Insulation coordination

Parameter	Symbol	Unit	Value	Comment
Rms voltage for AC isolation test 50/60 Hz/1 min [1)]	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*	V	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		10		

Note: [1)] Voltage of Retention pins has to be consider. If it is same as primary electrical potential, insulation is no issue. If it is same as secondary electrical potental, insulation of primary bus bar has to be considered.

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Electrical data I_{PN} = 6 A

At T_A = 25°C, U_C = +3.3 V, N_P = 1 turn, R_L = 10 KΩ unless otherwise noted (see Min, Max, typ. definition paragraph in page 7).

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal rms current	I_{PN}	A		6		
Primary current, measuring range	I_{PM}	A	-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
					±190	-40 °C .. 105 °C Internal reference
Temperature coefficient of V_{OE}	TCV_{OE}	mV/K			±0.14	-40 °C .. 105 °C
Theoretical sensitivity	G_{th}	mV/A		76.67		460 mV/ I_{PN} @ U_C = 3.3 V
Sensitivity error	ε_G	%			±0.85	Factory adjustement
Temperature coefficient of G	TCG	ppm/K			±250	
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			±3	
Reaction time @ 10 % of I_{PN}	t_{ra}	µs			2	di/dt = I_{PN}/µs
Response time @ 90 % of I_{PN}	t_r	µs			3.5	di/dt = 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		
Over-current detect		V	2.6 × I_{PN}	2.9 × I_{PN}	3.2 × I_{PN}	peak value
Accuracy @ I_{PN}	X	% of I_{PN}			±1.35	ε_G + ε_L
Accuracy @ I_{PN} @ T_A = +85 °C	X	% of I_{PN}			±4.68	See formula note [1]
Accuracy @ I_{PN} @ T_A = +105 °C	X	% of I_{PN}			±5.79	See formula note [1]

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

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