

TECHNICAL DATASHEET Rev. G

Wall Industries, Inc.

LV12S5-100

Low Voltage DC-DC Converter 10-36 Vdc Input 5Vdc Output at 20A Half-Brick Package



Applications:

- For use in 12V and 24V battery applications.
- For use in Intermediate and Distributed Bus Architectures (IBA)
- Telecommunication equipment
- Network (LANs/WANs) Equipment
- Next generation low voltage, high current microprocessors and Ics

Features:

- Up to 88% Efficient
- Cost Efficient Solution
- Delivering 20A at Room Temperature with No Added Heat Sink with 400LFM
- Fixed Switching Frequency
- High Reliability
- Consult Factory for Optional Heat Sink
- Output Short Circuit Protection
- Output Over Current Protection
- Optional Encapsulation for added Ruggedness
- Remote ON/OFF
- Remote Sense Compensation to 10% Vout
- Fast Transient Response
- 100% Burn In
- Soft Start

Description:

The LV12S5-100 is a high density, low input voltage, isolated converter with a wide input voltage range. Low input voltage converters are uncommon in the industry and the LV12S5-100 offers the flexibility of operation with both 12V and 24V busses. This state-of-the-art converter's features include fast transient response, short circuit protection, over current protection, soft start, and many other features that are required for today's demanding applications.



