



**ABSOLUTE MAXIMUM RATINGS (Note 1)**

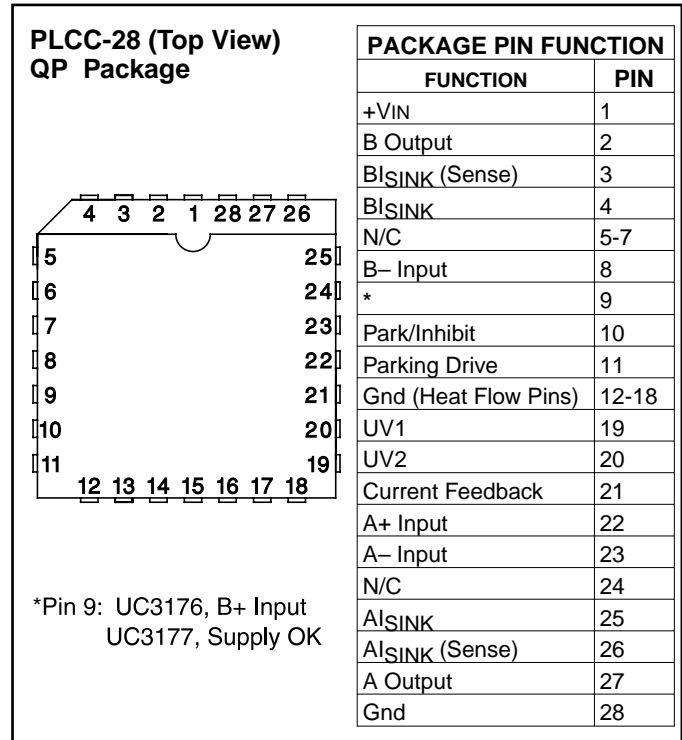
Input Supply voltage, (+V <sub>IN</sub> )	40V
Park/Inhibit, UV1 and UV2 inputs (zener clamped)	
Maximum forced voltage	-0.3V to 10V
Maximum forced current	±10mA
Other Input Voltages	-0.3V to +V <sub>IN</sub>
A <sub>SINK</sub> and B <sub>SINK</sub> Voltages	-0.3V to 6V
Open Collector Output Voltages	40V
A and B Output Currents (Continuous)	
Source	Internally Limited
Sink	2.5A
Total Supply Current (Continuous)	4A
Parking Drive Output Current (Continuous)	200mA
Supply OK Output Current, UC3177 (Continuous)	30mA
Operating Junction Temperature	-55°C to +150°C
Power Dissipation at TC = +75°C	
QP package	4W
Storage Temperature	-65°C to +150°C

**THERMAL DATA**

QP package:

Thermal Resistance Junction to Leads, $\theta_{JL}$	15°C/W
Thermal Resistance Junction to Ambient, $\theta_{JA}$	50°C/W
Thermal Resistance Junction to C <sub>OSC</sub> , $\theta_{JC}$	30°C/W

**CONNECTION DIAGRAM**

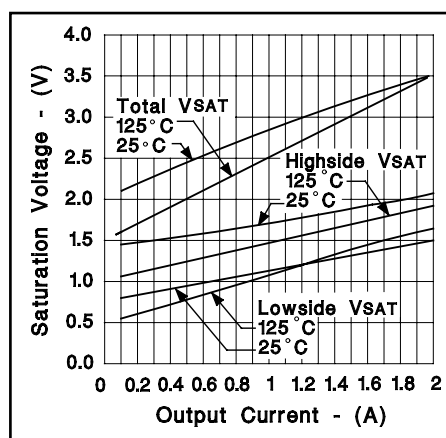


**ELECTRICAL CHARACTERISTICS:** Unless otherwise stated, specifications hold for T<sub>A</sub> = 0 to 70°C, +V<sub>IN</sub> = 12V, T<sub>A</sub> = T<sub>J</sub>.

