

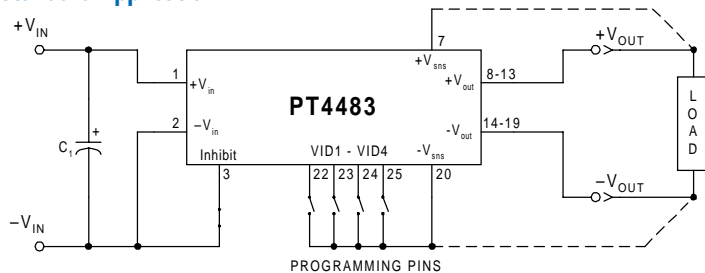
Patent pending on package assembly

- 36V to 75V Input Range
- Programmable Output Voltage Range: 4.6V to 5.7V
- -40° to +100°C Operating Temp
- 1500 VDC Isolation
- 90% Efficiency
- Remote On/Off
- Differential Remote Sense
- N+1 Current Sharing
- Over-Current Protection
- Over-Temperature Protection
- Over-Voltage Protection
- Solderable Copper Case

The PT4483 Excalibur™ module combines state-of-the-art power conversion technology with un-paralleled flexibility. Operating off a standard 48V telecom input, the PT4483 provides a full 100W output at load currents up to 20A, and over the programmable output voltage range of 4.6V to 5.7V.

The PT4483 features high efficiency, ultra-fast transient response, and the capability for true N+1 current sharing. This product also includes output short circuit and over-temperature protection.

Standard Application



- C1 = Optional 33µF, 100V electrolytic capacitor
- For normal operation, pin 3 (Inhibit) must be connected to -Vin.
- Programming pins, VID1–VID4, are shown configured for $V_o = 5.0V$
- For operation in N+1 configuration, consult the related application note.
- Pins 6 & 26 are used for N+1 configurations only

Specifications

Characteristics ($T_a = 25^\circ\text{C}$ unless noted)	Symbols	Conditions ($V_{in} = 48V$, $V_o = 5.0V$ unless noted)	PT4483			
			Min	Typ	Max	Units
Output Current	I_o	Over V_{in} range	0	—	20	A
Current Limit	I_{cl}	$V_{in} = 36V$	—	25	—	A
Current Sharing		Single line referenced to $-V_{sense}$	—	—	± 10	%
Input Voltage Range	V_{in}	$I_o = 0$ to max I_o	36	48	75	V
Output Voltage Tolerance	ΔV_o	Over V_{in} Range $T_A = -40$ to $+100^\circ\text{C}$ Baseplate	—	± 1.0	± 2.0	% V_o
Line Regulation	Reg_{line}	Over V_{in} range @ max I_o	—	± 0.1	± 1.0	% V_o
Load Regulation	Reg_{load}	0 to 100% of I_o max	—	± 0.5	± 1.0	% V_o
V_o Ripple/Noise	V_n	$I_o = 20A$	—	60	75	mV _{pp}
Transient Response	t_{tr}	50% to 75% I_o max @ 0.1A/µs V_o over/undershoot (no ext caps)	—	N/A	—	µSec
		50% to 100% I_o max @ 1.0A/µs V_o over/undershoot (no ext. caps)	—	75	—	% V_o
V_o Rise Time	V_{orr}	At turn-on	—	—	10	mSec
Efficiency	η	$I_o = 20A$	89	90.5	—	%
Switching Frequency	f_o	Over V_{in} and I_o range	270	300	330	kHz
Remote On/Off	Off On	Open or 2.5 to 5.1 VDC above $-V_{in}$ Short or 0 to 0.8 VDC above $-V_{in}$				
Over-Voltage Protection	OVP	Shutdown and latch off	—	125	—	% V_o
Isolation	—	—	1500	—	—	VDC
Maximum Operating Temperature Range	T_c	Measured at center of case	-40	—	+100	$^\circ\text{C}$
Over-Temperature Shutdown Point	OTP	Case temperature - Auto reset	100	+110	120	$^\circ\text{C}$
Reliability	MTBF	Per Bellcore TR-332 50% stress, $t = 40^\circ\text{C}$, ground benign	1.4	—	—	10^6 Hrs
Mechanical Shock	—	Per Mil-STD-883D, Method 2002.3, 1mS, Half-sine, mounted to a fixture	—	500	—	G's
Mechanical Vibration (Suffixes A, C)	—	Per Mil-STD-883D, Method 2007.2, 20-2000Hz, Soldered in a PC board	—	20	—	G's
Weight	—	—	—	90	—	grams