TECHNICAL DATASHEET LV1285-100

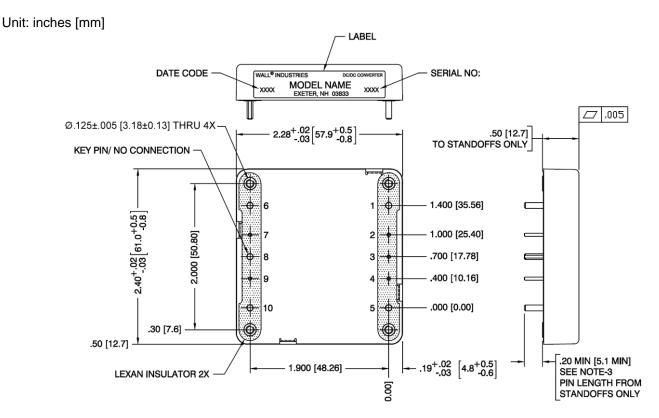
$\hat{c}FFICENCY$ UTPUT (V_a) -87.3-%NUTPUT (V_a)	Technical Specifications	Model No. LV				
PECUFLOATION Related condition Min Nom Max Init NPUT (Va) - 300 - kHz Portantip Oldage Range - 10 12.74 36 Vdc VILO Turn On at 9.3 9.4 9.5 9.6 Vdc Maximum Input Current Law Line - 0.14 - A Moto Load Input Current No. Load - 0.14 - A Moto Load Input Current No. Load - 0.13 - A Apput Current under "Remote OIT" - NID - 8.50 - MA Pott Surge Voltage 100 mS - 8.75 Vdc - 8.55 Vdc Collage Adjustment _RS shorted to ±Vo - 0.11 0.2 % Collage Adjustment _RS shorted to ±Vo - 0.1 0.2 % Collage Adjustment _RS shorted to ±Vo - 0.1 0.2 % Conter Sen				therwise not	ted.	
witching Frequency				NT	N /	TT
NPUT (V _b) Image: Second		Related condition				
bpcrating voltage Range 10 12.24 36 Vdc VIA D Turn Off at 9.4 9.5 9.6 Vdc Skrinnum Figur Current No Load - 11.45 - A Via D Turn Off at - 0.44 - A - 0.41 - A Via D Turn Off at - 0.04 - 0.04 - A Via D Turn Off at - 0.013 - A - 0.013 - A Via D Turn Off at - 0.013 - No - 100 - No - - No<			-	300	-	KHZ
jVLO Tum On at 9.4 9.5 9.6 V46 Ascimum Input Current Low Line - 11.45 - A Ascimum Input Current No Load - 0.013 - A nput Current under "Remote Off" - 0.013 - A nput Current under "Remote Off" - 0.013 - Ma reflected Ripple Current - 0.013 - Ma reflected Ripple Current - 0.013 - Ma OtTPUT (V.) - - 87.3 - % OtTPUT (V.) - - 87.3 - % % Oftage Set Point ±RS shorted to ±Vo - 0.1 0.2 % reflecter Ripple (Signe Compensation Max Output limited to 100W - 0 2. - % V4e ing Regulation ±RS shorted to ±Vo - 0.1 0.2 % V4e ing Regulation ±RS shorted to ±Vo - 0.1 0.2 % V4e ing Regulation ±RS shor			10	10 / 0 /		
DYLO Turn Off at Jow Line 9.4 9.5 V40 So Load Input Current No Load - 0.44 - A So Load Input Current (merrent Remote Off) - 0.041 - A Det Current Remote Off - 0.013 - A Det Surge Values 100 mS 50 V4c SPETE/ENCY - 87.3 - 87.3 - 87.5 Voltage St Point ±RS shorted to ±Vo - 1.16 5.0 5.05 V4c reine Regulation ±RS shorted to ±Vo - 0.1 0.2 % - reine Regulation ±RS shorted to ±Vo - 0.1 0.2 % - reine Regulation ±RS shorted to ±Vo - 0.1 0.2 % - reine Regulation ±RS shorted to ±Vo - 0.1 0.2 % - reine Regulation ±RS shorted to ±Vo - 0.1 0.2 - mV/g/g/g/g/g/g/g/g/g/g/g/g/g/g/g/g/g/g/g						
Jaximum Input Current Low Line - 11.45 - A pot Current No Load - 0.041 - A pot Current - 0.013 - A pot Current - 0.013 - A pot Signe Voltage 100 mS - 0.013 - M PUTPUT (V.) - 405 5.05 Vdc - 106 - 0.013 - M M Orltage Sct Point ±RS shorted to ±Vo - 0.1 0.2 % - 0.1 0.2 % cad Regulation ±RS shorted to ±Vo - 0.1 0.2 % Vdc cand Regulation ±RS shorted to ±Vo - 0.1 0.2 % Vdc cand Regulation ±RS shorted to ±Vo - 0.1 0.2 % Vdc cand Regulation ±RS shorted to ±Vo - 0.1 0.2 % Vdc No Load No Load <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
biolad No Load - 0.44 - A biolad - 150 - Ma biolad - 150 - Na part Surge Voltage 100 mS - 87.3 - % DITPUT Va. - 87.3 - % % DitPut Va. - 87.5 So 5.0 Vdc oldage Set Point - RS shorted to ±Vo - 0.1 0.2 % oldage Adjustment Max Output limited to 1000W - 0.1 0.2 % % emperature Drift - 0.1 0.2 % % % taine Regulation - RS shorted to ±Vo - 0.1 0.2 % % taine Regulation - RS shorted to ±Vo - 0.1 0.2 % % taine Regulation - RS shorted to ±Vo - 0.1 0.2 % % % <tr< td=""><td></td><td></td><td>9.3</td><td></td><td>9.5</td><td></td></tr<>			9.3		9.5	
nput Current under "Remote Off" - 0.013 - A nput Surge Voltage 100 mS 50 Voltage Poltage Set Point =RS shorted to ±Vo - 87.3 - % Oltage Adjustment Max Output limited to 100W -1% 5.0 +1% % Adjustment Max Output limited to 100W -0.01 0.2 % ine Regulation =RS shorted to ±Vo - 0.11 0.2 % ine Regulation =RS shorted to ±Vo - 0.11 0.2 % ine Regulation =RS shorted to ±Vo - 0.11 0.2 % ine Regulation =RS shorted to ±Vo - 0.1 0.2 % inge Regulation =RS shorted to ±Vo - 0.1 0.2 % inge Regulation =RS shorted to ±Vo - 0.1 0.2 % inge Regulation =G - - mVga 10% % inge Adv Max Output limited to 100W <td< td=""><td></td><td></td><td>-</td><td></td><td>-</td><td></td></td<>			-		-	
izheded kipple Current		No Load	-		-	
pnt Surge Voltage 100 mS 50 Vdc DFFICIENCY DUTPUT (V ₀) - 87.3 - % Soltage Set Point ±RS shorted to ±Vo 4.95 5.0 5.05 Vdc Joltage Adjustment Max Output limited to 100W 4.5 5.0 5.0 % 7.0 ine Regulation ±RS shorted to ±Vo - 0.1 0.2 % % ine Regulation ±RS shorted to ±Vo - 0.1 0.2 % % ine Regulation ±RS shorted to ±Vo - 0.1 0.2 % % ine Regulation ±RS shorted to ±Vo - 0.1 0.2 % % iernere Sense Compensation Max Output limited to 100W - 0 - mVpa Surrent UF Ceramic & 100F Tantalum - 75 - mVpa Surrent Limit Compendation and TRIM adjustment - 26 - A Output Champed Trantalum - 26 -			-		-	А
cFFICENCY UTPUT (V_a)-87.3-%0/lage Set Point-RS shorted to =Vo4.95 -1%5.0 +1%5.0 			-	150	-	mA
NUTPUT (V_a)Set Point $\pm RS$ shorted to $\pm Vo$ $\frac{4}{7}$ % $-1%$ 5.0 $+1%$ $\frac{5}{7}$ % $\%$ $\frac{5}{7}$ % $\%$ $\frac{5}{7}$ % $\%$ $\frac{5}{7}$ % $\%$ $\frac{5}{7}$ % $\%$ $\frac{1}{7}$ % $\%$ % $\frac{5}{7}$ % $\frac{1}{7}$ % $\frac{5}{7}$ % $\frac{5}{7}$ % $\%$ $\frac{1}{7}$ % $\%$ % $\frac{1}{7}$ % $\%$ $\frac{1}{7}$ % $\frac{1}{7}$ % $\frac{1}{7}$ % $\%$ % $\frac{1}{7}$ % $\frac{1}{7}$ % $\frac{1}{7}$ % $\frac{1}{7}$ % $\%$ % $\frac{1}{7}$ % $\frac{1}{7}$ % $\frac{1}{7}$ % $\frac{1}{7}$ % $\%$ % $\frac{1}{7}$ % $\frac{1}{7}%$ % $\frac{1}{7}%$ % $\frac{1}{7}%$ % $\frac{1}{7}%$ % $\frac{1}{7}%%%%\frac{1}{7}%%\frac{1}{7}%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%$	Input Surge Voltage	100 mS			50	Vdc
roltage Set Point=RS shorted to =Vo $\frac{4.95}{10\%}$ 5.0 $\frac{5.5}{10\%}$ $\frac{5.5}{10\%}$ /oltage AdjustmentMax Output limited to 100W $\frac{4.5}{10\%}$ 5.5 $\frac{5.5}{10\%}$ $\sqrt{10\%}$.coad Regulation=RS shorted to =Vo-0.10.2 $\%$.ine Regulation=RS shorted to =Vo-0.10.2 $\%$.ine Regulation=RS shorted to =Vo-0.10.2 $\%$.ine Regulationinte RS shorted to =Vo-0.10.2 $\%$ Remote Sense CompensationMax Output limited to 100W- 5.5 $\sqrt{3}$ $\sqrt{3}$ kippleluF Ceramic & 100F Tantalum-75- $\sqrt{3}$ SurrentO-20A $\sqrt{3}$ $\sqrt{3}$ $\sqrt{3}$ Surrent LimitOutput Clamped0- $\sqrt{3}$ Output ClampedN $\sqrt{3}$ $\sqrt{3}$ Vor Voltage LimitOutput Clamped-0-mVVor Voltage LimitOutput Clamped-0-mV'um On DelayFrom Vin(min) to Vout (nom)-0-mS'um On OvershootFull Load Resistive-0- $\sqrt{3}$ 'um On OvershootFull Min High (ON/OFF pin)2.2Vdc'um On OvershootFull Adat Resistive-0-mS'um On OvershootFull Adat Resistive-0MS'um On Ole	EFFICIENCY		-	87.3	-	%
roltage Set Point=RS shorted to =Vo $\frac{4.95}{10\%}$ 5.0 $\frac{5.5}{10\%}$ $\frac{5.5}{10\%}$ /oltage AdjustmentMax Output limited to 100W $\frac{4.5}{10\%}$ 5.5 $\frac{5.5}{10\%}$ $\sqrt{10\%}$.coad Regulation=RS shorted to =Vo-0.10.2 $\%$.ine Regulation=RS shorted to =Vo-0.10.2 $\%$.ine Regulation=RS shorted to =Vo-0.10.2 $\%$.ine Regulationinte RS shorted to =Vo-0.10.2 $\%$ Remote Sense CompensationMax Output limited to 100W- 5.5 $\sqrt{3}$ $\sqrt{3}$ kippleluF Ceramic & 100F Tantalum-75- $\sqrt{3}$ SurrentO-20A $\sqrt{3}$ $\sqrt{3}$ $\sqrt{3}$ Surrent LimitOutput Clamped0- $\sqrt{3}$ Output ClampedN $\sqrt{3}$ $\sqrt{3}$ Vor Voltage LimitOutput Clamped-0-mVVor Voltage LimitOutput Clamped-0-mV'um On DelayFrom Vin(min) to Vout (nom)-0-mS'um On OvershootFull Load Resistive-0- $\sqrt{3}$ 'um On OvershootFull Min High (ON/OFF pin)2.2Vdc'um On OvershootFull Adat Resistive-0-mS'um On OvershootFull Adat Resistive-0MS'um On Ole	OUTPUT (V ₀)					
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			4.95	5.0	5.05	Vdc
roltage AdjustmentMax Output limited to 100W $\begin{array}{cccccccccccccccccccccccccccccccccccc$	Voltage Set Point	$\pm RS$ shorted to $\pm Vo$	-1%	5.0	+1%	%
