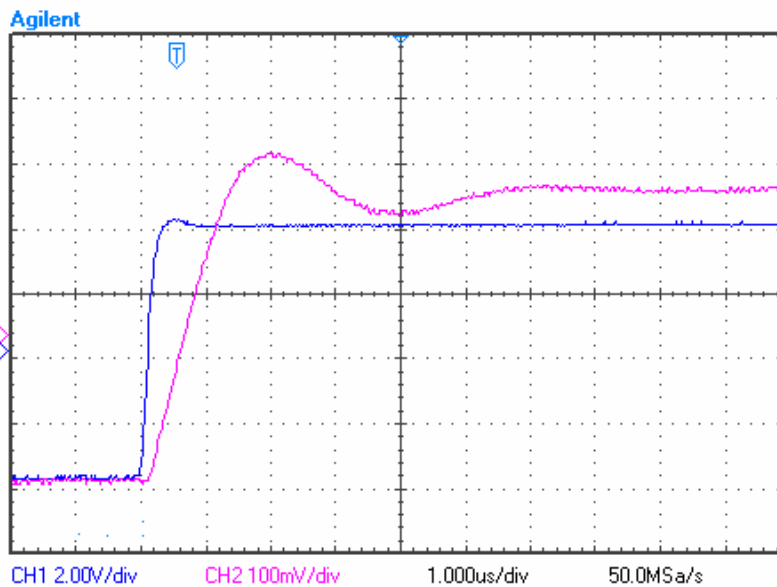
Parameter	Symbol	Value	Unit
Operating Temperature	T_A	-25 to +85	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-65 to +150	$^{\circ}\text{C}$
Supply Voltage	V_s	6	V
Measuring Circuit Current	I_m	100*	A

* For current ranges up to 250A – please contact factory

RAZ3V010-SS (100A) Characteristics ($T_A = 25^{\circ}\text{C}$ unless stated, $V_s = 5\text{V}$)

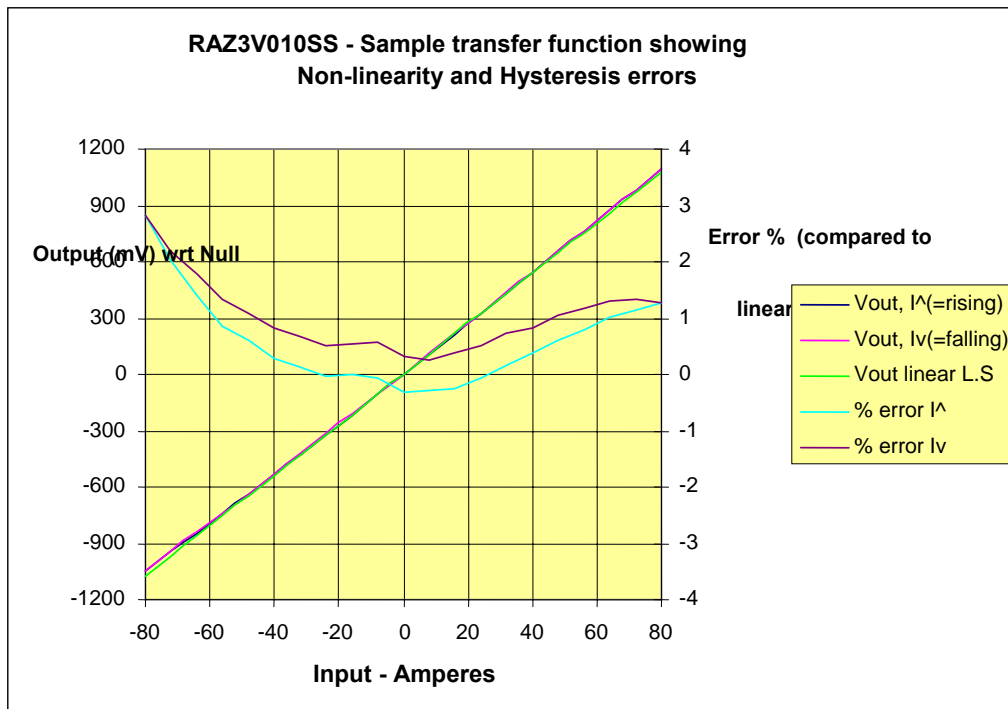
Parameter	Symbol	Lower Limit	Typical	Upper Limit	Unit
Supply Current (no load)	I_s		25	30	mA
Supply Voltage	V_s	4.75	5.0	5.25	V
Current range for $\pm 3\%$ error (-25 to $+85^{\circ}\text{C}$)	I_m	± 80			A
Null Output Voltage	V_o	2.53	2.57	2.61	V
Transfer Function (-25°C to $+90^{\circ}\text{C}$)	$\Delta V/I$	9.6	12	14.5	mV/A
Non-linearity ($\pm 80\text{A}$, -25°C to $+90^{\circ}\text{C}$)			$<1\%$	3	%
Hysteresis (0 to 50AT)			0.2	0.4	%
Null drift due to temperature change	$TC_{\Delta V_o/V_o}$		± 0.01	± 0.04	mV/K
Gain change due to temperature change	TC_G	-0.02	0	+0.02	%/K
Reaction time (to 10% I_m)	t_{ra}		300		ns
Response time (to 90% I_m)	t_r		1.0	1.33	μs
Frequency response	f_{3dB}		350		kHz
Noise 0-700kHz	E_{nrms}			1	mVrms
Output resistance	R_o		2.4	2.7	k Ω
Output Parallel Capacitance	C_o	215	235	250	pF
Primary dv/dt effect (equivalent primary ampere/turns)			5×10^{-9}		AV^{-1}s
Recommended load resistance		100,000			Ohms

