

2 – 6 WATT HYBRID

DC-DC CONVERTERS



100 VOLTS DC INPUT

80 – 160 VDC Range: Performs over all input voltage conditions for ISS, ORION and popular satellite bus applications.

Features

- Modern GaN HEMT design for inherent radiation tolerance
- TID Resistant > 100kRad(Si)
- SEE Resistant > 82MeV*cm²/mg
- Proton/Neutron Resistant: No optoelectronic devices used
- Magnetically coupled RF feedback for precise output voltage regulation
- 300kHz operation for fast, damped control loop load transient response
- Input and output noise control filters for smoothed ripple control
- Design protected for open loop overvoltage and overload conditions: output OV and short circuit proof
- Inhibit Not function for easily implemented On-Off control; low quiescent current
- Output voltage adjust via resistor selection ±10 percent
- Galvanically isolated: > 10 MOhms, 500 VDC Input-output-case and 100V output-case
- Fully self-contained: no external components needed
- Hermetic construction: solder sealed and parallel seam weld options, choice of PC mount or chassis mount

Specifications

INPUT: 100 VDC nominal

Range: 80 – 160 VDC Operates over all input conditions for ISS, ORION and popular satellite buses

ISOLATION: 10MOhms minimum at 500 VDC input to output and input to case; 100V output to case.

ENVIRONMENT:

Temperature range, functional operating (Tcase):

SE Grade -55°C to +125°C, derate P_{out} to zero at 135°C
EU, S Grades -55°C to 85°C, derate P_{out} to zero at 115°C

Temperature range, storage non-operating (Tcase): -60°C to +150°C

Shock: MIL-STD-810, Method 516.5 Procedure III (50 Gs 11ms pulse, all axis)

Random Vibration: MIL-STD-883, Method 2026, Test Condition 2H (32.3G, all axis)

Acceleration: MIL-STD-883, Method 2001, Test Condition A1, Y1 direction, 500Gs

Grades:

SE Space Flight to +125°C baseplate without derating
S Space/Aerospace to +85°C baseplate without derating
EU Engineering Models for laboratory development use

WEIGHT: 20 grams typical

SERIES 9080

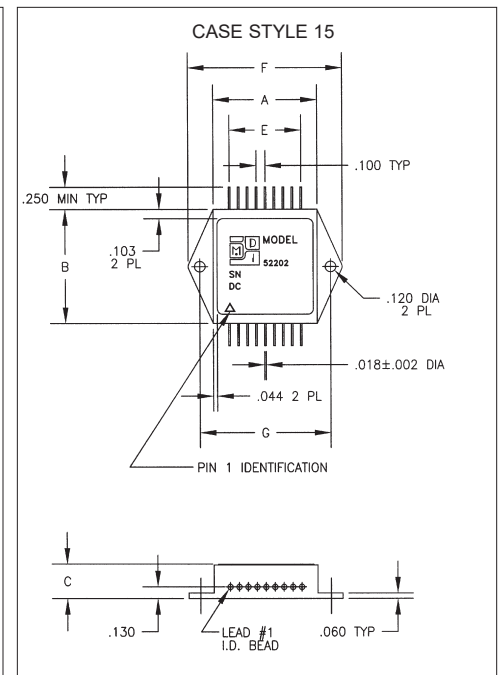
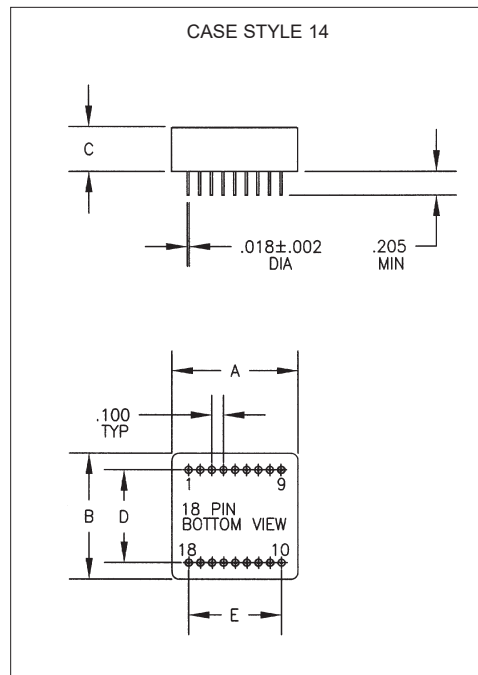
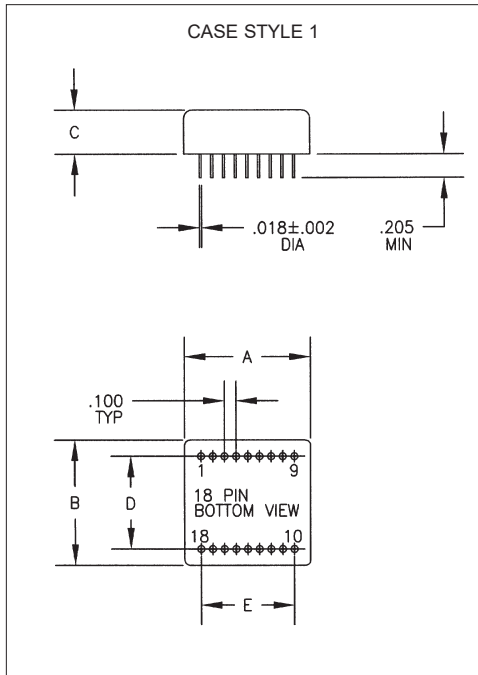
SINGLE OUTPUT DEVICES		9080-S02 (2W)			9080-S02.5 (2.5W)			9080-S03.3 (3.3W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+1.9	+2.0	+2.1	+2.4	+2.5	+2.6	+3.2	+3.3	+3.4
Output current	V _{in min} — V _{in max}	—	—	1A	—	—	1A	—	—	1A
Efficiency	P _{out} = max rated load	56%	59%	—	61%	64%	—	66%	69%	—
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}	—	25	50	—	30	60	—	30	65
SINGLE OUTPUT DEVICES		9080-S05 (6W)			9080-S05.2 (6W)			9080-S12 (6W)		
Output voltage	—	+4.9	+5.0	+5.1	+5.1	+5.2	+5.3	+11.9	+12.0	+12.1
Output current	V _{in min} — V _{in max}	—	—	1.2A	—	—	1.15A	—	—	0.5A
Efficiency	P _{out} = max rated load	71%	74%	—	71%	74%	—	73%	76%	—
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}	—	40	85	—	40	85	—	60	150
SINGLE OUTPUT DEVICES		9080-S15 (6W)			9080-S28 (6W)					
Output voltage	—	+14.9	+15.0	+15.1	+27.8	+28.0	+28.2			
Output current	V _{in min} — V _{in max}	—	—	0.4A	—	—	0.21A			
Efficiency	P _{out} = max rated load	73%	76%	—	73%	76%	—			
Line regulation	P _{out} = max rated load V _{in min} — V _{in max}	—	25mV	125mV	—	50mV	250mV			
Load regulation	P _{out} = 10% to F.L.	—	25mV	125mV	—	50mV	250mV			
Output ripple	F.L. BW 2 MHz mV _{pp}	—	75	180	—	150	350			
DUAL OUTPUT DEVICES		9080-D05 (6W)			9080-D12 (6W)			9080-D15 (6W)		
Output voltage	+I _{out} = -I _{out}	+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}	—	—	±0.6A	—	—	±0.3A	—	—	±0.2A
Efficiency	P _{out} = max rated load	73%	76%	—	78%	82%	—	79%	83%	—
Line regulation	P _{out} = 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.