rotage AdjustmentMax Output limited to 100w -10% 3.0 $+10\%$ 7.0 0.2 $\%$.oad Regulation $\pm RS$ shorted to $\pm Vo$ -0.10.2 $\%$ ine Regulation $\pm RS$ shorted to $\pm Vo$ -0.10.2 $\%$ ine Regulation $\pm RS$ shorted to $\pm Vo$ -0.10.2 $\%$ remperature Drift-0.2- $\%$ $\%$ kemote Sense CompensationMax Output limited to 100W- 5.5 Vdeipikes1 µF Ceramic & 10µF Tantalum-7-mV _{pk} 2 hrent LimitPower Limited-Dependent upon SENSE0-20A2 hrent LimitOutput Clamped-26-A2 hrent LimitOutput Clamped-300-mV _{pk} 2 hrent Nin (min) to VutuC.Tum.Off0ms2 hrent Nin (min) to VutuC.Tum.Off0ms2 hrent Nin (min) to VutuC.Tum.Off0ms2 hrent Nin (min) to VutuC.Tum.Off-0-ms2 hrent Nin (min) to VutuC.Tum.Off1.2Vde2 hrent Nin (min) to VutuC.Tum.Off1.2Vde2 hrent Nin (min) to VutuC.Tum.Off- <td< td=""><td>57 1, A 1, ,</td><td></td><td></td><td></td><td></td><td></td></td<>	57 1, A 1, ,					
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Voltage Adjustment	Max Output limited to 100W		5.0		Vdc
ine Regulation $\pm RS$ shorted to $\pm Vo$ -0.10.2%%'emperature Drift-0.2-%%<	Load Regulation	+RS shorted to +Vo		0.1		%
"emperature Drift. 0.2 . $9, 7^{\circ}$ temote Sense CompensationMax Output limited to 100W. $15,55$ Vdctipple1uF Ceramic & 10uF Tantalum 75 .mV _{bk} tipple1uF Ceramic & 10uF TantalummV _{bk} Durrent0mV _{bk} Current Limitcompensation and TRIM adjustment <td< td=""><td></td><td></td><td>_</td><td></td><td></td><td></td></td<>			_			
kernote Sense CompensationMax Output limited to 100W-5.5Vdc 10%kipple1uF Ceramic & 10uF Tantalum-75-mVpk pk pkesjurrent1uF Ceramic & 10uF Tantalum-75-mVpk pkjurrent LimitPower Limited-Dependent upon SENSE compensation and TRIM adjustment-26-AQurrent LimitOutput Clamped output ClampedVdcVer Voltage LimitOutput Clamped to 100% to 1			-			% / °C
Remote Sense CompensationMax Output Imited to 100W-10%%kipple1uF Ceramic & 10uF Tantalum-75-mV _{pk} Durrent0-20ADurrent LimitPower Limited-Dependent upon SENSE compensation and TRIM adjustment-26-AVer Voltage LimitOutput ClampedVetNotation Sense1uF Ceramic & 10uF TantalumVetLoad step / A V50% to 100% to, di/dt=1A/uS-300-mVLoad step / A V50% to 100% to, di/dt=1A/uS-300-mSLoun On DelayFrom Vin (min) to Vout (non)-7-msYurn On OvershootFull Load Resistive-0-%Edmote ON - Active HighMin High (ON/OFF pin)2.2VdeRemote ON - Active HighMin High (ON/OFF pin)1.2VdeRemote OFF - Active LowMin High (ON/OFF pin)VdeRemote OV/OFFMax Low (ON/OFF pin)VdeRemote ON/OFF pin Floating - Active HighOver Operating Voltage RangeN/AVdeRoword Source to drive high	-			0.2		
tippleIuf Ceramic & IOuF Tantalum-75- mV_{pk} mV pkesluf Ceramic & IOuF Tantalum mV_{pk} mV pkesCurrent LimitPower Limited-Dependent upon SENSE compensation and TRIM adjustment-26AOutput ClampedVcVcVotage LimitOutput ClampedVcVand SENSEIuf Ceramic & IOuF TantalumVcVotage LimitOutput Clamped-0.25-mVLoad step / A V50% to 100% Io, di/dt=1A/uS-0.025-mVLoad step / A V50% to 100% Io, di/dt=1A/uS-0.25-mVLoad step / A V50% to 100% Io, di/dt=1A/uS-0.25-mVLoad step / A V60% to 100% Io, di/dt=1A/uS-0.25-mVLoad step / A VFrom Vin (min) Io Vout (nom)-0.25-mSVurn On DelayFrom Vin (min) to VuvLo_Twm_Off0%Lod DVOFFActive HighMin High (ON/OFF pin)N/AVdcRemote OFF - Active LowMax Low (ON/OFF pin)N/AVdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage RangeN/AVdcNonopF Source to drive high - Active LowOver Operating Voltage RangeN/AVdcNonopF Source to drive high - Active LowOver Operating Voltage RangeN/A0.38	Remote Sense Compensation	Max Output limited to 100W	-			
ipikesIuF Ceramic & 100F TantalummVpgCurrent0-20ACurrent LimitPower Limited-Dependent upon SENSE compensation and TRIM adjustment-26AVer Voltage LimitOutput Clamped-26ADyrAMIC RESPONSE1uF Ceramic & 10uF Tantalum-0-WetCoad step / A V50% to 100% fo, di/dt=1A/uS-300-mVecovery to within 1% Nominal Vo-0.25-msYurn On DelayFrom Vin (min) to Vout (nom)-7-msYurn On OvershootFull Load Resistive-0-%Old Up TimeFrom Vin (min) to VUNO_Tum_Off0VdcRemote ON - Active HighMin High (ON/OFF pin)2.2VdcRemote OFF - Active HighMax Low (ON/OFF pin)NAVdcRemote OFF - Active LighVoer Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Ioating - Active HighOver Operating Voltage RangeN/AVdcRomore DN/OFF pin Floating - Active LowOver Operating Voltage Range0.38mANonoer Source to drive high - Active LowOver Operating Voltage RangeN/AVdcNonoer Source to drive high - Active LowOver Operating Voltage Range0.03mANonoer Source to drive high - Active LowVonoer Source0	Dinnla	11E Coramic & 100E Tantalum		75		
Current 0 - 20 A Current Limit Power Limited-Dependent on SENSE compensation and TRIM adjustment - 26 - A Over Voltage Limit Output Clamped - - - Vdc VNAMIC RESPONSE IuF Ceramic & IoUF Tantalum - 300 - mV Cad step / A V 50% to 100% 10, di/dt=1A/uS - 300 - mS Curr On Delay From Vin(min) to Vout (nom) - 7 - ms Van On Overshoot Full Load Resistive - 0 - Vdc Remote ON - Active High Min High (ON/OFF pin) 2.2 - - Vdc Remote ON - Active Low Max Low (ON/OFF pin) N/A - - Vdc Remote ON - Active High Max Low (ON/OFF pin) N/A - - Vdc Remote ON - Active Low Mar Low (ON/OFF pin) N/A - - Vdc Remote ON - Active Low Mar Low (ON/OFF pin) N/A - -			-	15	-	
Power Limited-Dependent upon SENSE compensation and TRIM adjustment-26-AOver Voltage LimitOutput ClampedVdcDYNAMIC RESPONSE1uF Ceramic & 10uF Tantalum-300-mVcoad step / Δ V50% to 100% lo, di/dt=1/A/uS-300-mVRecovery to within 1% Nominal Vo-0.25-msYurn On DelayFrom Vin(min) to Vout (nom)-7-msYurn On OvershootFull Load Resistive-0-%Iold Up TimeFrom Vin (min) to Vout (nom)-7-mSREMOTE ON/OFFActive HighMin High (ON/OFF pin)2.2VdcRemote ON - Active LowMax Low (ON/OFF pin)-1.2VdcVdcRemote ON - Active LowMin High (ON/OFF pin)-1.2VdcVdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage Range2.5-5.0VdcNonopr Source to drive high - Active LowVonvopr=SV, Vin=36V0.38mAONOPF Sink to pull low - Active LowVonvopr=SV, Vin=36VmAONOPF Source to drive high - Active HighVonvopr=SV, Vin=36VmAONOPF Source to drive high - Active LowVONOFF (mX Low) to Vout (min)-160-uSSOLATION500-VdcmAMAO		Tur Ceranne & Tour Tantaium	-		-	
Juntent Limitcompensation and TRIM adjustment-20-AOver Voltage LimitOutput ClampedVdeDVNAMIC RESPONSE1µF Ceramic & 10µF Tantalum-300-mVLoad step / Δ V50% to 100% 10, di/dt=1A/uS-300-mVLoad step / Δ V50% to 100% 10, di/dt=1A/uS-300-mVLoad step / Δ V50% to 100% 10, di/dt=1A/uS-0.25-msJurn On DelayFrom Vin (min) to Vout (nom)-7-msYurn On OvershootFull Load Resistive-0-%Iold Up TimeFrom Vin (min) to VuVLo_Twm_off0MSREMOTE ON/OFFActive HighMin High (ON/OFF pin)2.2VdcRemote ON - Active LowMax Low (ON/OFF pin)2.2VdcRemote ON - Active LowMax Low (ON/OFF pin)-1.2VdcRemote ON - Active LowMin High (ON/OFF pin)N/AVdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage RangeN/AVdcNovorF Source to drive high - Active LowVin=36V0.38mANovorF Source to drive high - Active LowVoncorF=5V, Vin=36V0.38mANovorF Source to drive high - Active LowVoncorF=5V, Vin=36V0.03mANovoFF GUV to Vout (min)-1	Current	Denne Limited Denendent on an CENCE	0	-	20	A
Over Voltage Limit Output Clamped - - Vdc DYNAMIC RESPONSE 1uF Ceramic & 10uF Tanlum - - - Ndc coad step / A V 50% to 100% 1o, di/tt=1A/uS - 300 - mV coad step / A V 50% to 100% 1o, di/tt=1A/uS - 0.25 - mS curn On Delay From Vin(min) to Vout (nom) - 7 - mS curn On Overshoot Full Load Resistive - 0 - % fold Up Time From Vin (min) to VuVLO_Tum_Off 0 - - MS REMOTE ON/OFF Active High Min High (ON/OFF pin) 2.2 - - Vdc Remote ON - Active High Max Low (ON/OFF pin) - 1.2 Vdc Remote OFF - Active High Max Low (ON/OFF pin) - - Vdc Remote OFF - Active Low Min High (ON/OFF pin) NA - - Vdc Remote OFF pin Floating - Active Low Over Operating Voltage Range 2.5 - 0.0	Current Limit		-	26	-	А
DYNAMIC RESPONSE IuF Ceramic & 10uF Tantalum .coad step / A V 50% to 100% 1o, di/dt=1A/uS - 300 - mV .coad step / A V 50% to 100% 1o, di/dt=1A/uS - 300 - mV .coad step / A V S0% to 100% 1o, di/dt=1A/uS - 300 - mV .coad step / A V Recovery to within 1% Nominal Vo - 7 - ms .urn On Delay From Vin (min) to Vuv(nom) - 7 - ms Yurn On Overshoot Full Load Resistive - 0 - - MS REMOTE ON/OFF Active High Min High (DN/OFF pin) 2.2 - - Vdc Remote ON - Active Low Max Low (ON/OFF pin) N/A - - Vdc Remote ON/OFF pationg - Active High Over Operating Voltage Range 2.5 - 5.0 Vdc Remote ON/OFF pin Floating - Active Low Over Operating Voltage Range NA - - Vdc ONOFF Source to drive high - Active Low Oven Oper 5V, Vin=36V<						37.1
