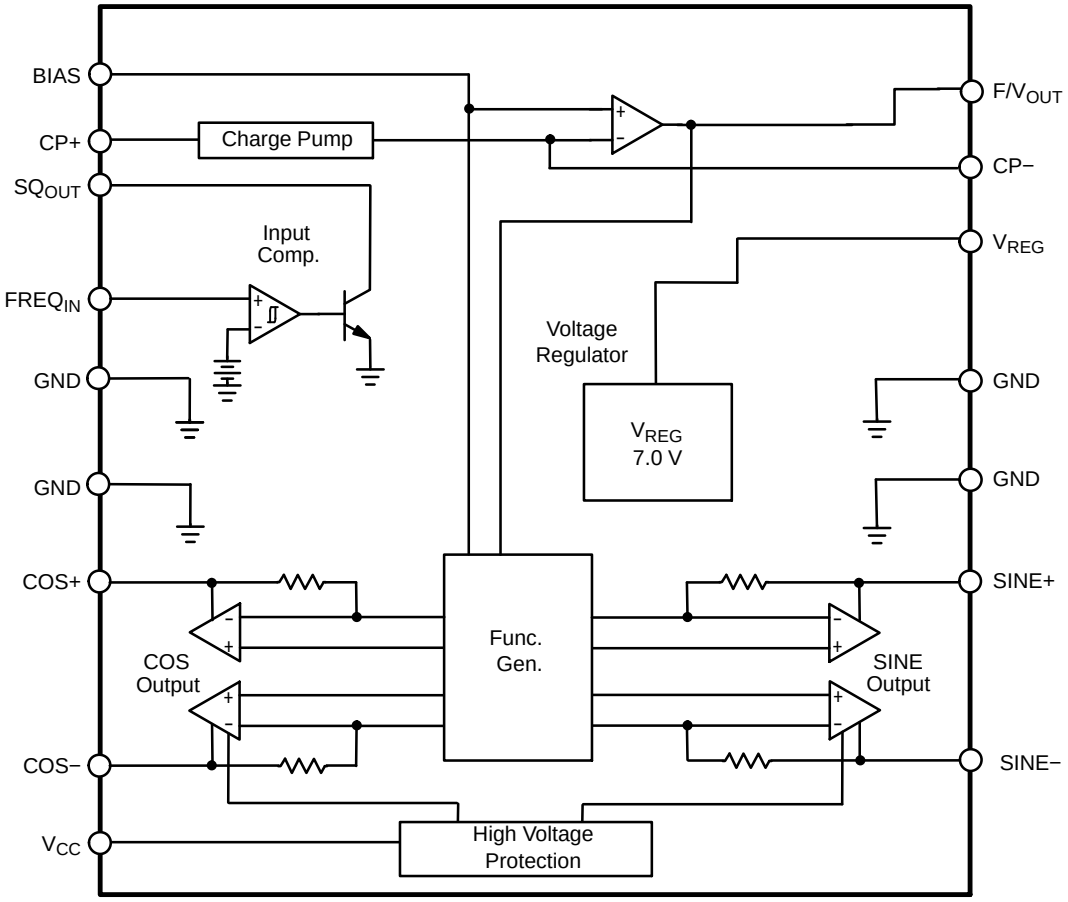
See detailed ordering and shipping information in the package dimensions section on page 10 of this data sheet.



