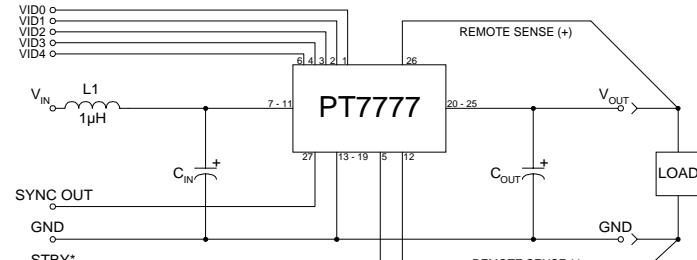
**Standard Application****PROGRAMMING PINS**VID0  
VID1  
VID2  
VID3  
VID4

$C_{in}$  = Required 2400 $\mu$ F electrolytic  
 $C_{out}$  = Required 680 $\mu$ F electrolytic  
 L1 = Optional 1uH input choke

**Specifications**

<b>Characteristics</b> ( $T_a = 25^\circ C$ unless noted)	<b>Symbols</b>	<b>Conditions</b>	<b>PT7777 SERIES</b>			
			<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>
Output Current	$I_o$	$T_a = +60^\circ C$ , 200 LFM, pkg N $T_a = +25^\circ C$ , natural convection	0.1 <sup>(1)</sup>	—	3.2	A
Input Voltage Range	$V_{in}$	$0.1A \leq I_o \leq 32A$	4.5 <sup>(2)</sup>	—	5.5	V
Output Voltage Tolerance	$\Delta V_o$	$V_{in} = +5V, I_o = 32A$ $0^\circ C \leq T_a \leq +55^\circ C$	$V_o - 0.03$	—	$V_o + 0.03$	V
Line Regulation	$Reg_{line}$	$4.5V \leq V_{in} \leq 5.5V, I_o = 32A$	—	$\pm 10$	—	mV
Load Regulation	$Reg_{load}$	$V_{in} = +5V, 0.1 \leq I_o \leq 32A$	—	$\pm 10$	—	mV
$V_o$ Ripple/Noise pk-pk	$V_n$	$V_{in} = +5V, I_o = 32A$	—	50	—	mV
Transient Response with $C_{out} = 680\mu F$	$t_{tr}$ $V_{os}$	$I_o$ step between 1.6A and 32A $V_o$ over/undershoot	—	100	—	$\mu$ Sec mV
Efficiency	$\eta$	$V_{in} = +5V, I_o = 20A, V_o = 3.3V$	—	90	—	%
Switching Frequency	$f_o$	$4.5V \leq V_{in} \leq 5.5V$ $0.1A \leq I_o \leq 32A$	650	700	750	kHz
Absolute Maximum Operating Temperature Range	$T_a$	—	0	—	+85	$^\circ C$
Recommended Operating Temperature Range	$T_a$	Forced Air Flow = 200 LFM Over $V_{in}$ and $I_o$ Ranges	0	—	+65	$^\circ C$
Storage Temperature	$T_s$	—	-40	—	+125	$^\circ C$
Weight	—	Vertical/Horizontal	—	53/66	—	grams

(1) ISR-will operate down to no load with reduced specifications. Please note that this product is not short-circuit protected.

(2) The minimum input voltage is 4.5V or  $V_{out} + 1.2V$ , whichever is greater.

**Output Capacitors:** The PT7777 series requires a minimum output capacitance of 680 $\mu$ F for proper operation. Do not use Oscon type capacitors. The maximum allowable output capacitance is 30,000 $\mu$ F.

**Input Filter:** An input filter is optional for most applications. The input inductor must be sized to handle 32ADC with a typical value of 1uH. The input capacitance must be rated for a minimum of 2.6Arms of ripple current. For transient or dynamic load applications, additional capacitance may be required.

can be easily programmed from 1.3V to 3.5V with a 5 bit input compatible with Intel's Pentium® Pro Processor. A differential remote sense is also provided which automatically compensates for any voltage drop from the ISR to the load.

680 $\mu$ F of output capacitance is required for proper operation.

**Pin-Out Information**

<b>Pin</b>	<b>Function</b>	<b>Pin</b>	<b>Function</b>
1	VID0	14	GND
2	VID1	15	GND
3	VID2	16	GND
4	VID3	17	GND
5	STBY* - Stand-by	18	GND
6	VID4	19	GND
7	$V_{in}$	20	$V_{out}$
8	$V_{in}$	21	$V_{out}$
9	$V_{in}$	22	$V_{out}$
10	$V_{in}$	23	$V_{out}$
11	$V_{in}$	24	$V_{out}$
12	Remote Sense Gnd	25	$V_{out}$
13	GND	26	Remote Sense $V_{out}$
27	Sync Out		

For STBY\* pin; open = output enabled;  
 ground = output disabled.