coad step / Δ V50% to 100% Io, di/dt=1A/uS-300-mVdecovery TimeRecovery to within 1% Nominal Vo-0.25-ms'urn On DelayFrom Vin (min) to Vout (nom)-7-ms'urn On OvershootFull Load Resistive-0-%fold Up TimeFrom Vin (min) to V _{UVLO,Turn,Off} 0MSEEMOTE ON/OFFActive HighMin High (ON/OFF pin)2.2VdcRemote ON - Active HighMax Low (ON/OFF pin)N/AVdcRemote OFF - Active HighMax Low (ON/OFF pin)1.2VdcRemote OFF - Active LowMin High (ON/OFF pin)VdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Floating - Active LowOver Operating Voltage RangeN/AVdcNONGFF Source to drive high - Active LowOver Operating Voltage RangeN/AmANONGFF Source to drive high - Active LowVONOFF = 5V, Vin=36V0.03mAYurn Of Delay - Active HighON/OFF (max Low) to Vout (min)-9-msYurn Off Delay - Active HighON/OFF (max Low) to Vout (min)-160-usYurn Off Delay - Active HighON/OFF (max Low) to Vout (min)-160-VdcYurn Off Delay - Active HighON/OFF (fW) to Vout (min)- <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>vac</td>			-	-	-	vac
Recovery TimeRecovery to within 1% Nominal Vo- 0.25 -msYurn On DelayFrom Vin(min) to Vout(nom)-7-msYurn On OvershootFull Load Resistive-0-%Iold Up TimeFrom Vin (min) to V _{UVL0_Twn_Off} 0msREMOTE ON/OFFActive HighMin High (DN/OFF pin)2.2VdcRemote ON - Active LowMax Low (ON/OFF pin)N/AVdcRemote OFF - Active HighMax Low (ON/OFF pin)N/AVdcRemote OFF - Active HighOver Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage Range2.5-0.38mAON/OFF Source to drive high - Active LowOver Operating Voltage Range-0.38mAON/OFF Source to drive high - Active HighV _{ONOFF} =5V, Vin=36V0.03mAON/OFF Source to drive high - Active LowV _{ONOFF} =5V, Vin=36VmsmaON/OFF GUV to Vout (min)-160-usSSOLATIONVdcInput-Case1 <minute< td="">-500-VdcVdcVdcVdcInput-Case1<minute< td="">-500-VdcVdcInput-Case1<minute< td="">-1500-VdcVirue On OftPCase Temperature Greater than-100-°CVort Ca</minute<></minute<></minute<>				200		* *
Turn On Delay From Vin(min) to Vout (nom) - 7 - ms Turn On Overshoot Full Load Resistive - 0 - % Iold Up Time From Vin (min) to V _{UVLO_Turn_Off} 0 - ms REMOTE ON/OFF Active High - - Vdc Remote ON - Active High Min High (ON/OFF pin) 2.2 - - Vdc Remote ON - Active High Max Low (ON/OFF pin) N/A - - Vdc Remote OFF - Active Low Max Low (ON/OFF pin) - - 1.2 Vdc Remote ON/OFF pin Floating - Active High Over Operating Voltage Range 2.5 - 5.0 Vdc Remote ON/OFF pin Floating - Active Low Over Operating Voltage Range 2.5 - 0.38 mA ON/OFF Source to drive high - Active High V _{ON/OFF} =5V, Vin=36V - - mA ON/OFF Map - Active High ON/OFF (max Low) to Vout (min) - 9 - ms Our On Delay - Active High ON/OFF (0V) to Vout (min)			-			
Turn On OvershootFull Load Resistive-0-%Iold Up TimeFrom Vin (min) to $V_{UVL0_Turn_Off}$ 0-mSREMOTE ON/OFFActive HighKetive HighNGRemote ON - Active HighMin High (ON/OFF pin)2.2VdcRemote OFF - Active LowMax Low (ON/OFF pin)N/AVdcRemote OFF - Active LowMax Low (ON/OFF pin)N/AVdcRemote OFF - Active LowMin High (ON/OFF pin)N/AVdcRemote OFF - Active LowOver Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage RangeN/AVdcRomoter Source to drive high - Active LowOver Operating Voltage RangeN/A0.03mAONOFF Source to drive high - Active HighON/OFF = 5V, Vin=36V0.03mAONOFF Source to drive high - Active LowVONOFF = 5V, Vin=36VmAONOFF F (MX Low) to Vout (min)-9-msMAONTOFF Delay - Active HighON/OFF (max Low) to Vout (min)-160-uSONTOFF Case11-500-VdcNum On Delay - Active HighON/OFF (MX Low) to Vout (min)-500-VdcOutput-Case11-500-VdcNum On Cotte1<			-		-	ms
Hold Up TimeFrom Vin (min) to $V_{UVL0_Turn_Off}$ 0-mSREMOTE ON/OFFActive HighMin High (ON/OFF pin)2.2VdcRemote ON - Active LowMax Low (ON/OFF pin)N/AVdcRemote OF - Active LowMax Low (ON/OFF pin)1.2VdcRemote OFF - Active LowMin High (ON/OFF pin)VdcRemote OFF - Active LowMin High (ON/OFF pin)N/AVdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Floating - Active LowOver Operating Voltage RangeN/AVdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage RangeN/AVdcRemote ON/OFF pin Floating - Active LowOver Operating Voltage RangeN/AVdcRemote ON/OFF pin Floating - Active LowOver Operating Voltage RangeN/ANdcNONOFF Source to drive high - Active LowVON/OFF=5V, Vin=36V0.03mANONOFF Source to drive high - Active LowVON/OFF fina Low) to Vout (min)-9-ms'um On Delay - Active HighON/OFF (0V) to Vout (min)-160-uS'um On Delay - Active HighON/OFF (0V) to Vout (min)-160-Vdc'um On Cutput1minute-500-Vdc'uput-Case1minute- </td <td>-</td> <td></td> <td>-</td> <td></td> <td>-</td> <td></td>	-		-		-	
REMOTE ON/OFFActive HighRemote ON – Active HighMin High (ON/OFF pin)2.2VdcRemote ON – Active LowMax Low (ON/OFF pin)N/AVdcRemote OFF – Active LowMax Low (ON/OFF pin)1.2VdcRemote OFF – Active LowMin High (ON/OFF pin)N/AVdcRemote OFF – Active LowMin High (ON/OFF pin)N/AVdcRemote ON/OFF pin Floating – Active HighOver Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Floating – Active LowOver Operating Voltage RangeN/AVdcRomote ON/OFF pin Floating – Active LowOver Operating Voltage RangeN/AVdcRomote ON/OFF Source to drive high – Active HighVONOFF SOV Vin=36V0.03mANONOFF Source to drive high – Active LowVONOFF SOV, Vin=36VmAONOFF Source to drive high – Active LowVONOFF SOV, Vin=36VmA'urn On Delay – Active HighON/OFF (0V) to Vout (min)-160-us'urn Off Delay – Active HighON/OFF (0V) to Vout (min)-160-us'urn Off Case1minute-500-Vdc'urn Off Case1minute-500-Vdc'urn Off Case1minute-500-Vdc'urn Off Case1minute- <t< td=""><td>Turn On Overshoot</td><td>Full Load Resistive</td><td>-</td><td>0</td><td>-</td><td>%</td></t<>	Turn On Overshoot	Full Load Resistive	-	0	-	%
REMOTE ON/OFFActive HighRemote ON – Active HighMin High (ON/OFF pin)2.2VdcRemote ON – Active LowMax Low (ON/OFF pin)N/AVdcRemote OFF – Active LowMax Low (ON/OFF pin)1.2VdcRemote OFF – Active LowMin High (ON/OFF pin)N/AVdcRemote OFF – Active LowMin High (ON/OFF pin)N/AVdcRemote ON/OFF pin Floating – Active HighOver Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Floating – Active LowOver Operating Voltage RangeN/AVdcRomote ON/OFF pin Floating – Active LowOver Operating Voltage RangeN/AVdcRomote ON/OFF Source to drive high – Active HighVONOFF SOV Vin=36V0.03mANONOFF Source to drive high – Active LowVONOFF SOV, Vin=36VmAONOFF Source to drive high – Active LowVONOFF SOV, Vin=36VmA'urn On Delay – Active HighON/OFF (0V) to Vout (min)-160-us'urn Off Delay – Active HighON/OFF (0V) to Vout (min)-160-us'urn Off Case1minute-500-Vdc'urn Off Case1minute-500-Vdc'urn Off Case1minute-500-Vdc'urn Off Case1minute- <t< td=""><td>Hold Up Time</td><td>From Vin (min) to VUVLO Turn Off</td><td>0</td><td>-</td><td>-</td><td>mS</td></t<>	Hold Up Time	From Vin (min) to VUVLO Turn Off	0	-	-	mS
Remote ON - Active HighMin High (ON/OFF pin) 2.2 $ -$ VdcRemote ON - Active LowMax Low (ON/OFF pin)N/A $ -$ VdcRemote OFF - Active HighMax Low (ON/OFF pin) $ 1.2$ VdcRemote OFF - Active LowMin High (ON/OFF pin) $ 1.2$ VdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage Range 2.5 $ 5.0$ VdcRemote ON/OFF pin Floating - Active LowOver Operating Voltage Range N/A $ -$ VdcON/OFF Sink to pull low - Active LowOver Operating Voltage Range N/A $ 0.38$ mAON/OFF Source to drive high - Active Low $V_{ON/OFF}=0V$, Vin= $36V$ $ 0.38$ mAON/OFF Source to drive high - Active Low $V_{ON/OFF}=5V$, Vin= $36V$ $ 0.03$ mAON/OFF Source to drive high - Active Low $V_{ON/OFF}=5V$, Vin= $36V$ $ 0.03$ mAON/OFF four On Delay - Active High ON/OFF (max Low) to Vout (min) $ 160$ us SOLATION100 $ Vdc$ Input-Case1 <minute< td="">$500$$Vdc$Output-Case1<minute< td="">$500$$Vdc$Output-Case1<minute< td="">$500$$Vdc$Output-Case1<minute< td="">$500$$Vdc$Output-Case1<minute< td="">$500$$-$<</minute<></minute<></minute<></minute<></minute<>	REMOTE ON/OFF					