Supply Voltage, V_{CC}	< 100 ms Pulse Transient Continuous	60 24	V V
Operating Temperature		−40 to +105	°C
Storage Temperature		−40 to +165	°C
Junction Temperature		−40 to +150	°C
ESD (Human Body Model)		4.0	kV
Lead Temperature Soldering: Wave Solder (through hole styles only) (Note 1) Reflow: (SMD styles only) (Note 2)		260 peak 230 peak	°C °C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

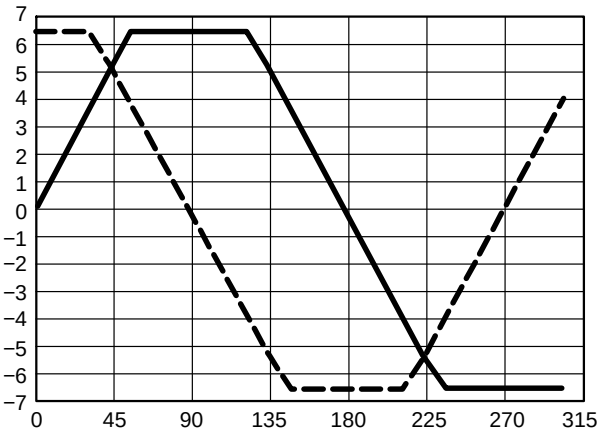
1. 10 seconds maximum.
2. 60 second maximum above 183 °C.

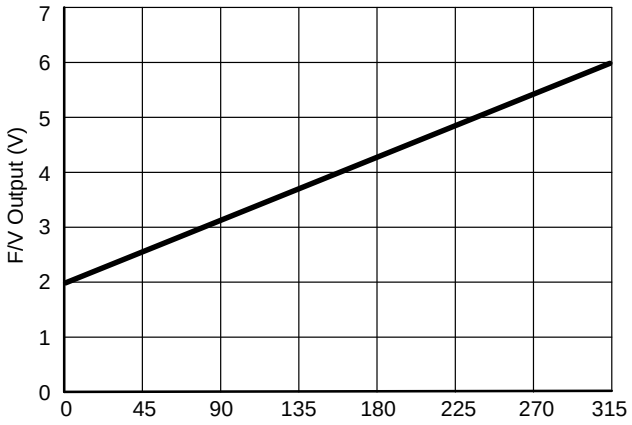
($-40\ °C \le T_A \le 85\ °C$, $8.5\ V \le V_{CC} \le 15\ V$, unless otherwise specified.)

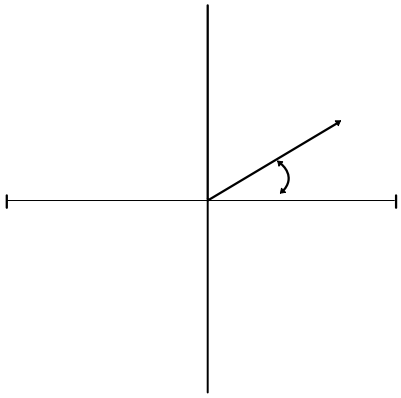
I_{CC} Supply Current	V_{CC} = 16 V, −CC				

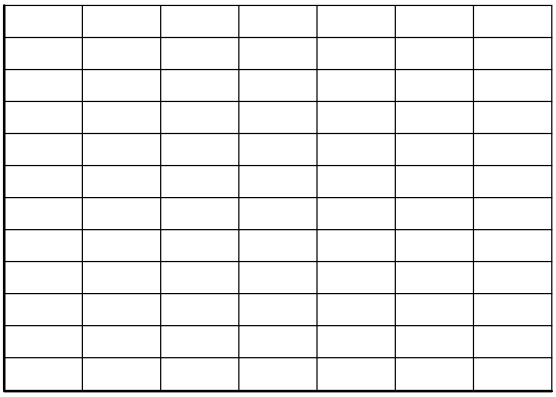
(−40 °C ≤ T_A ≤ 85 °C, 8.5 V ≤ V_{CC} ≤ 15 V, unless otherwise specified.)

