

**Insulation coordination**

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC isolation test 50/60 Hz/1 min	$U_d$	kV	4.3	
Impulse withstand voltage 1.2/50 $\mu$ s	$\hat{U}_w$	kV	8	
Partial discharge extinction rms voltage @ 10 pC	$U_e$	V	1650	
Clearance (pri. - sec.)	$d_{Cl}$	mm	8	Shortest distance through air
Creepage distance (pri. - sec.)	$d_{Cp}$	mm	8	Shortest path along device body
Case material			V0 according to UL 94	
Comparative tracking index	$CTI$		600	
Application example	-	-	600 V CAT III PD2	Reinforced insulation, non uniform field according to EN 50178
Application example	-	-	300 V CAT III PD2	Reinforced insulation, non uniform field according to IEC 61010
Application example	-	-	1000 V CAT III PD2	Simple insulation, non uniform field according to EN 50178, IEC 61010

**Environmental and mechanical characteristics**

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	$T_A$	$^{\circ}$ C	-40		105	
Ambient storage temperature	$T_s$	$^{\circ}$ C	-40		105	
Surrounding temperature according to UL 508		$^{\circ}$ C			105	
Mass	$m$	g		5		

**Electrical data HO 8-NSM-0000**

 At  $T_A = 25\text{ °C}$ ,  $U_C = +5\text{ V}$ ,  $N_P = 3$  turns,  $R_L = 10\text{ K}\Omega$  unless otherwise noted (see Min, Max, typ. definition paragraph in page 12).

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	$I_{PN}$	At		8		
Primary current, measuring range	$I_{PM}$	At	-20		20	
Number of primary turns	$N_P$			1,2,3		
Supply voltage	$U_C$	V	4.5	5	5.5	
Current consumption	$I_C$	mA		19	25	
Reference voltage	$V_{ref}$	V	2.475	2.5	2.525	Internal reference
External reference voltage	$V_{ref}$	V	0.5		2.65	
Output voltage range @ $I_{PM}$	$V_{out} - V_{ref}$	V	-2		2	
Output voltage @ $I_P = 0\text{ A}$	$V_{out}$	V		$V_{ref} + V_{OE}$		
Electrical offset voltage	$V_{OE}$	mV	-7		7	
Temperature coefficient of $V_{ref}$	$TCV_{ref}$	ppm/K			±160	-20 °C .. 85 °C Internal reference
					±190	-40 °C .. 105 °C Internal reference
Temperature coefficient of $V_{OE}$	$TCV_{OE}$	mV/K			±0.088	-20 °C .. 85 °C
					±0.095	-40 °C .. 105 °C
Theoretical sensitivity	$G_{th}$	mV/A		100		800 mV/ $I_{PN}$ @ $U_C = 5\text{ V}$
Sensitivity error	$\epsilon_G$	%			±0.5	Factory adjustment
Temperature coefficient of $G$	$TCG$	ppm/K			±200	-40 °C .. 85 °C
					±220	-40 °C .. 105 °C
Linearity error 0 .. $I_{PN}$	$\epsilon_L$	% of $I_{PN}$			±0.5	@ $U_C = 5\text{ V}$
Linearity error 0 .. $I_{PM}$	$\epsilon_L$	% of $I_{PM}$			±0.8	@ $U_C = 5\text{ V}$
Gain error with respect to $U_C \pm 10\%$		%/%			±0.05	Gain error per $U_C$ drift
Magnetic offset voltage @ $I_P = 0$ after $2.5 \times I_{PN}$	$V_{OM}$	mV			±6	
Reaction time @ 10 % of $I_{PN}$	$t_{ra}$	µs			2	$di/dt = I_{PN}/\mu s$
Response time @ 90 % of $I_{PN}$	$t_r$	µs			3.5	$di/dt = I_{PN}/\mu s$
Frequency bandwidth (-3 dB)	$BW$	kHz		250		
Output rms voltage noise (spectral density) (DC .. 100 kHz)	$e_{no}$	µV/√Hz			32.9	@ $U_C = 5\text{ V}$
Output voltage noise (DC .. 20 MHz)	$V_{no}$	mVpp		80		
Standby pin "0" level		V			0.3	
Standby pin "1" level		V	$U_C - 0.3$			
Time to switch from standby to normal mode		µs			20	
Over-current detect		At	$2.6 \times I_{PN}$	$2.9 \times I_{PN}$	$3.2 \times I_{PN}$	peak value
Accuracy @ $I_{PN}$	$X$	% of $I_{PN}$			±1	$= \epsilon_G + \epsilon_L$
Accuracy @ $I_{PN}$ @ $T_A = +85\text{ °C}$	$X$	% of $I_{PN}$			±2.9	See formula note <sup>1)</sup>
Accuracy @ $I_{PN}$ @ $T_A = +105\text{ °C}$	$X$	% of $I_{PN}$			±3.8	See formula note <sup>1)</sup>

 Note: <sup>1)</sup> Accuracy @  $I_P$  and  $X_{TA} = \pm [X + (TCG/10000) \cdot (T_A - 25) + TCV_{OE} \cdot 100 \cdot (T_A - 25) / (G_{th} \cdot I_P)]$ .