Remote ON - Active LowMax Low (ON/OFF pin)N/AVdcRemote OFF - Active HighMax Low (ON/OFF pin)1.2VdcRemote OFF - Active LowMin High (ON/OFF pin)N/AVdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage RangeN/AVdcRemote ON/OFF pin Floating - Active LowOver Operating Voltage RangeN/AVdcNONOFF Source to drive high - Active Low or HighV _{ONOFF} =5V, Vin=36V0.03mAON/OFF Source to drive high - Active LowV _{ONOFF} =5V, Vin=36VmAON/OFF Source to drive high - Active LowV _{ONOFF} =5V, Vin=36VmAON/OFF four On Delay - Active HighON/OFF (max Low) to Vout (min)-9-msOur Off Delay - Active HighON/OFF (0V) to Vout (min)-160-uSSOLATION-1-500-Vdcnput-Output1ninute-500-VdcOutput-Case1minute-500-VdcCher MaxMax. Ambient limited by OTP-4025OTP°CVer Temperature Protection (OTP)Case Temperature Greater than-95-°CVar TBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hour			2.2	-	-	Vdc
Remote OFF - Active HighMax Low (ON/OFF pin)1.2VdcRemote OFF - Active LowMin High (ON/OFF pin)N/AVdcRemote ON/OFF pin Floating - Active HighOver Operating Voltage Range2.5-5.0VdcRemote ON/OFF pin Floating - Active LowOver Operating Voltage RangeN/AVdc $ON/OFF Sink to pull low - Active Low or HighV_{ON/OFF} = 0V, Vin=36V0.38mAON/OFF Source to drive high - Active LowV_{ON/OFF} = 5V, Vin=36V0.03mAON/OFF Source to drive high - Active LowV_{ON/OFF} = 5V, Vin=36VmAON/OFF Source to drive high - Active LowV_{ON/OFF} = 5V, Vin=36VmAON/OFF Source to drive high - Active LowO_N/OFF (max Low) to Vout (min)-9-masOur Off Delay - Active HighON/OFF (0V) to Vout (min)-160-uSSOLATION1minute-500-Vdcnput-Output1minute-500-VdcOutput-Case1minute-500-VdcCHERMAL00-°CVer Temperature Protection (OTP)Case Temperature Greater than-100-°CVurn On (OTP)Case Temperature Less than-95-°CATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116$				_	-	
Remote OFF - Active LowMin High (ON/OFF pin)N/AVdcRemote ON/OFF pin Floating - Active High Remote ON/OFF pin Floating - Active LowOver Operating Voltage Range 2.5 - 5.0 VdcRemote ON/OFF pin Floating - Active LowOver Operating Voltage RangeN/AVdc ON/OFF Sink to pull low - Active Low or High $V_{ON/OFF}=0V$, Vin=36V0.03mA ON/OFF Source to drive high - Active High $V_{ON/OFF}=5V$, Vin=36V0.03mA ON/OFF Source to drive high - Active Low $V_{ON/OFF}=5V$, Vin=36VmA ON/OFF (max Low) to Vout (min)-9-msmsO'urn Oft Delay - Active HighON/OFF (0V) to Vout (min)-160-uSSOLATION-1minute-500-Vdcnput-Case1minute-500-VdcOutput-Case1minute-500-VdcOutput-Case1Max. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-100-°COrtm On (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hoursHours				-		
Remote ON/OFF pin Floating – Active High Remote ON/OFF pin Floating – Active LowOver Operating Voltage Range 2.5 $ 5.0$ VdcRemote ON/OFF pin Floating – Active LowOver Operating Voltage RangeN/A $ -$ Vdc ON/OFF Sink to pull low – Active Low or High $V_{ON/OFF}=0V$, Vin=36V $ 0.38$ mA ON/OFF Source to drive high – Active High $V_{ON/OFF}=5V$, Vin=36V $ 0.03$ mA ON/OFF Source to drive high – Active Low $V_{ON/OFF}=5V$, Vin=36V $ mA$ $ON/OFF f(TAR LOW)$ to Vout (min) $ 9$ $ mS$ $Our Off Delay – Active HighON/OFF (0V) to Vout (min) 160 uSSOLATIONIminute 500 VdcNput-Output1 minute 500 VdcOutput-Case1 minute 500 VdcCHERMALMax. Ambient limited by OTP-4025OTP^{\circ}COur Of OTPCase Temperature Greater than 100 ^{\circ}COur On (OTP)Case Temperature Less than 95 ^{\circ}COutput - GaseCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours$				_	-	
Remote ON/OFF pin Floating – Active LowOver Operating Voltage RangeN/AVdc ON/OFF Sink to pull low – Active Low or High $V_{ON/OFF}$ =0V, Vin=36V0.38mA ON/OFF Source to drive high – Active High $V_{ON/OFF}$ =5V, Vin=36V0.03mA ON/OFF Source to drive high – Active Low $V_{ON/OFF}$ =5V, Vin=36VmA ON/OFF Source to drive high – Active Low $V_{ON/OFF}$ =5V, Vin=36VmA ON/OFF Max Low) to Vout (min)-9-ms $Our Off Delay – Active HighON/OFF (0V) to Vout (min)-160-uSSOLATION-1minute-1500-Vdcnput-Output1minute-500-VdcOutput-Case1minute-500-VdcOutput-Case1minute-500-VdcOver Temperature Protection (OTP)Case Temperature Greater than-100-°COver Temperature Protection (OTP)Case Temperature Less than-95-°CATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours$				-	5.0	
ONNOFF Sink to pull low – Active Low or High $V_{ON/OFF}=0V$, $Vin=36V$ 0.38mAONNOFF Source to drive high – Active High $V_{ON/OFF}=5V$, $Vin=36V$ 0.03mAONNOFF Source to drive high – Active Low $V_{ON/OFF}=5V$, $Vin=36V$ mAOur On Delay – Active HighON/OFF (max Low) to Vout (min)-9-msCurn On Delay – Active HighON/OFF (0V) to Vout (min)-160-uSSOLATION-1-1500-Vdcnput-Output1minute-500-Vdcoutput-Case1minute-500-VdcOutput-Case1minute-500-VdcOver Temperature Protection (OTP)Case Temperature Greater than-100-°COver TEmperature Protection (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours				_	5.0	
ONNOFF Source to drive high - Active High $V_{ON/OFF}=5V$, Vin=36V0.03mAONNOFF Source to drive high - Active Low $V_{ON/OFF}=5V$, Vin=36VmACurn On Delay - Active HighON/OFF (max Low) to Vout (min)-9-msCurn Off Delay - Active HighON/OFF (0V) to Vout (min)-160-uSSOLATION-11-1500-Vdcnput-Output1minute-500-Vdcnput-Case1minute-500-VdcCHERMAL500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-95-°CATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours			$10/\Lambda$	-	0.38	
ONNOFF Source to drive high – Active Low $V_{ON/OFF}=5V$, Vin=36VmACurn On Delay – Active HighON/OFF (max Low) to Vout (min)-9-msCurn Off Delay – Active HighON/OFF (0V) to Vout (min)-160-uSSOLATION-11-1500-Vdcnput-Output1minute-500-Vdcnput-Case11-500-VdcOutput-Case11-500-VdcCHERMAL-500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-95-°CATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours-			-			
Curn On Delay – Active HighON/OFF (max Low) to Vout (min)-9-msCurn Off Delay – Active HighON/OFF (0V) to Vout (min)-160-uSSOLATION1minute-1500-Vdcnput-Output1minute-500-Vdcnput-Case1minute-500-VdcOutput-Case1minute-500-VdcCHERMAL-500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-95-°CCurn On (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours			-			
Curn Off Delay – Active HighON/OFF (0V) to Vout (min)-160-uSSOLATIONI minute-1500-Vdcnput-Output1 minute-500-Vdcnput-Case1 minute-500-VdcOutput-Case1 minute-500-VdcDutput-Case1 minute-500-VdcCHERMAL500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-95-°CCurn On (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours			-			
SOLATIONI minute-1500-Vdcnput-Output1 minute-500-Vdcnput-Case1 minute-500-VdcOutput-Case1 minute-500-VdcIminute-500-VdcCher HERMAL500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-100-°CCurn On (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours			-			
nput-Output1 minute-1500-Vdcnput-Case1 minute-500-VdcDutput-Case1 minute-500-VdcCHERMAL-500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-100-°CCurn On (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours		ON/OFF (0V) to Vout (min)	-	160	-	uS
nput-Case1 minute-500-VdcOutput-Case1 minute-500-VdcCHERMAL-500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-100-°CCurn On (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours	SOLATION					
nput-Case1 minute-500-VdcOutput-Case1 minute-500-VdcCHERMAL-500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-100-°CCurn On (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours	nput-Output	1 minute	-	1500	-	Vdc
Dutput-Case1 minute-500-VdcCHERMAL-500-VdcAmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-100-°CCurn On (OTP)Case Temperature Less than-95-°CMTBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours			-			
AmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-100-°CCurn On (OTP)Case Temperature Less than-95-°CATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours			-			
AmbientMax. Ambient limited by OTP-4025OTP°COver Temperature Protection (OTP)Case Temperature Greater than-100-°CCurn On (OTP)Case Temperature Less than-95-°CATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours				200		, ac
Over Temperature Protection (OTP)Case Temperature Greater than-100-°CCurn On (OTP)Case Temperature Less than-95-°CATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours		Max Ambient limited by OTP	_40	25	ОТР	°C
Curn On (OTP)Case Temperature Less than-95-°CATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours			-40		011	
ATBFCalculated Using Bellcore TR-332 Method 1 case 32,563,116hours	-		-		-	
					-	
	MTBF MECHANICAL	Calculated Using Belicore 1K-332 Method	r case 5			nours



