

POL CONVERTER

5V INPUT $\pm 10\%$

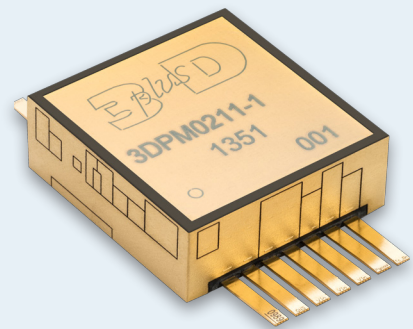
1.2V TO 3.8V SINGLE OUTPUT

RADIATION HARDENED DESIGN

3DPM0211-1

KEY FEATURES

- Output current up to 5A
- Efficiency: 88% (3.3V/3A)
- Excellent Dynamic Performances
- Buck Converter Topology
- Fixed switching frequency (400kHz)
- Integrated EMC filter
- Input Under-voltage protection
- Thermal Shutdown and Current Limit protections
- Power Good signal for Output voltage monitoring
- Soft Start, ON/OFF Command
- Space Qualified Technology
- Radiation Hardened design
TID > 50 krad(Si)
SEL LET > 80 MeV.cm²/mg
SET Immune > 80MeV.cm²/mg
- Junction Temperature Range -40°C / +125°C
- 14-pin gull wing SMD
- ITAR Free Product - Worldwide delivery guaranty
- Size: 26.5 x 25 x 10 mm
- Mass: 15 g



PRODUCT OVERVIEW

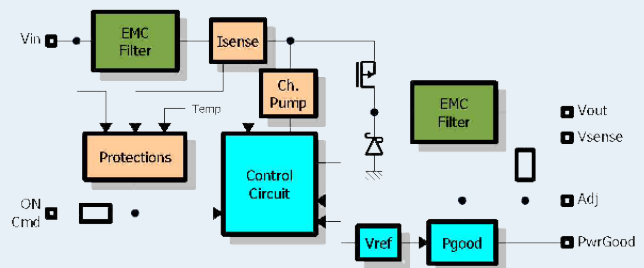
The 3DPM0211-1 POL Converter provides high performances, high reliability, compact size and low weight for Space Applications. Featuring radiation effect mitigation techniques and utilizing space design de-rating rules, the 3DPM0211-1 POL Converter is an ITAR Free product that features a SEL/SEE LETth of 80 MeV.cm²/mg and a TID of 50krad (Si).

Based on a Buck topology, the POL module uses a P-Channel Power MOSFET and Schottky Diode stage switching at 400 kHz. From a 5V input, available on most digital systems, the POL converter provides low voltages needed to power most of today's digital designs. Its output voltage can be adjusted from 1.225V to 3.8V by use of an external resistor.

A very high speed control loop keeps the output voltage within regulation under the high transient load swings commonly found in high speed ASICs, FPGAs and memory devices.

The POL Module is fully protected against output overload, input under-voltage and internal over heating. The external ON/OFF command and Soft Start function enable power supply ON/OFF sequencing. A Power Good signal is available for module monitoring and may be used to facilitate Power on Reset designs.

The POL Converter is an excellent solution for low voltage power distribution systems designed around high-speed digital electronics such as ASICs, FPGAs (ACTEL, XILINX,...) and memory (SDRAM, DDR, DDR2, DDR3,...). Also, it can be used for any other high efficiency Point of Load regulation / distributed power systems for other space applications: sciences and deep space missions, Earth observation, navigation, launchers and manned space vehicles.



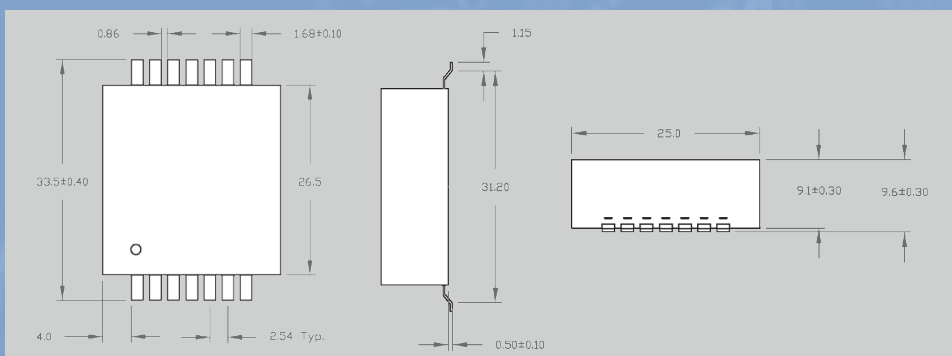
ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
OPERATING CONDITIONS					
Storage Temperature	-	-55		+150	°C
Junction Temperature	-	-40		+125	°C
Thermal Resistance (Θjc)	-			15	°C/W
INTERNAL TEMPERATURE PROTECTION					
Internal Thermal Shutdown Temperature	-	115	125	135	°C
PARAMETER	CONDITIONS	REMARKS			
RELIABILITY					
Thermal Cycles	MIL-STD-883 Method 1010 Cond.B	500 Cycles, -55°C/+125°C			
High Temperature Storage	MIL-STD-883 Method 1018 JESD22-A 103-A	2000h, 150°C			
Mechanical Shock	MIL-STD-883 Method 2002 Cond.B	Y1, 0.5 ms, 1500g			
Sine Vibrations	MIL-STD-883 Method 2007 Cond.A	20Hz-2000Hz peak acceleration 20g – 3 axes			
Random Vibrations	MIL-STD-883 Method 2026 Cond.I	Level H/J			
HAST	JEDEC STD 22TMA110	264h, +110°C			
Outgassing	ESA-PSS-01-702 MA	TML&RML<1%, CVCM<0.1%			

PRODUCT PERFORMANCES

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
OUTPUT CHARACTERISTICS					
Output Voltage Range	-	1.225		3.8	V
Set-point Accuracy	-40°C to 100°C	-1.1		1.4	%
Load Regulation	min to max load			0.4	%
Ageing Drift	10 years @ 50krad	-0.5		0.5	%
Start-up time	ON cmd -> Pgood ON	2	3	4	ms
Load Transient	Iout = ±3A, di/dt = 10A/μs (min DC load = 750mA)		60	90	mV
Load Capacitance	-			650	μF
Output Ripple	Measurement BW limited to 20MHz		35	60	mVpp
			6	10	mVrms
Switching Frequency	-	370	400	430	kHz
Efficiency	Vin = 5V, Vout = 3.3V Iout = 1A	80	82		%
	Vin = 5V, Vout = 3.3V Iout = 4.5A	83	86		%

PACKAGE



TEMPERATURE RANGES

C : Commercial (0°C to +70°C)
I : Industrial (-40°C to +85°C)
S : Specific (-40°C to +95°C)

QUALITY GRADE

N : Commercial
B : Industrial
S : Space

ORDERING INFORMATION

Quality Grade _____ Options _____
Part Number – XX – XXX
Temperature Range _____



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