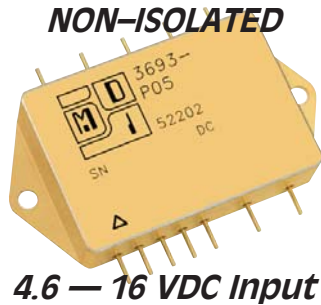


Series 3693

6 — 15 WATT HYBRID

FOR CUBESATS AND MINIATURIZED SATELLITES



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
- 100kHz operation
- Sync input 1:1, 95-105 kHz
- Full hermetic package, solder seal and seam welded; PC and Chassis mount options

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

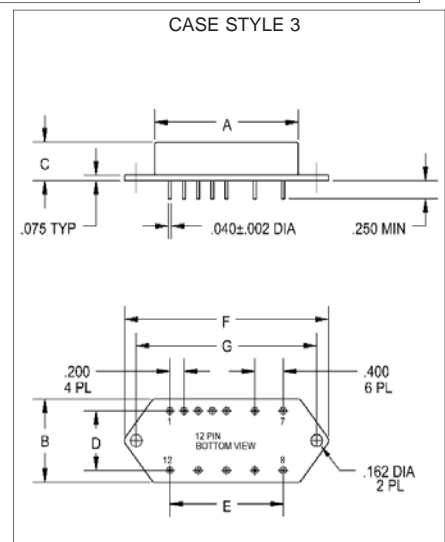
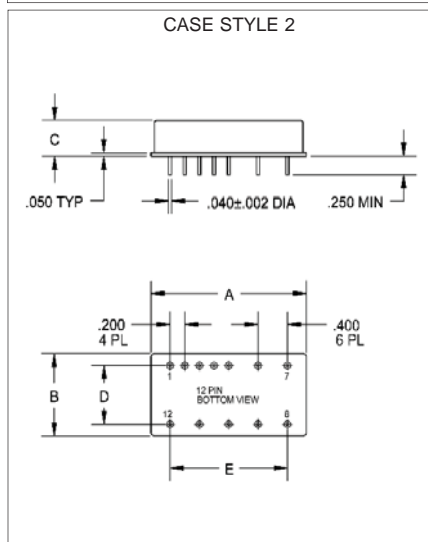
WEIGHT: 50 grams typical

SERIES 3693

POSITIVE OUTPUT CONVERTERS		3693-P01 (6W)			3693-P01.2 (7.2W)			3693-P01.5 (9W)		
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}	—	—	6A	—	—	6A	—	—	6A
Efficiency	P _{out} = max rated load	—	75%	—	—	78%	—	—	78%	—
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		3693-P01.8 (10.8W)			3693-P02.0 (12W)			3693-P02.5 (15W)		
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}	—	—	6A	—	—	6A	—	—	6A
Efficiency	P _{out} = max rated load	—	80%	—	—	82%	—	—	85%	—
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		3693-P03.3 (15W)			3693-P05 (15W)*					
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}	—	—	4.5A	—	—	3A			
Efficiency	P _{out} = max rated load	—	90%	—	—	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			

