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AM3DG-LPZ



SIP7

The new AM3DG-LPZ is an ultra-wide input DC/DC converter that has a dual isolated output channel, which leads to improved reliability and performance. This series will offer many benefits to your design if it requires several voltage supply rails being supplied by one component.

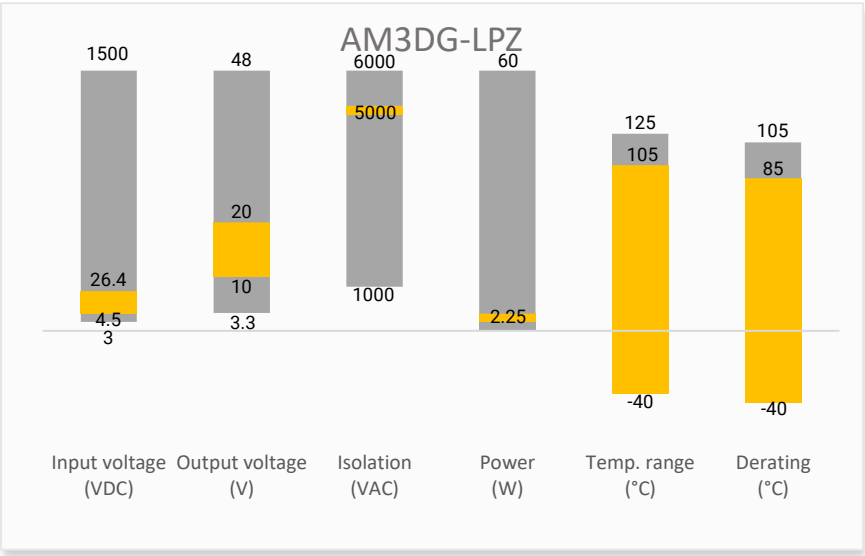
This series offers great operating temperatures, from -40℃ to +105℃ with full power up to 85℃. It also features an isolation of 5000VAC for improved reliability and system safety. Furthermore, a high MTBF of 3,500,000h, output short circuit protection (OSCP) come standard.

The AM3DG-LPZ is suitable for distributed power supply systems, industrial controls, power grid, instruments and communications applications.

Features

- Operating Temp: -40 °C to +105 °C
- High isolation voltage: 5000VAC
- Low ripple & noise, 100mV (p-p), typ.
- SIP7 package
- Output short circuit protection

Summary



Training



Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Power Grid | Industrial | Telecom | Instrumentation

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Models & Specifications

Dual Output

Model	Input Voltage (VDC)	Output Voltage (VDC)		Output Current Max (mA)		Maximum Capacitive Load (µF)*	Efficiency (%) Full Load Typ.
		Vo1	Vo2	Io1	Io2		
AM3DG-051505DH40LPZ	5 (4.5-5.5)	15	-5	100	-100	1000	81
AM3DG-052005DH40LPZ	5 (4.5-5.5)	20	-5	100	-100	470	81
AM3DG-12152.5DH40LPZ	12 (10.8-13.2)	15	-2.5	100	-100	2200	82
AM3DG-12153.5DH40LPZ	12 (10.8-13.2)	15	-3.5	111	-111	2200	82
AM3DG-121504DH40LPZ	12 (10.8-13.2)	15	-4	120	-120	2200	80
AM3DG-121508DH40LPZ	12 (10.8-13.2)	15	-8	120	-120	1000	79
AM3DG-121509DH40LPZ	12 (10.8-13.2)	15	-9	100	-100	1000	84
AM3DG-12182.5DH40LPZ	12 (10.8-13.2)	18	-2.5	100	-100	680	81
AM3DG-12183.5DH40LPZ	12 (10.8-13.2)	18	-3.5	100	-100	470	81
AM3DG-121805DH40LPZ	12 (10.8-13.2)	18	-5	100	-100	470	82
AM3DG-122004DH40LPZ	12 (10.8-13.2)	20	-4	100	-100	470	81
AM3DG-122005DH40LPZ	12 (10.8-13.2)	20	-5	100	-100	470	79
AM3DG-15152.5DH40LPZ	15 (13.5-16.5)	15	-2.5	100	-100	2200	82
AM3DG-151504DH40LPZ	15 (13.5-16.5)	15	-4	120	-120	2200	83
AM3DG-151505DH40LPZ	15 (13.5-16.5)	15	-5	100	-100	1000	83
AM3DG-151508DH40LPZ	15 (13.5-16.5)	15	-8	120	-120	1000	83
AM3DG-15158.7DH40LPZ	15 (13.5-16.5)	15	-8.7	100	-100	1000	84
AM3DG-151803DH40LPZ	15 (13.5-16.5)	18	-3	100	-100	1000	84
AM3DG-152004DH40LPZ	15 (13.5-16.5)	20	-4	100	-100	470	83
AM3DG-152005DH40LPZ	15 (13.5-16.5)	20	-5	90	-90	470	84
AM3DG-241002DH40LPZ	24 (21.6-26.4)	10	-2	120	-120	2200	82
AM3DG-241504DH40LPZ	24 (21.6-26.4)	15	-4	120	-120	2200	86
AM3DG-241508DH40LPZ	24 (21.6-26.4)	15	-8	120	-120	1000	87
AM3DG-24158.7DH40LPZ	24 (21.6-26.4)	15	-8.7	120	-120	1000	87
AM3DG-24182.5DH40LPZ	24 (21.6-26.4)	18	-2.5	80	-80	1000	86
AM3DG-241803DH40LPZ	24 (21.6-26.4)	18	-3	100	-100	1000	86
AM3DG-242004DH40LPZ	24 (21.6-26.4)	20	-4	100	-100	470	88
AM3DG-242005DH40LPZ	24 (21.6-26.4)	20	-5	90	-90	470	88