PT4483—48V

100 Watt 5V 20 Amp Programmable Isolated DC-DC Converter

Pin-Out Information

Pin	Function	Pin	Function
1	+V _{in}	14	-V _{out}
2	-V _{in}	15	-V _{out}
3	Inhibit	16	-V _{out}
4	Do not connect	17	-V _{out}
5	Do not connect	18	-V _{out}
6	Sync	19	-V _{out}
7	+V _{sense}	20	-V _{sense}
8	+V _{out}	21	N/C
9	+V _{out}	22	VID1
10	+V _{out}	23	VID2
11	+V _{out}	24	VID3
12	+V _{out}	25	VID4
13	+V _{out}	26	Share

Programming Information

VID3	VID2	VID1	VID4=1 Vout	VID4=0 Vout
1	1	1	5.0V	4.60V
1	1	0	5.1V	4.65V
1	0	1	5.2V	4.70V
1	0	0	5.3V	4.75V
0	1	1	5.4V	4.80V
0	1	0	5.5V	4.85V
0	0	1	5.6V	4.90V
0	0	0	5.7V	4.95V

Logic 0 = Pin 20 potential (remote sense gnd)
Logic 1 = Open circuit (no pull-up resistors)
VID4 may not be changed while the unit is operating.

Ordering Information

PT4483□ = 4.6 to 5.7 Volts
(For dimensions and PC board layout, see Package Styles 1200, 1210 and 1215.)

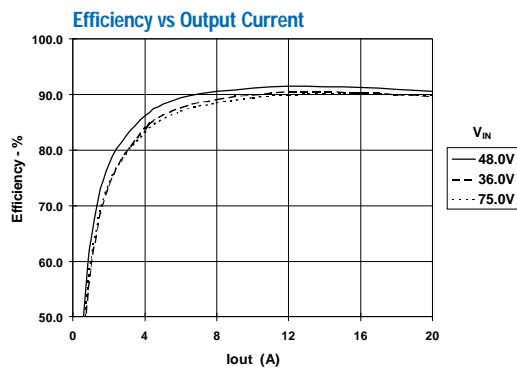
PT Series Suffix (PT1234X)

Case/Pin Configuration

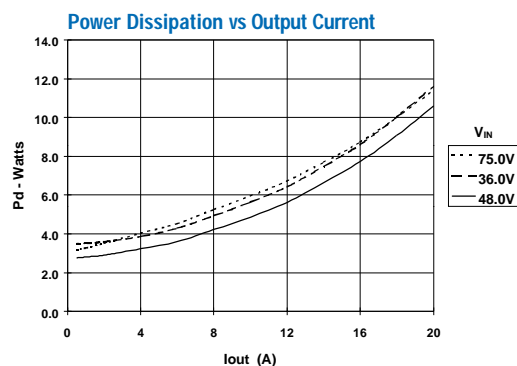
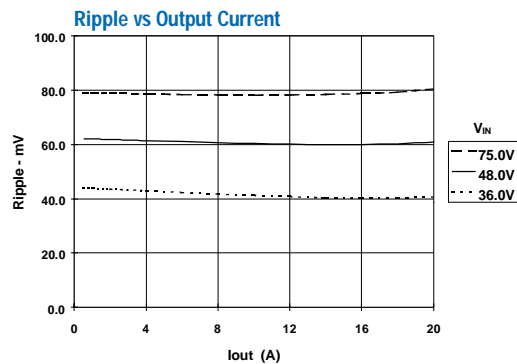
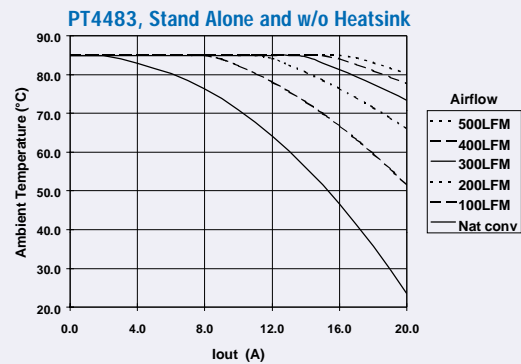
Vertical Through-Hole	N
Horizontal Through-Hole	A
Horizontal Surface Mount	C

