

Electrical data CASR 6-NP

 At $T_A = 25^\circ\text{C}$, $V_C = +5\text{ V}$, $N_P = 1$ turn, $R_L = 10\text{ k}\Omega$, internal reference, unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current rms	I_{PN}	A		6		
Primary current, measuring range	I_{PM}	A	-20		20	
Number of primary turns	N_P	-		1,2,3		
Supply voltage	V_C	V	4.75	5	5.25	
Current consumption	I_C	mA		$15 + \frac{I_P \text{ (mA)}}{N_S}$	$20 + \frac{I_P \text{ (mA)}}{N_S}$	$N_S = 1731$ turns
Reference voltage @ $I_P = 0\text{ A}$	V_{REF}	V	2.495	2.5	2.505	Internal reference
External reference voltage	V_{REF}	V	0		4	
Output voltage	V_{OUT}	V	0.375		4.625	
Output voltage @ $I_P = 0\text{ A}$	V_{OUT}	V		V_{REF}		
Electrical offset voltage	V_{OE}	mV	-5.3		5.3	100% tested $V_{OUT} - V_{REF}$
Electrical offset current referred to primary	I_{OE}	mA	-51		51	100% tested
Temperature coefficient of V_{REF}	TCV_{REF}	ppm/K		± 5	± 50	Internal reference
Temperature coefficient of V_{OUT} @ $I_P = 0\text{ A}$	TCV_{OUT}	ppm/K		± 6	± 14	ppm/K of 2.5 V - 40°C .. 85°C
Theoretical sensitivity	G_{th}	mV/A		104.2		625 mV/ I_{PN}
Sensitivity error	ϵ_G	%	-0.7		0.7	100% tested
Temperature coefficient of G	TCG	ppm/K			± 40	- 40°C .. 85°C
Linearity error	ϵ_L	% of I_{PN}	-0.1		0.1	
Magnetic offset current (10 x I_{PN}) referred to primary	I_{OM}	A	-0.1		0.1	
Output current noise (spectral density) rms 100 Hz .. 100 kHz referred to primary	i_{no}	$\mu\text{A}/\text{Hz}^{1/2}$		20		$R_L = 1\text{ k}\Omega$
Peak-peak output ripple at oscillator frequency $f = 450\text{ kHz}$ (typ.)	-	mV		40	160	$R_L = 1\text{ k}\Omega$
Reaction time @ 10 % of I_{PN}	t_{ra}	μs			0.3	$R_L = 1\text{ k}\Omega$ $di/dt = 18\text{ A}/\mu\text{s}$
Response time @ 90 % of I_{PN}	t_r	μs			0.3	$R_L = 1\text{ k}\Omega$ $di/dt = 18\text{ A}/\mu\text{s}$
Frequency bandwidth ($\pm 1\text{ dB}$)	BW	kHz	200			$R_L = 1\text{ k}\Omega$
Frequency bandwidth ($\pm 3\text{ dB}$)	BW	kHz	300			$R_L = 1\text{ k}\Omega$
Overall accuracy	X_G	% of I_{PN}			1.7	
Overall accuracy @ $T_A = 85^\circ\text{C}$	X_G	% of I_{PN}			2.2	
Accuracy	X	% of I_{PN}			0.8	
Accuracy @ $T_A = 85^\circ\text{C}$	X	% of I_{PN}			1.4	

Electrical data CASR 15-NP

 At $T_A = 25^\circ\text{C}$, $V_C = +5\text{ V}$, $N_P = 1$ turn, $R_L = 10\text{ k}\Omega$, internal reference, unless otherwise noted.

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current rms	I_{PN}	A		15		
Primary current, measuring range	I_{PM}	A	-51		51	
Number of primary turns	N_P	-		1,2,3		
Supply voltage	V_C	V	4.75	5	5.25	
Current consumption	I_C	mA		$15 + \frac{I_P \text{ (mA)}}{N_S}$	$20 + \frac{I_P \text{ (mA)}}{N_S}$	$N_S = 1731$ turns
Reference voltage @ $I_P = 0\text{ A}$	V_{REF}	V	2.495	2.5	2.505	Internal reference
External reference voltage	V_{REF}	V	0		4	
Output voltage	V_{OUT}	V	0.375		4.625	
Output voltage @ $I_P = 0\text{ A}$	V_{OUT}	V		V_{REF}		
Electrical offset voltage	V_{OE}	mV	-2.21		2.21	100% tested $V_{OUT} - V_{REF}$
Electrical offset current referred to primary	I_{OE}	mA	-53		53	100% tested
Temperature coefficient of V_{REF}	TCV_{REF}	ppm/K		± 5	± 50	Internal reference
Temperature coefficient of V_{OUT} @ $I_P = 0\text{ A}$	TCV_{OUT}	ppm/K		± 2.3	± 6	ppm/K of 2.5 V - $40^\circ\text{C} \dots 85^\circ\text{C}$
Theoretical sensitivity	G_{th}	mV/A		41.67		$625\text{ mV} / I_{PN}$
Sensitivity error	ϵ_G	%	-0.7		0.7	100% tested
Temperature coefficient of G	TCG	ppm/K			± 40	- $40^\circ\text{C} \dots 85^\circ\text{C}$
Linearity error	ϵ_L	% of I_{PN}	-0.1		0.1	
Magnetic offset current ($10 \times I_{PN}$) referred to primary	I_{OM}	A	-0.1		0.1	
Output current noise (spectral density) rms 100 Hz .. 100 kHz referred to primary	i_{no}	$\mu\text{A}/\text{Hz}^{1/2}$		20		$R_L = 1\text{ k}\Omega$
Peak-peak output ripple at oscillator frequency $f = 450\text{ kHz}$ (typ.)	-	mV		15	60	$R_L = 1\text{ k}\Omega$
Reaction time @ 10 % of I_{PN}	t_{ra}	μs			0.3	$R_L = 1\text{ k}\Omega$ $di/dt = 44\text{ A}/\mu\text{s}$
Response time @ 90 % of I_{PN}	t_r	μs			0.3	$R_L = 1\text{ k}\Omega$ $di/dt = 44\text{ A}/\mu\text{s}$
Frequency bandwidth ($\pm 1\text{ dB}$)	BW	kHz	200			$R_L = 1\text{ k}\Omega$
Frequency bandwidth ($\pm 3\text{ dB}$)	BW	kHz	300			$R_L = 1\text{ k}\Omega$
Overall accuracy	X_G	% of I_{PN}			1.2	
Overall accuracy @ $T_A = 85^\circ\text{C}$	X_G	% of I_{PN}			1.5	
Accuracy	X	% of I_{PN}			0.8	
Accuracy @ $T_A = 85^\circ\text{C}$	X	% of I_{PN}			1.2	