

7.5-20 Watt Hybrid

Features

- Completely self contained Thick Film Hybrid DC-DC Converter
- For MIL-STD-704/1275 applications
- Built-in EMI input filter meets MIL-STD-461C requirements CE01, CE03, CS01, CS02 and CS06
- "Inhibit-not" function
- Short circuit protection
- Fully isolated, input to output
- Single, dual or triple outputs
- 200 kHz operation for low ripple and fast response time
- No external filter caps required
- Full hermetic package

Specifications

INPUT: 28 VDC nominal
 Range: 16 to 50 VDC continuous
 18 to 50 VDC full power
 Survives 80 V transients/MIL-STD-704A

ISOLATION:

Input to case: 500 VDC
 Input to output: 500 VDC
 Output to case: 100 VDC

ENVIRONMENT:

Storage temperature: -55°C to +150°C
 Shock: 50 G's
 Acceleration: 500 G's
 Vibration: 30 G's
 Grade M:

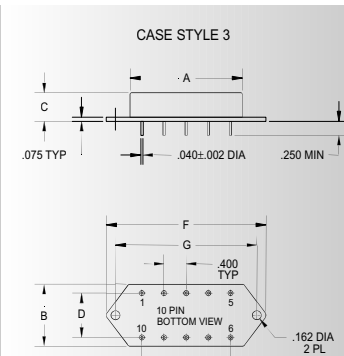
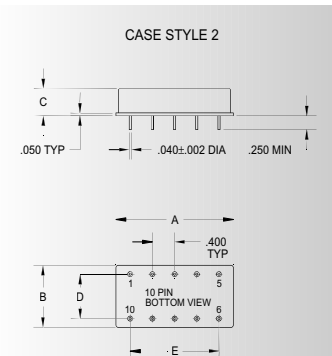
Full Power Output at $T_{case} = +85^{\circ}C$
 Linearly derates to zero at $T_{case} = +115^{\circ}C$
 Grade E:

Full Power Output at $T_{case} = +125^{\circ}C$
 Linearly derates to zero at $T_{case} = +135^{\circ}C$
WEIGHT: 55 grams typical

SINGLE OUTPUT DEVICES		3011-S02 (8W)			3011-S02.5 (10W)			3011-S03.3 (13.2W)			3011-S05 (20W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+1.9	+2.0	+2.1	+2.4	+2.5	+2.6	+3.2	+3.3	+3.4	+4.9	+5.0	+5.1
Output current	$V_{in\ min} - V_{in\ max}$	—	—	4A	—	—	4A	—	—	4A	—	—	4A
Efficiency	$P_{out} = \text{max rated load}$	56%	61%	—	61%	66%	—	66%	69%	—	71%	74%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	10mV	30mV	—	10mV	30mV	—	10mV	30mV	—	10mV	50mV
Load regulation	$P_{out} = 10\%$ to F.L.	—	10mV	30mV	—	10mV	30mV	—	10mV	30mV	—	10mV	50mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	25	50	—	30	60	—	30	60	—	40	85

SINGLE OUTPUT DEVICES		3011-S05.2 (20W)			3011-S12 (20W)			3011-S15 (20W)			3011-S28 (20W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+5.1	+5.2	+5.3	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1	+27.8	+28.0	+28.2
Output current	$V_{in\ min} - V_{in\ max}$	—	—	3.85A	—	—	1.67A	—	—	1.33A	—	—	714mA
Efficiency	$P_{out} = \text{max rated load}$	71%	74%	—	78%	82%	—	79%	83%	—	78%	82%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	10mV	50mV	—	20mV	100mV	—	25mV	125mV	—	50mV	250mV
Load regulation	$P_{out} = 10\%$ to F.L.	—	10mV	50mV	—	20mV	100mV	—	25mV	125mV	—	50mV	250mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	40	85	—	60	150	—	75	180	—	150	350

Model No.	Case Style	Pin Count	Mounting
3011	2	10	Solder Sealed Flangeless PCB Mount
3011 F	3	10	Solder Sealed PCB Mount with Flange



TOLERANCES: ALL DIMENSIONS ±0.01 EXCEPT F = MAX, C = +0.01/-0.02; DRAWINGS IN INCHES.

Case Dimensions

Units: inches | millimeters

Case Style	A	B	C	D	E	F	G
2	2.130 54.102	1.120 28.448	0.495 12.573	0.800 20.320	1.600 40.640	— —	— —
3 F	2.067 52.501	1.120 28.448	0.495 12.573	0.800 20.320	1.600 40.640	2.890 73.406	2.550 64.770

DC-DC CONVERTERS

SERIES 3011



28 VDC

DUAL OUTPUT DEVICES		3011-D05 (20W)			3011-D12 (20W)			3011-D15 (20W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	$+I_{out} = -I_{out}$	+4.9	+5.0	+5.1	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1
		-4.9	-5.0	-5.1	-11.9	-12.0	-12.1	-14.9	-15.0	-15.1
Output current*	$V_{in\ min} - V_{in\ max}$	±150mA	—	±2A	±125mA	—	±833mA	±100mA	—	±667mA
Efficiency	$P_{out} = \text{max rated load}$	72%	76%	—	78%	82%	—	79%	83%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
Load regulation†	$P_{out} = 10\%$ to F.L.	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	40	85	—	60	150	—	75	180

Notes: *Up to 90% full power available from either output if rated output power is not exceeded; †balanced load conditions.

TRIPLE OUTPUT DEVICES		3011-T05 (12.5W)			3011-T12 (15W)			3011-T15 (15W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	$+I_{out} = -I_{out}$	+4.9	+5.0	+5.1	+4.9	+5.0	+5.1	+4.9	+5.0	+5.1
		-4.9	-5.0	-5.1	-11.9	-12.0	-12.1	-14.9	-15.0	-15.1
Output current	$V_{in\ min} - V_{in\ max}$	60mA	—	2A	30mA	—	2A	30mA	—	2A
		±15mA	—	±250mA	±15mA	—	±208mA	±15mA	—	±167mA
Efficiency	$P_{out} = \text{max rated load}$	66%	69%	—	71%	74%	—	71%	74%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV
		—	25mV	50mV	—	25mV	50mV	—	25mV	50mV
Load regulation	$P_{out} = 10\%$ to F.L.	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV
		—	25mV	50mV	—	25mV	50mV	—	25mV	50mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	40	85	—	40	85	—	40	85
		—	—	50	—	—	50	—	—	50

3011-SXX output <24 VDC

Pin 1	+ input	Pin 7	N/C
Pin 2	inhibit not	Pin 8	case
Pin 3	output adjust	Pin 9	N/C
Pin 4	main out ret	Pin 10	input return
Pin 5	main output		
Pin 6	N/C		

3011-SXX output ≥24 VDC

Pin 1	+ input	Pin 7	N/C
Pin 2	inhibit not	Pin 8	case
Pin 3	main output	Pin 9	N/C
Pin 4	N/C	Pin 10	input return
Pin 5	main out ret		
Pin 6	N/C		

3011-DXX

Pin 1	+ input	Pin 7	N/C
Pin 2	inhibit not	Pin 8	case
Pin 3	+ dual output	Pin 9	N/C
Pin 4	dual out ret	Pin 10	input return
Pin 5	- dual output		
Pin 6	N/C		

3011-TXX

Pin 1	+ input	Pin 7	main output
Pin 2	inhibit not	Pin 8	case
Pin 3	+ dual output	Pin 9	N/C
Pin 4	dual out ret	Pin 10	input return
Pin 5	- dual output		
Pin 6	main out ret		

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

- M** +85°C military
- E** +125°C military