Model No.	Case Style	Pin Count	Mounting
9080	1	18	Solder Sealed Flangeless PCB Mount
9080 D	14	18	Seam Weld Flangeless PCB Mount
9080 TF	15	18	Seam Weld Chassis Mount with Flange



GAN HEMT RAD HARD TECHNOLOGY



Case Dimensions

Units: inches | millimeters

TOLERANCES: Drawings in Inches All dimensions ± 0.01 except F = max, C = $+0.01/-0.020$ For Custom Packages, Contact Factory

Case Style	A	B	C	D	E	F	G
1	1.080 27.432	1.080 27.432	0.380 9.625	0.800 20.320	0.800 20.320	— —	— —
14 D	1.090 27.686	1.090 27.686	0.380 9.625	0.800 20.320	0.800 20.320	— —	— —
15 TF	1.160 29.464	1.283 32.588	0.380 9.625	— —	0.800 20.320	1.754 44.552	1.460 37.084

Note: Case style 1 reserved for EU grade converters.

Pin Outs

9080-SXX output < 24 VDC		9080-SXX output ≥ 24 VDC		9080-DXX		ADJUST Pins TBA
Pin 1 + Input	Pin 10 N/C	Pin 1 + Input	Pin 10 N/C	Pin 1 + Input	Pin 10 N/C	
Pin 2 + Input	Pin 11 N/C	Pin 2 + Input	Pin 11 N/C	Pin 2 + Input	Pin 11 N/C	
Pin 3 N/C	Pin 12 N/C	Pin 3 N/C	Pin 12 N/C	Pin 3 N/C	Pin 12 N/C	
Pin 4 Case	Pin 13 N/C	Pin 4 Case	Pin 13 N/C	Pin 4 Case	Pin 13 N/C	
Pin 5 N/C	Pin 14 N/C	Pin 5 Main Out Ret	Pin 14 N/C	Pin 5 - Dual Output	Pin 14 N/C	
Pin 6 Main Out Ret	Pin 15 Inhibit Not	Pin 6 N/C	Pin 15 Inhibit Not	Pin 6 Output Com	Pin 15 Inhibit Not	
Pin 7 Main Out Ret	Pin 16 N/C	Pin 7 N/C	Pin 16 N/C	Pin 7 Output Com	Pin 16 N/C	
Pin 8 N/C	Pin 17 Input Ret	Pin 8 Main Output	Pin 17 Input Ret	Pin 8 + Dual Output	Pin 17 Input Ret	
Pin 9 Main Output	Pin 18 Input Ret	Pin 9 N/C	Pin 18 Input Ret	Pin 9 N/C	Pin 18 Input Ret	

