



Power Conversion Products

For Space Applications

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VPT[®]

Space Series Power

Fully qualified on DLA SMDs, our space DC-DC converters are tested, proven, and ready for the rigors of your LEO, MEO, GEO, or deep space mission.



Features:

- ▶ DC-DC converters guaranteed up to 100 krad (Si) total dose including HDR & ELDRS and 85 MeV-cm²/mg SEE
- ▶ Key components RLAT tested at both HDR and ELDRS
- ▶ High efficiencies
- ▶ Circuit protection features
- ▶ Fault-tolerant magnetic feedback circuits
- ▶ Components selected from NASA database of recommended rad hard devices
- ▶ No optocouplers
- ▶ Standard industry output voltages including:
 - Single outputs: typically 3.3, 5, 5.2, 12, 15V
 - Dual outputs: typically ±5, ±12, ±15V

Compliances and Certifications:

- ▶ Products available qualified to MIL-PRF-38534 Class H and Class K
- ▶ Compliant to MIL-HDBK-1547/Aerospace TOR component level screening
- ▶ VPT's Radiation Hardness Assurance (RHA) Plan certified by DLA to MIL-PRF-38534 Appendix G
- ▶ MIL-PRF-38534 element evaluated components
- ▶ MIL-STD-704A input voltage requirements
- ▶ MIL-PRF-38534 Class H and Class K facility manufacturing
- ▶ ISO-9001
- ▶ MIL-STD-883 environmental screening
- ▶ MIL-STD-461 C-F when used with a VPT EMI filter
- ▶ Available on DLA SMDs

SPACE DC-DC CONVERTERS, ISOLATED

Power Level [W]	Model Series	Nominal Vin	Outputs	Total Dose w/ ELDRS	Single Event Effects (SEE)	DLA SMD #
SGRB Series of DC-DC Converters: Radiation Hardened. Featuring GaN technology. Integrated EMI Filter. -35 °C to +85 °C.						
384	SGRB10012	100V	Single	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	N/A
384	SGRB10016HCS	100V	Single	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	N/A
400	SGRB10020S	100V	Single	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	N/A
400	SGRB10028S	100V	Single	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	N/A
SVR Series of DC-DC Converters: Radiation Hardened. Developed for TOR Compliance. -55 °C to +125 °C.						
1.5	SVRCH2800S/D	28V	Single and Dual	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	TBD
6	SVRSA2800S/D	28V	Single and Dual	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962R15217, 5962R15218
15	SVRHF2800S/D	28V	Single and Dual	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962R13231, 5962R13232
40	SVRTR2800S/D	28V	Single and Dual	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962R13209, 5962R13210
100	SVRFL2800S/D	28V	Single and Dual	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962R13233, 5962R13234
SVL Series of DC-DC Converters: Radiation Tolerant. Thick film, hermetic hybrids. -55 °C to +125 °C.						
6	SVLSA2800S/D	28V	Single and Dual	60 krad(Si) & ELDRS	85 MeV/mg/cm ²	TBD
6	SVLSA5000S/D	50V	Single and Dual	60 krad(Si) & ELDRS	85 MeV/mg/cm ²	TBD
20	SVLHF2800S/D	28V	Single and Dual	60 krad(Si) & ELDRS	85 MeV/mg/cm ²	TBD
20	SVLHF5000S/D	50V	Single and Dual	60 krad(Si) & ELDRS	85 MeV/mg/cm ²	TBD
40	SVLTR2800S/D	28V	Single and Dual	60 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962R16214, 5962R16215
40	SVLTR5000S/D	50V	Single and Dual	60 krad(Si) & ELDRS	85 MeV/mg/cm ²	TBD
120	SVLFL2800S/D	28V	Single and Dual	60 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962R19211, 5962R16215



SPACE DC-DC CONVERTERS, ISOLATED (CONTINUED)

Power Level (W)	Model Series	Nominal Vin	Outputs	Total Dose w/ ELDRS	Single Event Effects (SEE)	DLA SMD #
SV Series of DC-DC Converters: Radiation Tolerant. Thick film, hermetic hybrids. -55 °C to +125 °C.						
6	SVSA2800S/D	28V	Single and Dual	60 krad(Si) & ELDRS	44 MeV/mg/cm ²	5962P11219, 5962P11216
20	SVHF2800S/D	28V	Single and Dual	60 krad(Si) & ELDRS	44 MeV/mg/cm ²	5962P11218, 5962P11215
40	SVTR2800S/D	28V	Single and Dual	60 krad(Si) & ELDRS	44 MeV/mg/cm ²	5962P11220, 5962P11223
120	SVFL2800S/D	28V	Single and Dual	60 krad(Si) & ELDRS	44 MeV/mg/cm ²	5962P11217, 5962P11214
VSC Series of DC-DC Converters: Radiation Tolerant. COTS for New Space. -55 °C to +100 °C.						
5	VSC5-2800S/D	28V	Single and Dual	30 krad(Si) & ELDRS	30 MeV/mg/cm ²	N/A
15	VSC15-2800S/D	28V	Single and Dual	30 krad(Si) & ELDRS	30 MeV/mg/cm ²	N/A
30	VSC30-2800S/D	28V	Single and Dual	30 krad(Si) & ELDRS	30 MeV/mg/cm ²	N/A