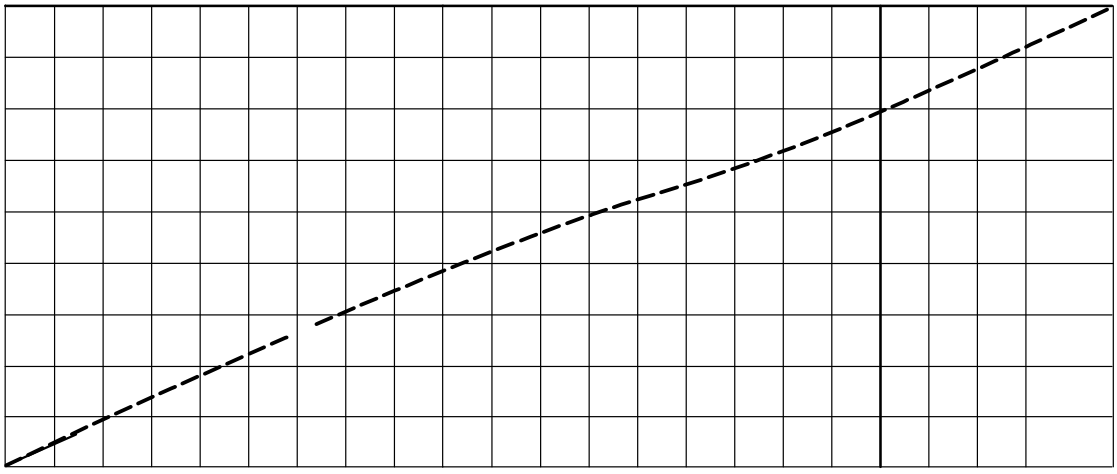
− ° ≤ ≤ ° (continued)


7
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
−7
0
45
90
135
180
225
270
315