**Features**

- +5V input
- 5-bit Programmable: 1.3V to 3.5V@32A
- High Efficiency
- Input Voltage Range: 4.5V to 5.5V
- Differential Remote Sense
- 27-pin SIP Package

**Programming Information**

VID3	VID2	VID1	VID0	VID4=1 Vout	VID4=0 Vout
1	1	1	1	2.0V	1.30V
1	1	1	0	2.1V	1.35V
1	1	0	1	2.2V	1.40V
1	1	0	0	2.3V	1.45V
1	0	1	1	2.4V	1.50V
1	0	1	0	2.5V	1.55V
1	0	0	1	2.6V	1.60V
1	0	0	0	2.7V	1.65V
0	1	1	1	2.8V	1.70V
0	1	1	0	2.9V	1.75V
0	1	0	1	3.0V	1.80V
0	1	0	0	3.1V	1.85V
0	0	1	1	3.2V	1.90V
0	0	1	0	3.3V	1.95V
0	0	0	1	3.4V	2.00V
0	0	0	0	3.5V	2.05V

Logic 0 = Pin 12 potential (remote sense grid)  
 Logic 1 = Open circuit (no pull-up resistors)  
 VID3 and VID4 may not be changed while the unit is operating.

**Ordering Information**

PT7777□ = 1.3 to 3.5 Volts

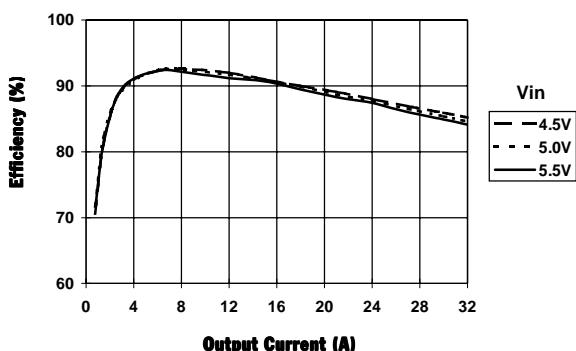
For dimensions and PC board layout, see Package Style 1020 and 1030

**PT Series Suffix (PT1234X)****Case/Pin Configuration**

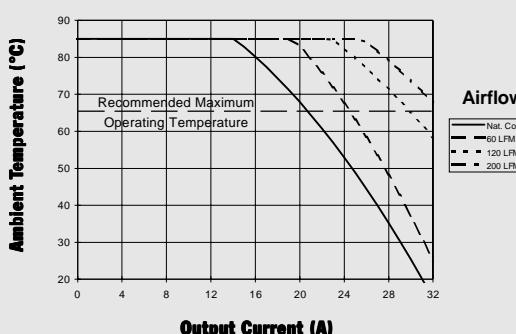
Vertical Through-Hole	<b>N</b>
Horizontal Through-Hole	<b>A</b>
Horizontal Surface Mount	<b>C</b>

**CHARACTERISTIC DATA**

Efficiency vs Output Current (@Vout=+3.3V)

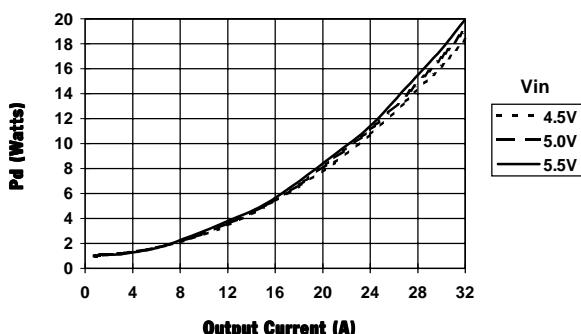


Safe Operating Area (@Vin=+5V, Vout=+3.3V, Pkg N)

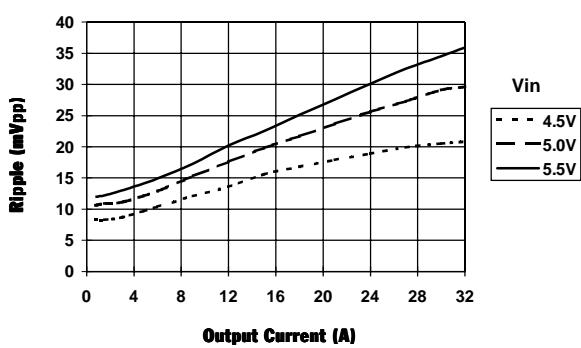


Note: SOA curves represent operating conditions at which internal components are at or below manufacturer's maximum rated operating temperatures.

Power Dissipation vs Output Current (@Vout=+3.3V)



Output Ripple vs Output Current (@Vout=+3.3V)



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