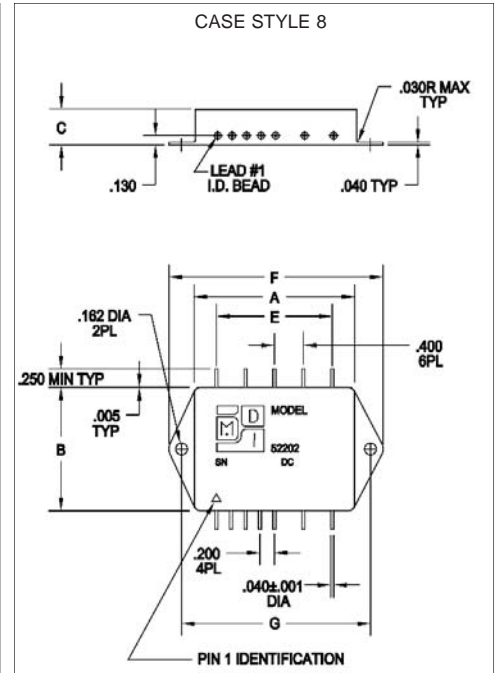
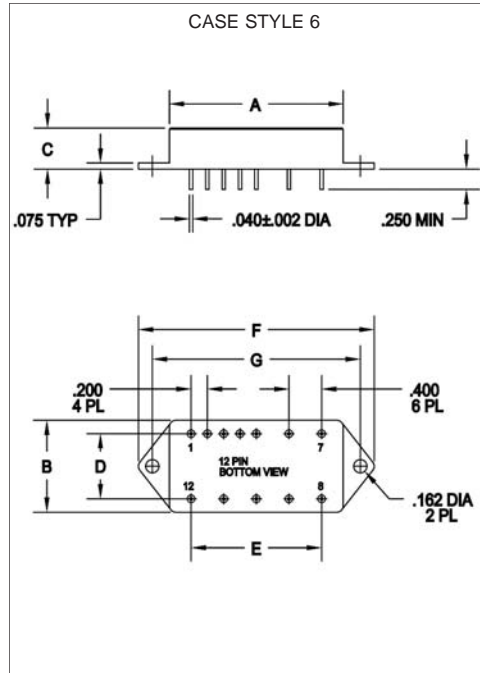
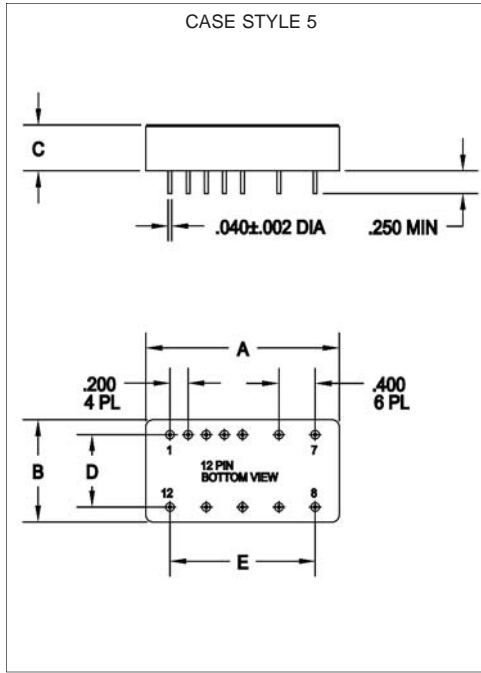
* 3693-P05 requires 7 V min input for line regulation specified

Model No.	Case Style	Pin Count	Mounting
3693	2	12	Solder Sealed Flangeless PCB Mount
3693 F	3	12	Solder Sealed PCB Mount with Flange
3693 G	5	12	Seam Weld Flangeless PCB Mount
3693 GF	6	12	Seam Weld PCB Mount with Flange
3693 UF	8	12	Seam Weld Chassis Mount with Flange



POINT OF LOAD DC-DC REGULATORS **3693**

PROTON RAD HARD 100K+[®] TECHNOLOGY



Case Dimensions

Units: inches | millimeters

Case Style	A	B	C	D	E	F	G
2	2.130 54.102	1.120 28.448	0.375 9.525	0.800 20.320	1.600 40.640	— —	— —
3 F	2.130 54.102	1.120 28.448	0.375 9.525	0.800 20.320	1.600 40.640	2.890 73.406	2.550 64.770
5 G	2.130 54.102	1.120 28.448	0.375 9.525	0.800 20.320	1.600 40.640	— —	— —
6 GF	2.130 54.102	1.120 28.448	0.375 9.525	0.800 20.320	1.600 40.640	2.890 73.406	2.550 64.770
8 UF	2.160 54.864	1.510 38.354	0.495 12.573	— —	1.600 40.640	2.890 73.406	2.550 64.770

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 BIT
Pin 6 Case Ground	Pin 12 Inhibit-Not

Specifications subject to change.

GRADE LEVELS:

Please specify GRADE LEVEL for your application. EU grade units will be shipped if no option is specified.



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EU Engineering Units
 R 100 K+™, +85°C military/aerospace
 RE 100 K+™, +125°C military/aerospace
 S 100 K+™, +85°C space
 SE 100 K+™, +125°C space