F/V Output (V)
7
6
5
4
3
2
1
0
0
45
90
135
180
225
270
315

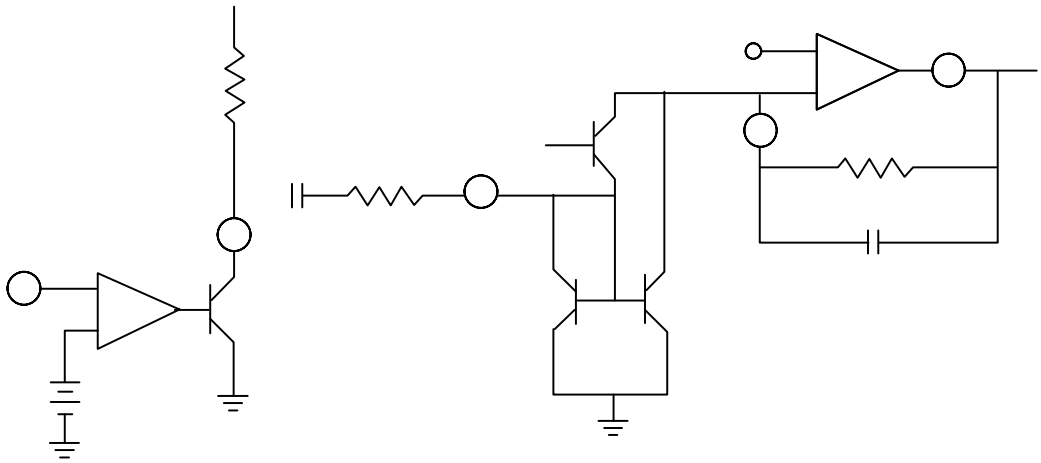


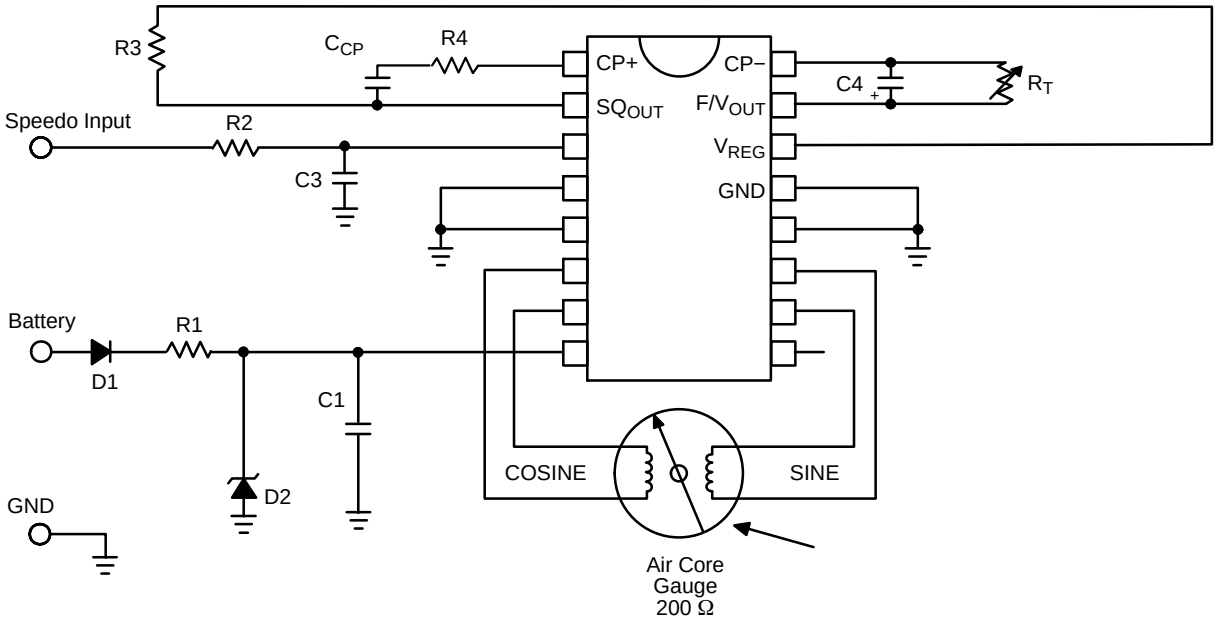


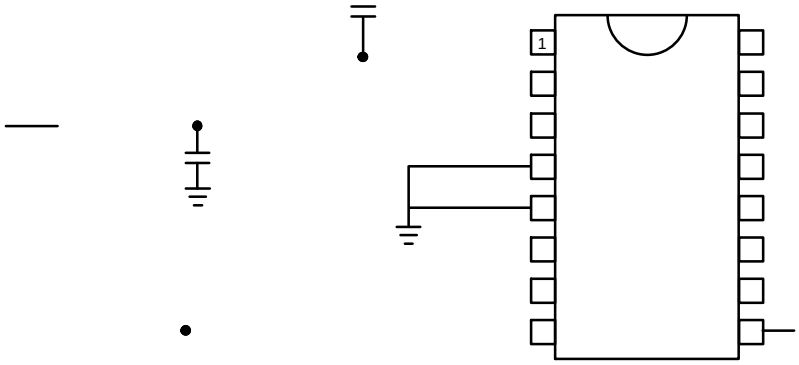


°

θ	θ	θ	θ	θ	θ	θ	θ	θ	θ	θ	θ
0	0	17	17.98	34	33.04	75	74.00	160	159.14	245	244.63
1	1.09	18	18.96	35	34.00	80	79.16	165	164.00	250	249.14
2	2.19	19	19.92	36	35.00	85	84.53	170	169.16	255	254.00
3	3.29	20	20.86	37	36.04	90	90.00	175	174.33	260	259.16
4	4.38	21	21.79	38	37.11	95	95.47	180	180.00	265	264.53
5	5.47	22	22.71	39	38.21	100	100.84	185	185.47	270	270.00
6	6.56	23	23.61	40	39.32	105	106.00	190	190.84	275	275.47
7	7.64	24	24.50	41	40.45	110	110.86	195	196.00	280	280.84
8	8.72	25	25.37	42	41.59	115	115.37	200	200.86	285	286.00
9	9.78	26	26.23	43	42.73	120	119.56	205	205.37	290	290.86
10	10.84	27	27.07	44	43.88	125	124.00	210	209.56	295	295.37
11	11.90	28	27.79	45	45.00	130	129.32	215	214.00	300	299.21
12	12.94	29	28.73	50	50.68	135	135.00	220	219.32	305	303.02