**Typical Step response –
(Ch1 = 40A Step input, Ch2 = output change)**

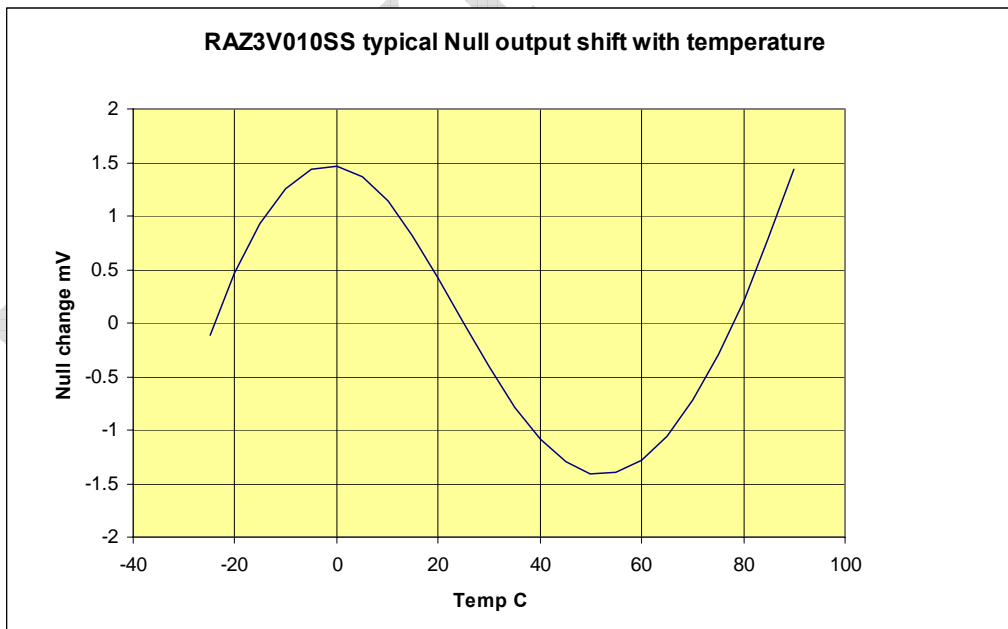


(average of 16 sweeps to minimize visible power-supply noise)

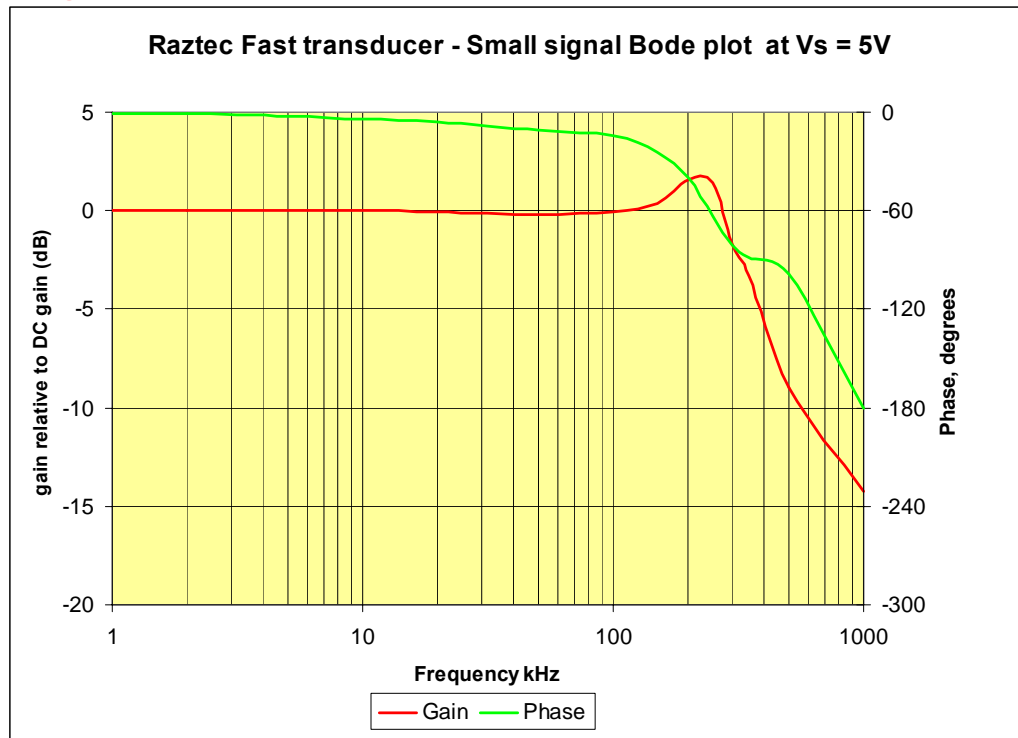
DC Characteristics - Typical transfer function –