SPACE POINT OF LOAD DC-DC CONVERTERS, NON-ISOLATED

Output Current (A)	Model Series	Nominal Vin	Adjustable Output	Total Dose w/ ELDRS	Single Event Effects (SEE)	DLA SMD #
SVR and SV Series of Point of Load DC-DC Converters: Radiation Hardened. -55 °C to +125 °C.						
6	SVPL3R306S	3.3, 5	0.8 to 3.8	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-16213
6	SVPL3R306SG	3.3, 5	0.8 to 3.8	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17215
6	SVRPL3R306SG	3.3, 5	0.8 to 3.8	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	TBD
8	SVRGA0508S	5	0.8 to 3.4	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-13217
9	SVPL1209S	3.3, 5, 12	0.8 to 5.0	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17231
9	SVPL1209SG	12	0.8 to 5.0	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17232
10	SVGA0510S	5	0.8 to 3.4	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-12219
10	SVGA0510SG	5	0.8 to 3.4	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17202
12	SVPL3R312S	3.3	0.8 to 3.8	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17216
12	SVPL3R312SG	3.3	0.8 to 3.8	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17217
15	SVGA0515S	5	0.8 to 3.4	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-12219
15	SVGA0515SG	5	0.8 to 3.4	100 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17205
SV Series of Point of Load DC-DC Converters: Radiation Tolerant. -55 °C to +125 °C.						
10	SVFA0510S	5	0.8 to 3.4	40 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-16212
10	SVFA0510SG	5	0.8 to 3.4	40 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17203
15	SVFA0515S	5	0.8 to 3.4	40 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17204
15	SVFA0515SG	5	0.8 to 3.4	40 krad(Si) & ELDRS	85 MeV/mg/cm ²	5962-17205

SPACE EMI FILTERS

Output Current (A)	Model Series	Input DC Voltage (V)	Total Dose	Single Event Effects (SEE)	Developed for TOR Compliance	DLA SMD #
SVR Series of EMI Filters: For use with SVR Series DC-DC Converters. Radiation Immune. -55 °C to +125 °C.						
2	SVRMH28	0-50V	Immune	Immune	Yes	13011
4	SVRMC28	0-50V	Immune	Immune	Yes	13010
10	SVRME28	0-50V	Immune	Immune	Yes	13009

For SV, SVL, & VSC Series, utilize matching VPT or DV Series EMI filter.

INRUSH CURRENT LIMITERS

Output Current (A)	Model Series	Input DC Voltage (V)	DLA SMD #
SVCL Series of Inrush Current Limiter: Radiation Hardened. -55 °C to +125 °C.			
5.5	SVCL285R5	11-50V	5962R1621601
11	SVCL2811S	11-50V	5962R1621602

Leading Power Products for When the Mission is Critical

VPT®, Inc. is a global leader in providing power conversion solutions for use in avionics, military, space, and other high reliability applications. VPT offers DC-DC converters, EMI filters, accessory power products, and custom engineering services for the rapid development of critical power systems.

Every day, leading organizations including NASA, Lockheed Martin, Boeing, BAE, Honeywell, GE, Thales, the U.S. Air Force, and many more power critical systems with quality solutions from VPT. VPT is part of the HEICO Electronic Technologies Group (NYSE: HEI.A, NYSE: HEI).

Immediate Availability

No need to wait weeks, months, or even years for your power conversion products. In most cases, products are available for immediate shipment from stock. Contact VPT for a quotation to fulfill your system requirements.

Designed and Qualified for Extreme Environments

VPT products undergo rigid quality testing procedures in qualified facilities to ensure optimal performance through the toughest environments.

- ▶ MIL-PRF-38534 Class H and Class K Site Certification
- ▶ QML-38534 Qualified Manufacturers List
- ▶ QPD SIS-38534 Qualified Products Database to Class E, H, & K
- ▶ MIL-STD-883 Lab Suitable, MIL-PRF-38534, FSC 5962
- ▶ ISO-9001 Certification
- ▶ Most military and space grade modules on Defense Logistics Agency Standard Microcircuit Drawings
- ▶ Radiation Hardness Assurance Certified to MIL-PRF-38534, Appendix G

Screened for Rugged Environments

Each product line offers several grades of environmental screening. Tests performed may include:

- ▶ Non-destructive bond pull
- ▶ Internal visual
- ▶ Temperature cycling
- ▶ Constant acceleration
- ▶ PIND
- ▶ Stabilization bake
- ▶ Pre burn-in electrical
- ▶ Burn-in
- ▶ 100% final electrical
- ▶ Hermeticity
- ▶ Radiography
- ▶ External visual

Whatever Your Mission, Get it Accomplished with VPT

Innovative technology.
Fast delivery.
Affordable solutions.
Certified quality.



Save Board Space, Weight, and Cost

VPT's continual investment in advancing power conversion technology delivers many advantages across our product lines:

- ▶ Maximum reliability thick-film hybrid technology
- ▶ Innovative rugged hi-rel COTS technology
- ▶ Full operation over the specified temperature ranges
- ▶ Excellent EMI performance
- ▶ High power densities
- ▶ Lightweight

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Decades of Proven Space Heritage, including:

- ▶ Antares Rocket
- ▶ Atlas V
- ▶ Canadian SCISAT
- ▶ Cube Satellite
- ▶ Cygnus Spacecraft
- ▶ Delta Rocket
- ▶ Dubai SAT II
- ▶ ExoMars
- ▶ GLONASS
- ▶ GPS III/IIR-M/III
- ▶ International Space Station
- ▶ Mercury Messenger
- ▶ Orion Spacecraft
- ▶ OSIRIS-Rex
- ▶ Pluto New Horizons
- ▶ Polar N0x
- ▶ PROBA-V
- ▶ SeaLaunch
- ▶ Venus Express
- ▶ WorldView-3