TYPICAL CHARACTERISTICS

PT4483, V_o = 5.0V (See Note A)

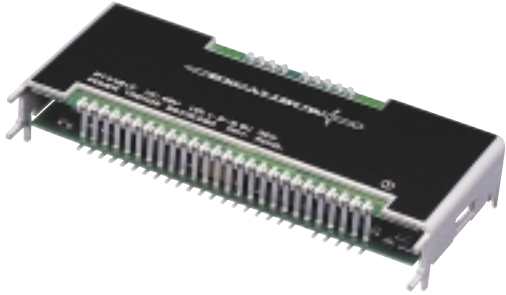


Safe Operating Area, V_{in} = 48V, V_o = 5.0V (See Note B)



Note A: All data listed in the above graphs has been developed from actual products tested at 25°C. This data is considered typical data for the DC-DC Converter.

Note B: SOA curves represent operating conditions at which the temperature of the metal case is at or below the maximum specified 100°C



Patent pending on package assembly

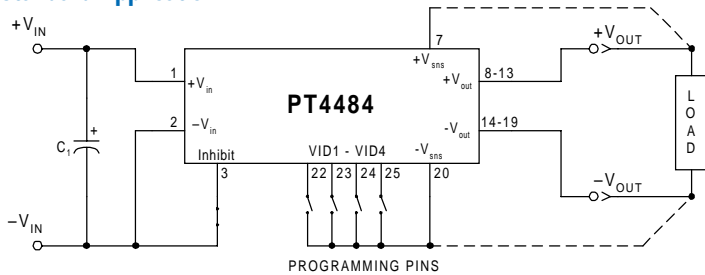
- Input Range: 36V to 75V
- Programmable Output Voltage Range: 4.6V to 5.7V
- Temp Range: -40° to +100°C
- 1500 VDC Isolation
- 90% Efficiency
- Remote On/Off
- Differential Remote Sense
- 40A Output with PT4498
- Over-Current Protection
- Over-Temperature Protection
- Over-Voltage Protection
- Solderable Copper Case

The PT4484 Excalibur™ module combines state-of-the-art power conversion technology with un-paralleled flexibility. Operating off a standard 48V telecom input, the PT4484 provides a full 100W output at load currents up to 20A, and over the programmable output voltage range of 4.6V to 5.7V.

The output may be increased to 40A when used with the compatible PT4498 booster module.

The PT4484 features high efficiencies, ultra-fast transient response, and output short circuit and over-temperature protection.

