

Series 3694

12-20 WATT HYBRID POINT OF LOAD DC-DC REGULATORS FOR CUBESATS AND MINIATURIZED SATELLITES



4.6 — 16 VDC Input

**Proton Rad Hard 100k+®
Technology**

Features

- Rad Hard: TID > 100kRad(Si)
- 2:1 margin: Operates beyond 200kRad TID
- No SEE:LET > 82MeV*cm²/mg
- Proton Resistant: No optocouplers used
- Synchronous rectification for high efficiency
- Non-isolated for intermediate bus applications
- Adjustable output voltage trim
- Thick Film Hybrid DC-DC Regulator
- "Inhibit-not" function
- 200kHz operation
- Sync input 1:1, 195-210 kHz
- Full hermetic package
- Remote Sense

Specifications

INPUT: 12 VDC nominal

Range: 4.6 to 16 VDC continuous

ISOLATION:

Input-Output: Non-Isolated

Input and Output to case: 100 VDC

OUTPUT:

External capacitance recommended for specified performance

ENVIRONMENT:

Storage temperature: -55°C to +150°C

Shock: 50 G's

Acceleration: 500 G's

Vibration: 30 G's

Grades EU, R & S:

Full Output Power at T_{case} = +85°C

Linearly derates to zero at
T_{case} = +115°C

Grades RE & SE:

Full Power Output at T_{case} = +125°C

Linearly derates to zero at
T_{case} = +135°C

WEIGHT: 50 grams typical

SERIES 3694

POSITIVE OUTPUT CONVERTERS		3694-P01 (12W)			3694-P01.2 (14W)			3694-P01.5 (18W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	(Trim Range)	+0.95	+1.0	+1.05	+1.15	+1.2	+1.25	+1.4	+1.5	+1.6
Output current	V _{in min} — V _{in max}	—	—	12A	—	—	12A	—	—	12A
Efficiency	P _{out} = max rated load	—	78%	—	—	81%	—	—	81%	—
Line regulation	P _{out} = max rated load V _{in min} — V _{in max}	—	10mV	30mV	—	10mV	30mV	—	10mV	30mV
Load regulation	P _{out} = 10% to F.L.	—	10mV	30mV	—	10mV	30mV	—	10mV	30mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	20	—	—	20	—	—	20	—
External Output Cap	(μF)	1000	—	4000	1000	—	4000	1000	—	4000
POSITIVE OUTPUT CONVERTERS		3694-P01.8 (20W)			3694-P02.0 (20W)			3694-P02.5 (20W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	(Trim Range)	+1.7	+1.8	+1.9	+1.9	+2.0	+2.1	+2.4	+2.5	+2.6
Output current	V _{in min} — V _{in max}	—	—	11A	—	—	10A	—	—	8A
Efficiency	P _{out} = max rated load	—	82%	—	—	83%	—	—	84%	—
Line regulation	P _{out} = max rated load V _{in min} — V _{in max}	—	10mV	50mV	—	10mV	50mV	—	20mV	100mV
Load regulation	P _{out} = 10% to F.L.	—	10mV	50mV	—	10mV	50mV	—	20mV	100mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	20	—	—	20	—	—	25	—
External Output Cap	(μF)	1000	—	4000	1000	—	4000	1000	—	4000
POSITIVE OUTPUT CONVERTERS		3694-P03.3 (20W)			3694-P05 (20W)*					
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX			
Output voltage	(Trim Range)	+3.2	+3.3	+3.4	+4.9	+5.0	+5.1			
Output current	V _{in min} — V _{in max}	—	—	6A	—	—	4A			
Efficiency	P _{out} = max rated load	—	89%	—	—	90%	—			
Line regulation	P _{out} = max rated load V _{in min} — V _{in max}	—	25mV	125mV	—	25mV	125mV			
Load regulation	P _{out} = 10% to F.L.	—	25mV	125mV	—	25mV	125mV			
Output ripple	F.L. BW 2 MHz mV _{pp}	—	30	—	—	30	—			
External Output Cap	(μF)	1000	—	4000	1000	—	4000			
* 3694-P05 requires 7 V min input for line regulation specified										
Model No.	Case Style	Pin Count	Mounting							
3694 UF	8	12	Seam Weld Chassis Mount with Flange							

Pin Outs

Pin 1 Positive Input	Pin 7 V ref
Pin 2 Positive Input	Pin 8 Adjust
Pin 3 Input/Output Common	Pin 9 I out
Pin 4 Output	Pin 10 Sync Input
Pin 5 Output	Pin 11 Remote Sense+
Pin 6 Case Ground	Pin 12 Inhibit

Case Dimensions

Units: inches | millimeters

Case Style	UF
A	2.160 54.864
B	1.510 38.354
C	0.495 12.573
D	— —
E	1.600 40.640
F	2.890 73.406
G	2.550 64.770

CASE STYLE 8