Table 1: Pin Assignments

Pin #	Pin Name	Function	Comments
1	-Vo	Negative Output	
2	-RS	Negative Remote Sense	If not used, leave open or short to -Vo
3	Trim	Output Voltage Trim	Refer to page 6
4	+RS	Positive Remote Sense	If not used, leave open or short to +Vo
5	+Vo	Positive Output	
6	-Vin	Negative Input	
7	CHGND	Chassis Ground (Case)	Short to –Vin if no chassis ground is available
8	Key Pin/NC	To Key Converter	Leave as a No Connect pin
9	ON/OFF	Remote On/Off	If not used, leave floating for Active High Unit If not used, short to –Vin on an Active Low Unit
10	+Vin	Positive Input	

Figure 1: Mechanical Dimensions



PIN DE	PIN Ø	
1	-OUTPUT	Ø.081
2	-SENSE	Ø.040
3	TRIM	Ø.040
4	+SENSE	Ø.040
5	+OUT	Ø.081
6	-Vin	Ø.081
7	CASE GRD	Ø.040
8	KEY PIN/NC	Ø.081
9	ON/OFF	Ø.040
10	+Vin	Ø.081

NOTES:

- 1. PIN TO PIN TOLERANCE ± .01 [±0.3],
- PIN DIAMETER TOLERANCE: ±.005 [±0.13].
- 2. CASE MATERIAL: .040 [1.02] THICK, ALUMINUM ALLOY 3003-0, PER: QQA 250/2.
- 3. UNLESS OTHERWISE SPECIFIED.

TO ORDER:

- 4. UNIT COMES WITH EITHER 3M x 0.5 THREADED THRU INSERTS OR FOR Ø.125 THRU-HOLE ADD: "TH" SUFFIX TO MODEL PART NUMBER. EXAMPLE: LV12S15-100TH
- 5. CONSULT FACTORY FOR OPTIONAL HEAT SINK.



DESIGN CONSIDERATIONS

Under Voltage Lock Out (UVLO)

The converter output is disabled until the input voltage exceeds the UVLO turn-on limit. The converter will remain ON until the input voltage falls below the UVLO turn-off limit.

Over Current Protection

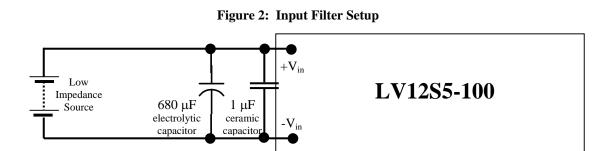
The converter is protected from short circuit and over current conditions. During these fault conditions, the converter output will 'hiccup'. The converter output will recover once the short or over current fault is removed.

Over Temperature Protection (OTP)

The converter has internal thermal protection that will shut the converter OFF once the case temperature exceeds the OTP turn-off limit. The converter will resume operation when the case temperature has dropped below the OTP turn-on limit.

Input Filter

It is recommended to bypass the +Vin and –Vin pins of the converter with a minimum of 680uF (50V minimum) capacitor (UCC - SXE50VB681M12X35LL). No other bypassing is needed. However, to reduce the input ripple beyond what is seen in Photo 1, larger values of capacitance may be used in conjunction with a ceramic capacitor. Additionally, an inductor may be placed between the source and the previously mentioned capacitor. No inductor should be placed between the capacitor and the input to the converter. It is important to note that placement of the input filter must be as close as possible to the input pins of the converter to assure a low impedance at the pins.



Output Filter

No additional output capacitor is needed for the power supply to operate. However, to reduce the ripple and noise on the output, additional capacitance may be added. A low ESR Ceramic capacitor may be added across the +Vo and -Vo pins to reduce the ripple and spike noise. Additional capacitance in the form of a tantalum or aluminum electrolytic may also be placed across these pins in order reduce ripple and improve the transient peak-to-peak voltage deviation.

Remote Sense

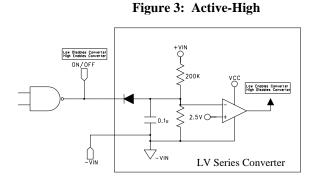
To improve the regulation at the load, route the connections from the -RS and the +RS pins to the -Vo and +Vo connections at the load. This will force the converter to regulate the voltage at the load and not at the pins of the converter (refer to Graph 8). If it is not desired to use the Remotes Sense feature, the -RS and +RS pins may be left open or they may be shorted to the -Vo and +Vo pins respectively. Shorting the RS pins to the Vo pins will reduce the voltage drops through the converter pins.



Remote ON/OFF

The converter has the ability to be remotely turned ON or OFF. The LV series is Active-High. Active-High means that a logic high at the ON/OFF pin will enable the supply (Figure 3). With Active-High, if the ON/OFF pin is left floating, the supply will be enabled.

Rev. G





Output Voltage Trim: (5V, 12V, 15V, and 20V Models)

The output is adjustable +/-10% of rated output voltage. To trim the output voltage down, place the trim resistor between the Trim and -Rs pins (Figure 5). To trim the output voltage up, place the trim resistor between the Trim and +Rs pins (Figure 4).