Standard Application



- C₁ = Optional 33μF, 100V electrolytic capacitor
- For normal operation, pin 3 (Inhibit) must be connected to -V_{in}.
- Programming pins, VID1-VID4, are shown configured for V_o = 5.0V
- For operation with a current booster, consult the PT4498 data sheet.
- Pins 4, 5, & 26 are used for booster applications only

Specifications

Characteristics (T _a =25°C unless noted)	Symbols	Conditions (V _{in} =48V, V _o =5.0V unless noted)	PT4484			
			Min	Typ	Max	Units
Output Current	I _o	Over V _{in} range	0	—	20	A
Current Limit	I _{cl}	V _{in} = 36V	—	25	—	A
Current Sharing		with PT4498 current booster	—	±10	—	%
Input Voltage Range	V _{in}	I _o = 0 to max I _o	36	48	75	V
Output Voltage Tolerance	ΔV _o	Over V _{in} Range T _A = -40 to +100°C Baseplate	—	±1.0	±2.0	%V _o
Line Regulation	Reg _{line}	Over V _{in} range @ max I _o	—	±0.1	±1.0	%V _o
Load Regulation	Reg _{load}	0 to 100% of I _o max	—	±0.5	±1.0	%V _o
V _o Ripple/Noise	V _n	I _o =20A	—	60	75	mV _{pp}
Transient Response	t _{tr}	50% to 75% I _o max @ 0.1A/μs V _o over/undershoot (no ext caps)	—	N/A	—	μSec
		50% to 100% I _o max @ 1.0A/μs V _o over/undershoot (no ext. caps)	—	75	—	%V _o
			—	6	—	μSec
V _o Rise Time	V _{otr}	At turn-on	—	—	10	mSec
Efficiency	η	I _o =20A	89	90.5	—	%
Switching Frequency	f _o	Over V _{in} and I _o range	270	300	330	kHz
Remote On/Off	Off On	Open or 2.5 to 5.1 VDC above -V _{in} Short or 0 to 0.8 VDC above -V _{in}				
Over-Voltage Protection	OVP	Shutdown and latch off	—	125	—	%V _o
Isolation	—	—	1500	—	—	VDC
Maximum Operating Temperature Range	T _c	Measured at center of case	-40	—	+100	°C
Over-Temperature Shutdown Point	OTP	Case temperature - Auto reset	100	110	120	°C
Reliability	MTBF	Per Bellcore TR-332 50% stress, t = 40°C, ground benign	1.4	—	—	10 ⁶ Hrs
Mechanical Shock	—	Per Mil-STD-883D, Method 2002.3, 1mS, Half-sine, mounted to a fixture	—	500	—	G's
Mechanical Vibration (Suffixes A, C)	—	Per Mil-STD-883D, Method 2007.2, 20-2000Hz, Soldered in a PC board	—	20	—	G's
Weight	—	—	—	90	—	grams

PT4484—48V

100 Watt 5V 20A Programmable
Isolated DC-DC Converter

Pin-Out Information

Pin	Function	Pin	Function
1	+V _{in}	14	-V _{out}
2	-V _{in}	15	-V _{out}
3	Inhibit	16	-V _{out}
4	V _r	17	-V _{out}
5	V _a	18	-V _{out}
6	Not used	19	-V _{out}
7	+V _{sense}	20	-V _{sense}
8	+V _{out}	21	N/C
9	+V _{out}	22	VID1
10	+V _{out}	23	VID2
11	+V _{out}	24	VID3
12	+V _{out}	25	VID4
13	+V _{out}	26	DRV

Programming Information

VID3	VID2	VID1	VID4=1 Vout	VID4=0 Vout
1	1	1	5.0V	4.60V
1	1	0	5.1V	4.65V
1	0	1	5.2V	4.70V
1	0	0	5.3V	4.75V
0	1	1	5.4V	4.80V
0	1	0	5.5V	4.85V
0	0	1	5.6V	4.90V
0	0	0	5.7V	4.95V

Logic 0 = Pin 20 potential (remote sense gnd)
Logic 1 = Open circuit (no pull-up resistors)
VID4 may not be changed while the unit is operating.

Ordering Information

PT4484□ = 4.6 to 5.7 Volts
(For dimensions and PC board layout, see
Package Styles 1200, 1210 and 1215.)