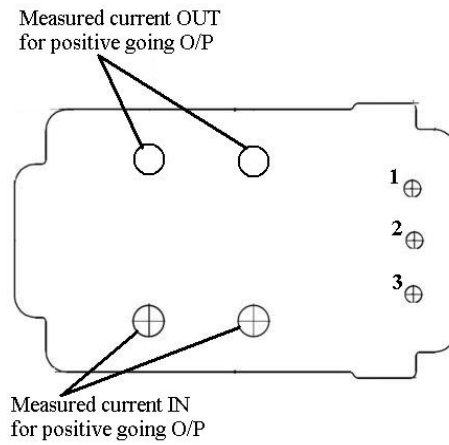
Null stability with device temperature



Small-signal AC Characteristics -



Connections –



Footprint looking onto mounting surface

Secondary Pins -

- | | |
|---|------------|
| 1 | +5V supply |
| 2 | 0V common |
| 3 | Output |

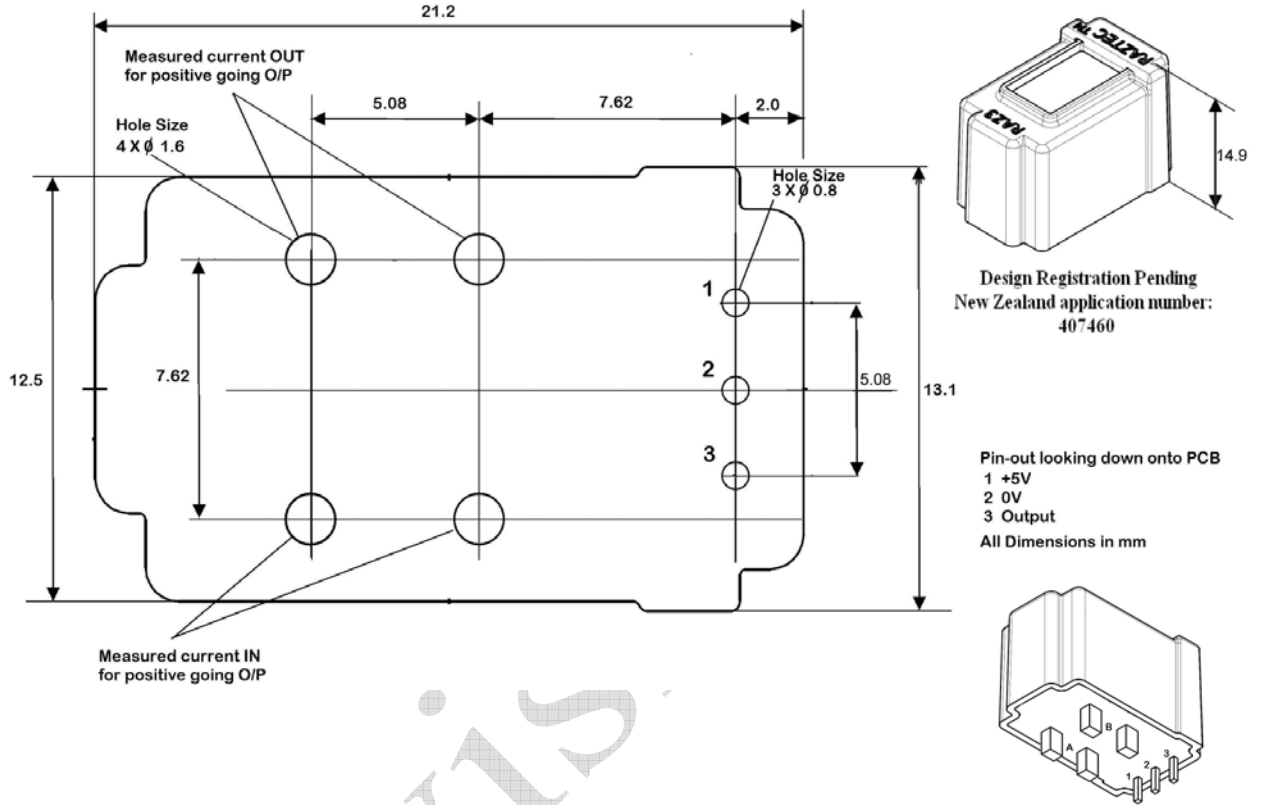
Device Marking –

V010SS
0633

(Lower line shows date code – week 33 of 2006)

This device may require target-application calibration and is therefore recommended for high-volume applications.

Mechanical



Footprint looking onto mounting surface – dimensions in mm

Specifications are subject to change without notice.