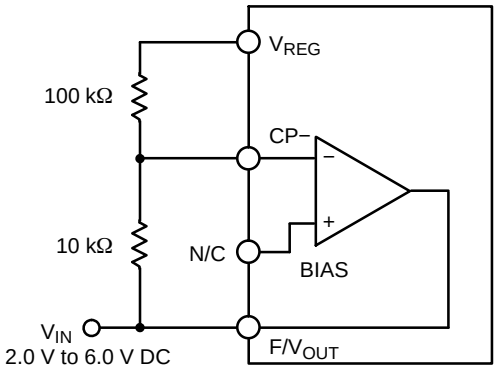



R3
C_{CP}
R4
CP+
CP–
SQ$_{OUT}$
F/V$_{OUT}$
V$_{REG}$
GND
C4
+
R_T
Speedo Input
R2
C3
Battery
R1
D1
C1
D2
GND
COSINE
SINE
Air Core
Gauge
200 Ω

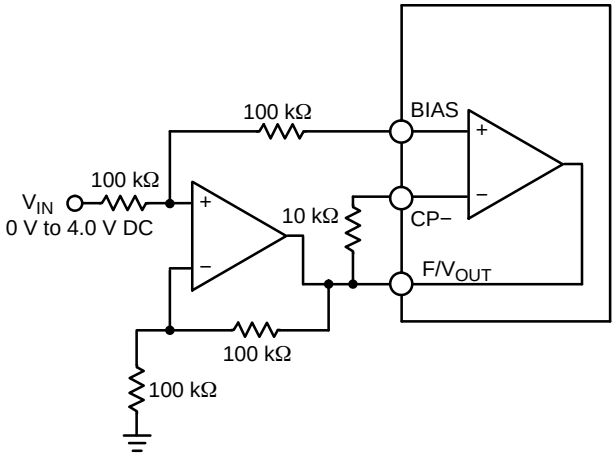

1

In some cases a designer may wish to use the CS8190 only as a driver for an air−core meter having performed the F/V conversion elsewhere in the circuit.

Figure 11 shows how to drive the CS8190 with a DC voltage ranging from 2.0 V to 6.0 V. This is accomplished by forcing a voltage on the F/V_{OUT} lead. The alternative scheme shown in Figure 12 uses an external op amp as a buffer and operates over an input voltage range of 0 V to 4.0 V.



Figures 11 and 12 are not temperature compensated.



		–	–	
$R_{\theta JC}$	Typical	15	9	°C/W
$R_{\theta JA}$	Typical	50	55	°C/W

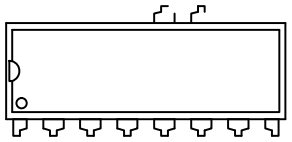
		†
CS8190EDWFR20G	SO−20W (Pb−Free)	1000 / Tape & Reel

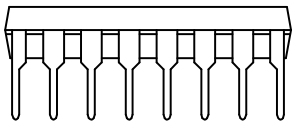
(Note 8)

CS8190ENF16G	PDIP−16 (Pb−Free)	25 Units / Rail
CS8190EDWF20G	SO−20W (Pb−Free)	38 Units / Rail

8. This device is not recommended for new design. Please contact your representative for information. The most current information on this device may be available on www.onsemi.com.

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.





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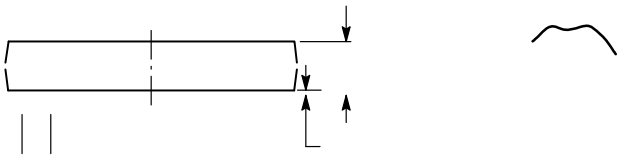

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