

**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		$\pm 5$	$\pm 50$	Internal reference
Temperature coefficient of $V_{OUT}$ @ $I_P = 0\text{ A}$	$TCV_{OUT}$	ppm/K		$\pm 6$	$\pm 14$	ppm/K of 2.5 V - 40°C .. 85°C
Theoretical sensitivity	$G_{th}$	mV/A		104.2		625 mV / $I_{PN}$
Sensitivity error	$\epsilon_G$	%	-0.7		0.7	100% tested
Temperature coefficient of $G$	$TCG$	ppm/K			$\pm 40$	- 40°C .. 85°C
Linearity error	$\epsilon_L$	% 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 $I_{PN}$	$t_{ra}$	$\mu\text{s}$			0.3	$R_L = 1\text{ k}\Omega$ $di/dt = 18\text{ A}/\mu\text{s}$
Response time @ 90 % of $I_{PN}$	$t_r$	$\mu\text{s}$			0.3	$R_L = 1\text{ k}\Omega$ $di/dt = 18\text{ A}/\mu\text{s}$
Frequency bandwidth ( $\pm 1\text{ dB}$ )	<b>BW</b>	kHz	200			$R_L = 1\text{ k}\Omega$
Frequency bandwidth ( $\pm 3\text{ dB}$ )	<b>BW</b>	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	<b>X</b>	% of $I_{PN}$			0.8	
Accuracy @ $T_A = 85^\circ\text{C}$	<b>X</b>	% 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		$\pm 5$	$\pm 50$	Internal reference
Temperature coefficient of $V_{OUT}$ @ $I_P = 0\text{ A}$	$TCV_{OUT}$	ppm/K		$\pm 2.3$	$\pm 6$	ppm/K of 2.5 V - 40°C .. 85°C
Theoretical sensitivity	$G_{th}$	mV/A		41.67		625 mV/ $I_{PN}$
Sensitivity error	$\epsilon_G$	%	-0.7		0.7	100% tested
Temperature coefficient of $G$	$TCG$	ppm/K			$\pm 40$	- 40°C .. 85°C
Linearity error	$\epsilon_L$	% 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 $I_{PN}$	$t_{ra}$	$\mu\text{s}$			0.3	$R_L = 1\text{ k}\Omega$ $di/dt = 44\text{ A}/\mu\text{s}$
Response time @ 90 % of $I_{PN}$	$t_r$	$\mu\text{s}$			0.3	$R_L = 1\text{ k}\Omega$ $di/dt = 44\text{ A}/\mu\text{s}$
Frequency bandwidth ( $\pm 1\text{ dB}$ )	<b>BW</b>	kHz	200			$R_L = 1\text{ k}\Omega$
Frequency bandwidth ( $\pm 3\text{ dB}$ )	<b>BW</b>	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	<b>X</b>	% of $I_{PN}$			0.8	
Accuracy @ $T_A = 85^\circ\text{C}$	<b>X</b>	% of $I_{PN}$			1.2	