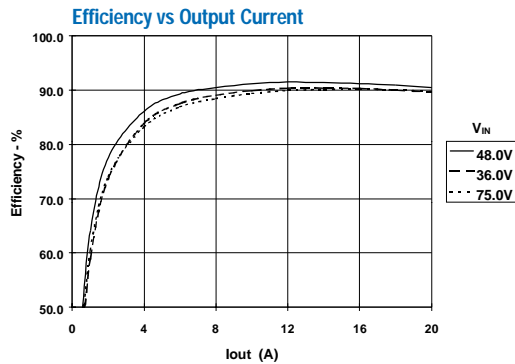
PT Series Suffix (PT1234X)

Case/Pin Configuration

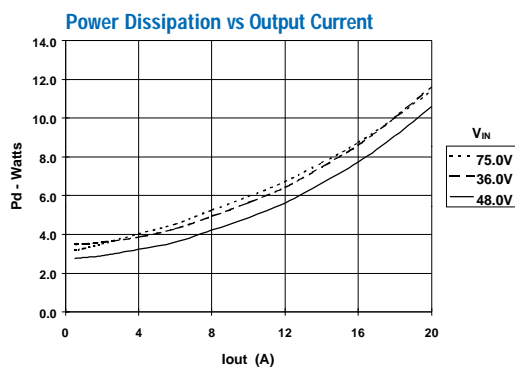
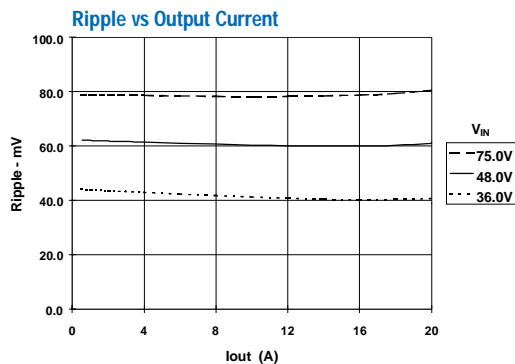
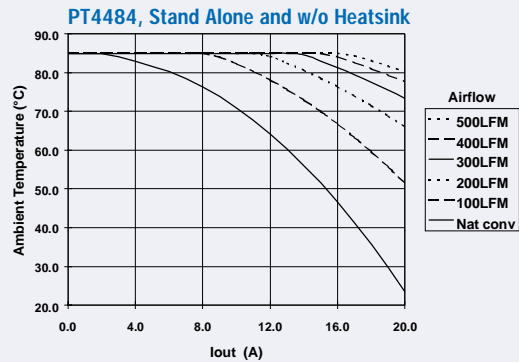
Vertical Through-Hole	N
Horizontal Through-Hole	A
Horizontal Surface Mount	C

TYPICAL CHARACTERISTICS

PT4484, V_o = 5.0V (See Note A)

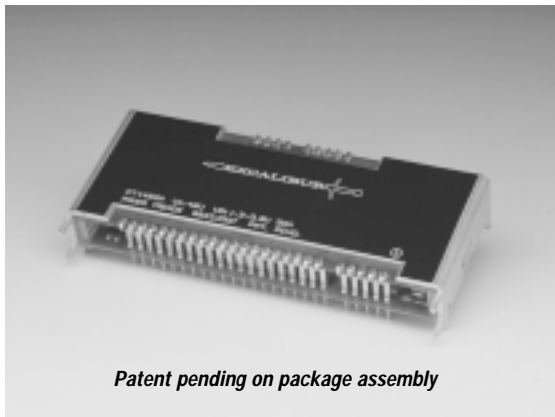


Safe Operating Area, V_{in} = 48V, V_o = 5.0V (See Note B)



Note A: All data listed in the above graphs has been developed from actual products tested at 25°C. This data is considered typical data for the DC-DC Converter.

Note B: SOA curves represent operating conditions at which the temperature of the metal case is at or below the maximum specified 100°C



Patent pending on package assembly

- 20A Current Boost (Boosts PT4484 to 40A)
- Tracks V_{out} of PT4484
- Synchronized Operation
- High Efficiency
- Input Voltage: 36V to 75V
- 26-pin Copper Case Package

The PT4498 is a new high-performance 20A "Current Booster" for use with the PT4484 Excalibur™ DC/DC converter. The PT4498 adds a parallel output stage to the PT4484, allowing both to operate in perfect synchronization.

