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 µs	$\hat{U}_W$	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	°C	-40		105	
Ambient storage temperature	T_S	°C	-40		105	
Surrounding temperature according to UL 508		°C			105	
Mass	*m*	g		5		

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Electrical data HO 8-NSM/SP33-1000

At T_A = 25°C, U_C = +3.3 V, N_P = 3 turns, R_L = 10 KΩ 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	3.14	3.3	3.46	
Current consumption	I_C	mA			25	
Reference voltage	V_{ref}	V	1.636	1.65	1.664	Internal reference
External reference voltage	V_{ref}	V	0.5		1.85	@ U_C = 3.3 ≈ 3.46 V
			0.5		1.7	@ U_C = 3.14 ≈ 3.3 V
Output voltage range @ I_{PM}	V_{out} - V_{ref}	V	-1.15		1.15	
Output voltage @ I_P = 0 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			±170	-20 °C .. 85 °C Internal reference
					±180	-40 °C .. 105 °C Internal reference
Temperature coefficient of V_{OE}	TCV_{OE}	mV/K			±0.080	-40 °C .. 105 °C
Theoretical sensitivity	G_{th}	mV/A		57.5		460 mV/ I_{PN} @ U_C = 3.3 V
Sensitivity error	ε_G	%			±0.5	Factory adjustment
Temperature coefficient of *G*	*TCG*	ppm/K			±200	-20 °C .. 85 °C
					±210	-40 °C .. 105 °C
Linearity error 0 .. I_{PN}	ε_L	% of I_{PN}			±0.5	@ U_C = 3.3 V
Linearity error 0 .. I_{PM}	ε_L	% of I_{PM}			±0.8	@ U_C = 3.3 V
Gain error with respect to U_C ±10 %		%/%			±0.4	Gain error per U_C drift
Magnetic offset voltage @ I_P = 0 after 2.5 × I_{PN}	V_{OM}	mV			±4	
Reaction time @ 10 % of I_{PN}	t_{ra}	µs			2	d*i*/d*t* = I_{PN}/µs
Response time @ 90 % of I_{PN}	t_r	µs			3.5	d*i*/d*t* = I_{PN}/µs
Frequency bandwidth (-3 dB)	*BW*	kHz		250		
Output rms voltage noise (spectral density) (DC .. 100 kHz)	e_{no}	µV/√Hz			18.9	
Output voltage noise (DC .. 20 MHz)	V_{no}	mVpp		40		
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 × I_{PN}	2.9 × I_{PN}	3.2 × I_{PN}	peak value
Accuracy @ I_{PN}	*X*	% of I_{PN}			±1	= ε_G + ε_L
Accuracy @ I_{PN} @ T_A = +85 °C	*X*	% of I_{PN}			±3.3	See formula note [1]
Accuracy @ I_{PN} @ T_A = +105 °C	*X*	% of I_{PN}			±4.1	See formula note [1]

Note: [1] Accuracy @ I_P and X_{TA} = ± [*X* + (*TCG*/10000) · (T_A - 25) + TCV_{OE} · 100 · (T_A -25) / (G_{th} · I_P)].

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