Rev. G

The value of the trim resistor with respect to the desired output voltage (Vo) can be derived from the following formulas, or looked up on the trim table (Table 2).

$$RTH = \frac{R_1 \cdot V_o \cdot \frac{V_{onom}}{U_1}}{V_o - V_{onom}} - \frac{R_1 \cdot V_o}{V_o - V_{onom}} - R_{\lim} \qquad (\text{in Kohms})$$

$$RTL = \frac{R_1 \cdot V_o}{V_{onom} - V_o} - R \lim \qquad (\text{in Kohms})$$

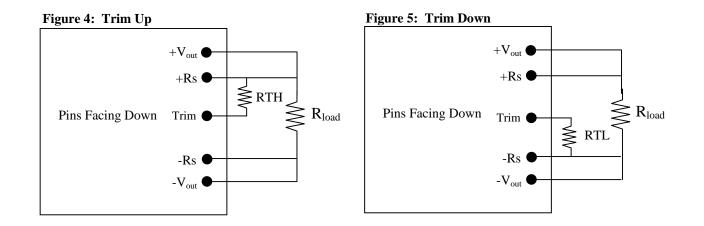


	Table 2: Trim Ec	quations for LV	/ Series (5V	, 12V, 15V.	and 20V Models)
--	------------------	-----------------	--------------	-------------	-----------------

Vonom	U1	R1	Rlim	RTH to +Rs
5.000	2.500	5.11	5.11	RTL to -Rs

Percent	Trim	Low	<u>Trim</u>	High	
Trim	Vo	RTL	Vo	RTH	_
1%	4.950	500.78	5.050	511.00	All in Kohms
2%	4.900	245.28	5.100	255.50	
3%	4.850	160.11	5.150	170.33	
4%	4.800	117.53	5.200	127.75	
5%	4.750	91.98	5.250	102.20	
6%	4.700	74.95	5.300	85.17	
7%	4.650	62.78	5.350	73.00	
8%	4.600	53.66	5.400	63.88	
9%	4.550	46.56	5.450	56.78	
10%	4.500	40.88	5.500	51.10	

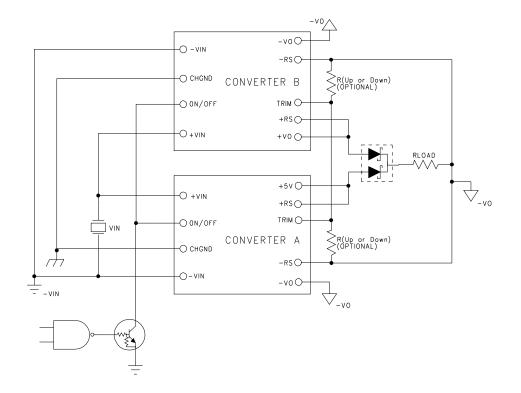
Note that while decreasing the output voltage, the maximum output current still remains at 20A, and while increasing the output voltage, the output current is reduced to maintain a total output power at 100 W.



Paralleling Converters

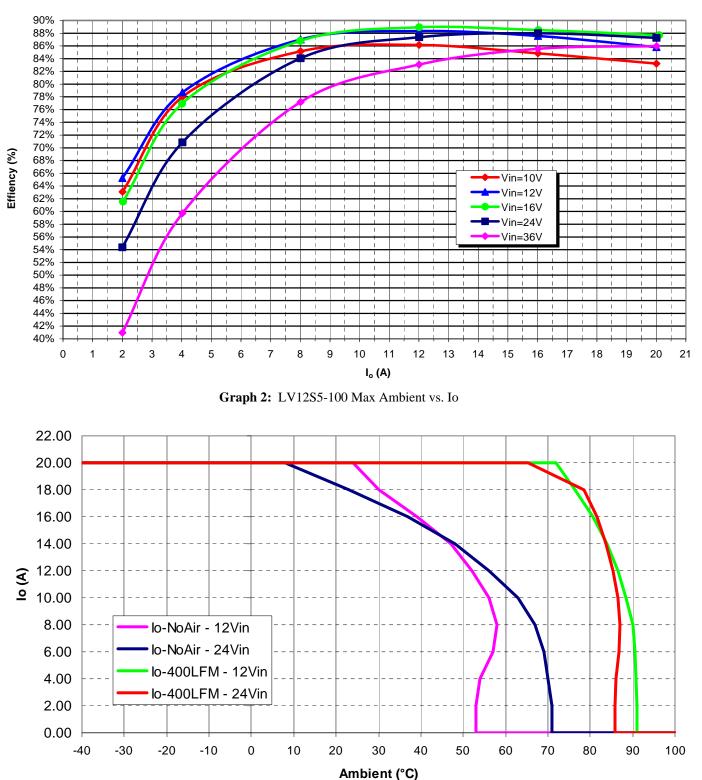
The LV series converters may be paralleled both for redundancy and for higher output current. However, in order to do this, a high-current, low V_f , schottky diode must be placed at the +Vo pin of each supply as shown in Figure 6. To improve sharing, tie the two TRIM pins together. The converters may be trimmed by adding a resistor value from Table 2 from each TRIM pin to ±RS pin, or alternatively, a single resistor of half the value of Table 2 from the common TRIM pins to the common ±RS pins.

Figure 6: Paralleling Converters

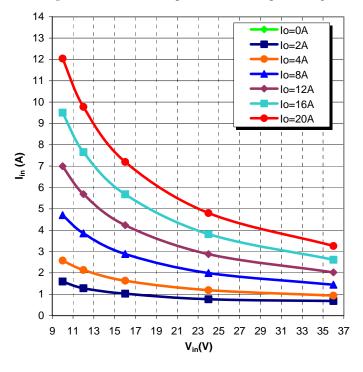




TECHNICAL DATASHEET LV12S5-100

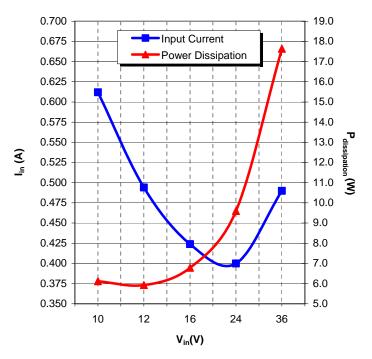






Graph 3: LV12S5-100 Input Current vs. Input Voltage

Graph 5: LV12S5-100 No Load Input Current and Power Dissipation vs. Input Voltage

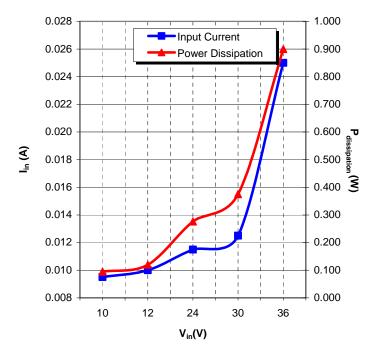


Note: Voltage measurements taken where the output pins are soldered into test board.

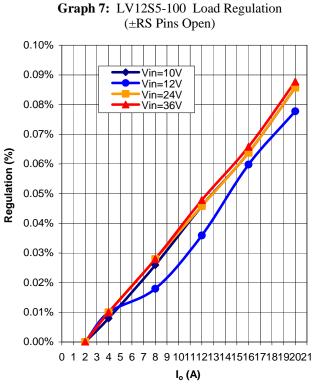
30 lo=2A lo=4A lo=8A 28 lo=12A lo=16A lo=20A 26 lo=0A 24 22 20 S 18 ination 16 P 14 12 10 8 6 4 2 11 13 15 17 19 21 23 25 27 29 31 33 35 37 9 V_{in}(V)

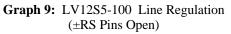
Graph 4: LV12S5-100 Power Dissipation vs. Input Voltage

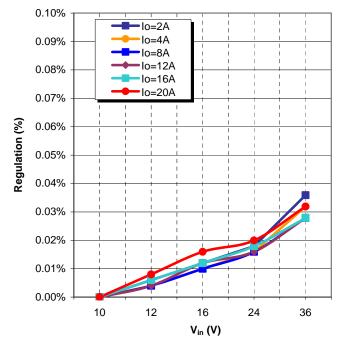
Graph 6: LV12S5-100 "Remote Off" Input Current and Power Dissipation vs. Input Voltage