The PT4498 only operates with a PT4484 and is not a stand-alone product. Refer the PT4484 data sheet for the performance specifications. The booster uses the same 26-pin case and has the package options as the companion regulator.

PT Series Suffix (PT1234X)

Case/Pin Configuration	
Vertical Through-Hole	N
Horizontal Through-Hole	A
Horizontal Surface Mount	C

Ordering Information

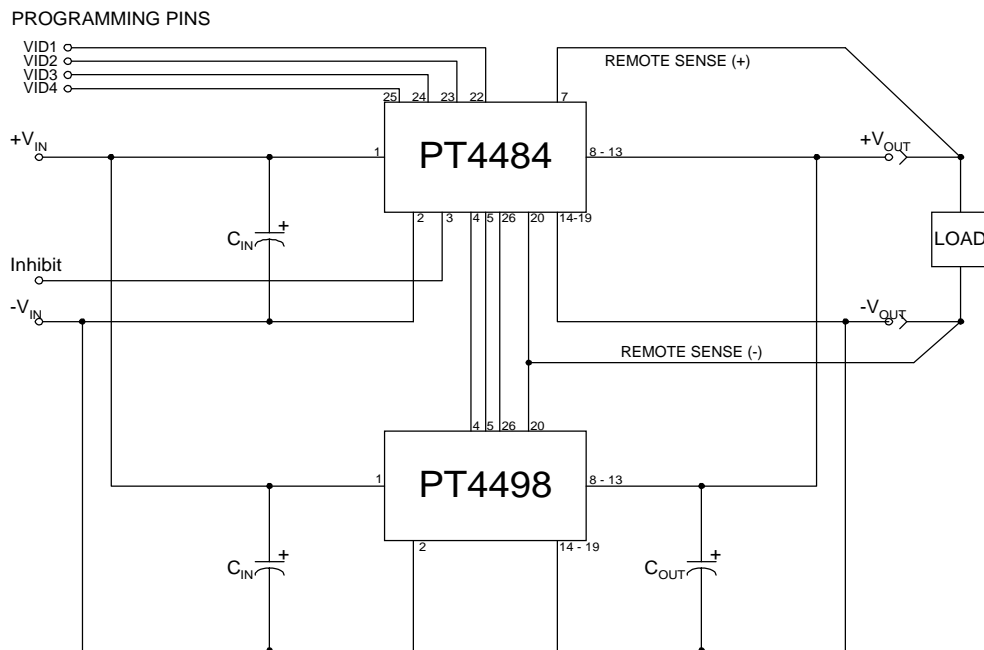
PT4498□

(For dimensions and PC Board layout, see Package Styles 1200, 1210 and 1215.)

Pin-Out Information

Pin	Function	Pin	Function	Pin	Function
1	$+V_{in}$	10	$+V_{out}$	19	$-V_{out}$
2	$-V_{in}$	11	$+V_{out}$	20	$-V_{sense}$
3	N/C	12	$+V_{out}$	21	N/C
4	V_r	13	$+V_{out}$	22	N/C
5	V_a	14	$-V_{out}$	23	N/C
6	N/C	15	$-V_{out}$	24	N/C
7	N/C	16	$-V_{out}$	25	N/C
8	$+V_{out}$	17	$-V_{out}$	26	DRV
9	$+V_{out}$	18	$-V_{out}$		

Standard Application



Input Capacitors: Although not necessary for stable operation, C_{in} will reduce input ripple. $C_{in} = 33\mu F$ is suggested.

Output Capacitors: A minimum of $330\mu F$ per PT4498 booster module is required for proper operation. Increasing C_{out} will reduce transients due to large and/or fast load steps.