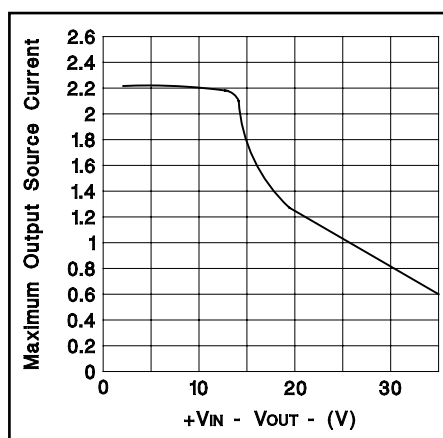
PARAMETER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
<b>Input Supply</b>					
Supply Current	+V <sub>IN</sub> = 12V		18	25	mA
	+V <sub>IN</sub> = 35V		21	30	mA
UVOL Threshold	+V <sub>IN</sub> low to high		2.8	3.0	V
	Threshold Hysteresis		220	300	mV
<b>Power, Amplifier, A and B</b>					
Input Offset Voltage	V <sub>CM</sub> = 6V, V <sub>OUT</sub> = 6V			8	mV
Input Bias Current	V <sub>CM</sub> = 6V, Except A+ Input	-500	-100		nA
Input Bias Current at A+/Reference Input	(A+/REF - B <sub>SINK</sub> ) / 36kΩ; T <sub>J</sub> = 25°C	23	28	35	μA/V
Input Offset Current B Amp (UC3176 Only)	V <sub>CM</sub> = 6V			200	nA
CMRR	V <sub>CM</sub> = 1 to 33V, +V <sub>IN</sub> = 35V, V <sub>OUT</sub> = 6V	70	100		dB
PSRR	+V <sub>IN</sub> = 5 to 35V, V <sub>CM</sub> = 2.5V	70	100		dB
Large Signal Voltage Gain	V <sub>OUT</sub> = 3V, w/I <sub>OUT</sub> = 1A to V <sub>OUT</sub> = 9V, w/I <sub>OUT</sub> = -1A	1.5	4		V/mV
Thermal Feedback	+V <sub>IN</sub> = 20V, Pd = 20W at opposite output		25	200	μV/W
Saturation Voltage	I <sub>OUT</sub> = -2A, High Side, T <sub>J</sub> = 25°		1.9		V
	C <sub>I</sub> <sub>OUT</sub> = 2A, Low Side, T <sub>J</sub> = 25°C		1.6		V
	Total V <sub>SAT</sub> at 2A, T <sub>J</sub> = 25°C		3.5	3.7	V
Unity Gain Bandwidth			1		MHz
Slew Rate			1		V/μs
Differential I <sub>OUT</sub> Sense Error Current in Bridge Configuration	I <sub>OUT(A)</sub> = -I <sub>OUT(B)</sub> , /I <sub>OUT</sub> / - /A <sub>SINK</sub> - B <sub>SINK</sub> /				
	I <sub>OUT</sub> ≤ 200mA		3.0	6.0	mA
	I <sub>OUT</sub> ≤ 2A		5.0	10	mA
High Side Current Limiting	=V <sub>IN</sub> - V <sub>OUT</sub> < 12V		-2.7	-2.0	A

**ELECTRICAL CHARACTERISTICS:** Unless otherwise stated, specifications hold for  $T_A = 0$  to  $70^\circ\text{C}$ ,  $+V_{IN} = 12\text{V}$ ,  $T_A = T_J$ .

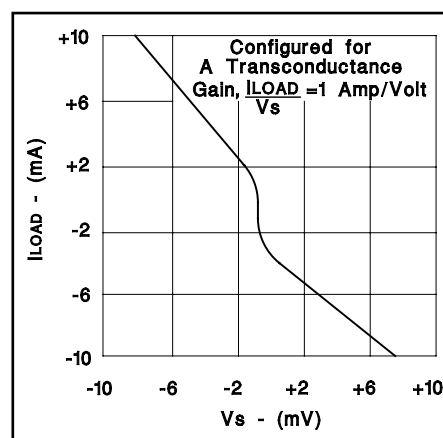
PARAMETER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
<b>Current Sense Amplifier</b>					
Input Offset Voltage	$V_{CM} = 0\text{V}$ , A+ / REF at 6V			3	mV
	REF = 2V to 20V, $+V_{IN} = 35$ , change with REF Input voltage			600	$\mu\text{V/V}$
Thermal Gradient Sensitivity	$+V_{IN} = 20\text{V}$ , REF = 10V Pd = 20W @ A or B Output		5.0	75.0	$\mu\text{V/W}$
PSRR	REF = 2.5V, $+V_{IN} = 5$ to 35V	70	100		dB
Gain	$ A_{SINK-B} _{SINK} / \leq 0.5\text{V}$	7.8	8.0	8.1	V/V
Slew Rate			2		$\text{V}/\mu\text{S}$
3dB Bandwidth			1		MHz
MAX Output Current	$I_{SOURCE} = +V_{IN} - V_{OUT} = 0.5\text{V}$	2.5	3.5		mA
Output Saturation Voltage	$I_{SOURCE} = 1.5\text{mA}$ , High Side		0.15	0.30	V
	$I_{SINK} = 5\text{mA}$ , Low Side		1.4	1.7	V
<b>Under-Voltage Comparator</b>					
Threshold Voltage	Low to High, other input at 5V	1.44	1.50	1.56	V
	Threshold Hysteresis	50	70	80	mV
Input Current	Input = 2V, other input at 5V	-2.00	-0.05		$\mu\text{A}$
Supply OK $V_{SAT}$ (UC3177 Only)	$I_{OUT} = 5\text{mA}$			0.45	V
Supply OK Leakage (UC3177 Only)	$V_{OUT} = 35\text{V}$			5	$\mu\text{A}$
<b>Park/Inhibit</b>					
Park/Inhibit Th'l'd		1.1	1.3	1.7	V
Park/Inhibit Input Current	At threshold		60	100	$\mu\text{A}$
Parking Drive Saturation Voltage	$I_{OUT} = 100\text{mA}$		0.3	0.7	V
Parking Drive Leakage	$V_{OUT} = 35\text{V}$			15	$\mu\text{A}$
<b>Thermal Shutdown</b>					
Shutdown Temperature			165		$^\circ\text{C}$



Output saturation voltage vs. current.



Maximum source current vs.  $+V_{IN} - V_{OUT}$ .



Crossover current error characteristic.



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