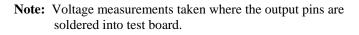


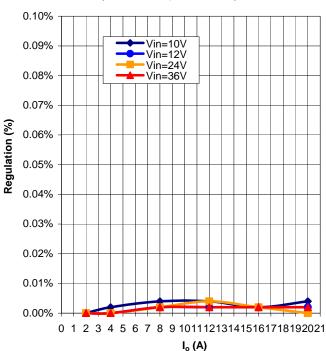






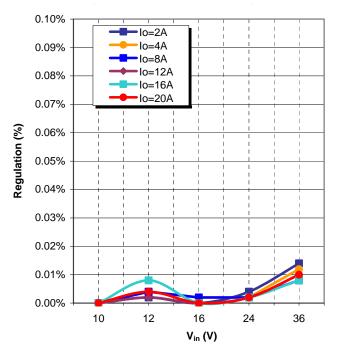






Graph 8: LV12S5-100 Load Regulation (+RS to +Vo, -RS to -Vo)

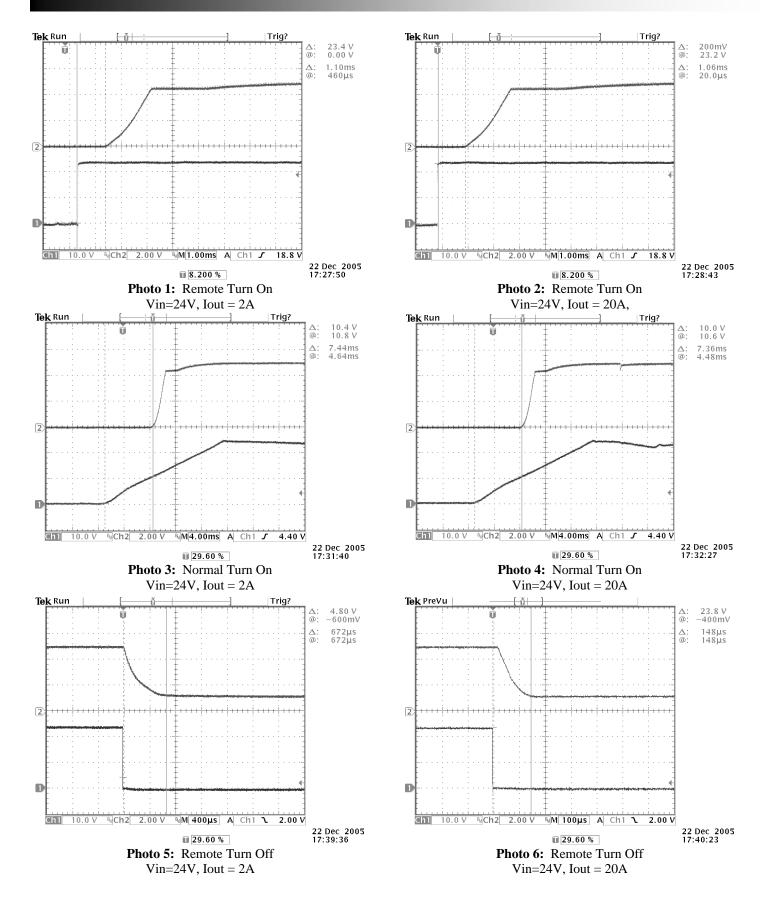
Graph 10: LV12S5-100 Line Regulation (+RS to +Vo, -RS to -Vo)



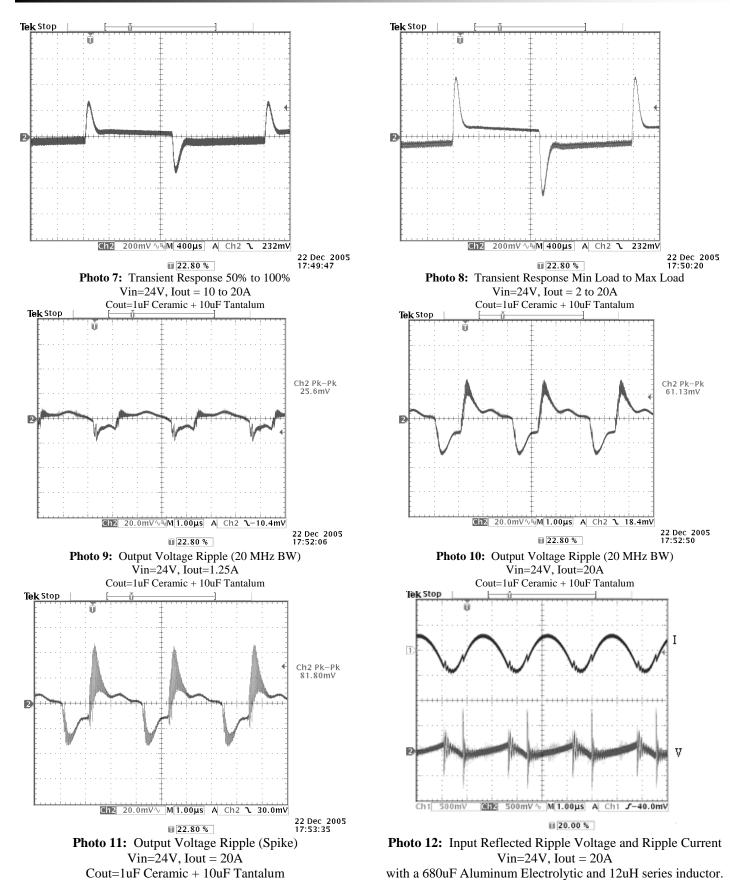
Graph 7: LV12S5-100 (±RS Pins O



TECHNICAL DATASHEET LV12S5-100









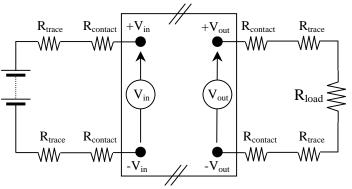
TEST SETUP:

The LV12S5-100 specifications are tested with the following configurations:

Regulation and Efficiency Setup

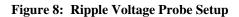
To ensure that accurate measurement are taken, the voltage measurements are taken directly at the terminal of the module. This minimizes errors due to contact and trace lengths between the load and the output of the supply. The following is a diagram of the test setup.

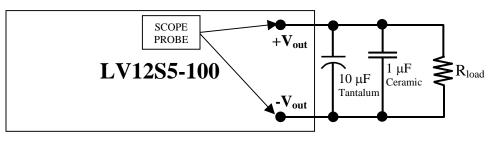
Figure 7: Regulation and Efficiency Probe Setup



Output Ripple Voltage Setup

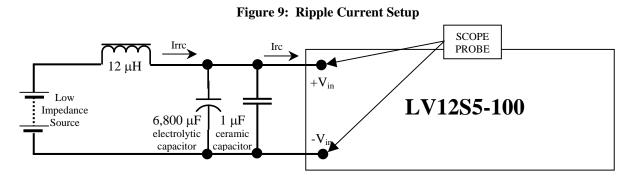
The module is tested with a 1uF ceramic capacitor in parallel with a 10uF tantalum capacitor across the output terminals.





Input Reflected Ripple Current and Input Ripple Current Setup

The module is tested for input reflected ripple current (Irrc) and input ripple current (Irc). The input ripple voltage is also measured at the pins with the following input filter. If there is a need to reduce input ripple current/voltage then additional ceramic capacitors can be added to the input of the converter.

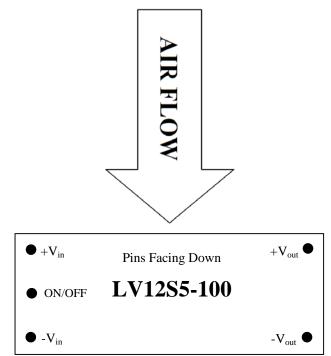




Converter Thermal Consideration

The converter is designed to operate without convective cooling if the derating curves are followed. The converter can operate at higher temperatures if airflow is applied. Airflow should be aligned lengthwise to the converter for optimum heat transfer. Contact Factory for derating curves.

Figure 10: Airflow Orientation





Company Information:

Wall Industries, Inc. has created custom and modified units for over 40 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact Wall Industries for further information:

Phone:	(603)778-2300
Toll Free:	(888) 587-9255
Fax:	2 (603)778-9797
<u>E-mail:</u>	sales@wallindustries.com
Web:	www.wallindustries.com
Address:	5 Watson Brook Rd.
	Exeter, NH 03833