*:The maximum capacitive load value is the same for both outputs.

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Input current	AM3DG-051505DH40LPZ, full load/no load	465/30		mA
	AM3DG-052005DH40LPZ, full load/no load	554/35		mA
	AM3DG-12152.5DH40LPZ, full load/no load	172/6		mA
	AM3DG-12153.5DH40LPZ, full load/no load	199/6		mA
	AM3DG-121504DH40LPZ, full load/no load	222/6		mA
	AM3DG-121508DH40LPZ, full load/no load	261/6		mA
	AM3DG-121509DH40LPZ, full load/no load	226/6		mA
	AM3DG-12182.5DH40LPZ, full load/no load	210/6		mA
	AM3DG-12183.5DH40LPZ, full load/no load	207/8		mA

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	AM3DG-121805DH40LPZ, full load/no load	225/6		mA
	AM3DG-122004DH40LPZ, full load/no load	234/6		mA
	AM3DG-122005DH40LPZ, full load/no load	242/6		mA
	AM3DG-15152.5DH40LPZ, full load/no load	134/6		mA
	AM3DG-151504DH40LPZ, full load/no load	173/6		mA
	AM3DG-151505DH40LPZ, full load/no load	153/6		mA
	AM3DG-151508DH40LPZ, full load/no load	205/6		mA
	AM3DG-15158.7DH40LPZ, full load/no load	179/6		mA
	AM3DG-151803DH40LPZ, full load/no load	160/6		mA
	AM3DG-152004DH40LPZ, full load/no load	187/6		mA
	AM3DG-152005DH40LPZ, full load/no load	175/8		mA
	AM3DG-241002DH40LPZ, full load/no load	76/3		mA
	AM3DG-241504DH40LPZ, full load/no load	113/3		mA
	AM3DG-241508DH40LPZ, full load/no load	127/3		mA
	AM3DG-24158.7DH40LPZ, full load/no load	135/3		mA
	AM3DG-24182.5DH40LPZ, full load/no load	76/3		mA
	AM3DG-241803DH40LPZ, full load/no load	104/3		mA
	AM3DG-242004DH40LPZ, full load/no load	118/3		mA
	AM3DG-242005DH40LPZ, full load/no load	110/3		mA
Absolute maximum rating	5Vin, 1s max.	> -0.7	9	VDC
	12Vin, 1s max.	> -0.7	18	VDC
	15Vin, 1s max.	> -0.7	21	VDC
	24Vin, 1s max.	> -0.7	30	VDC
Filter	Capacitor			

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested isolation voltage	Input / output, 60 sec, ≤ 1mA	≥ 5000		VAC
Resistance	500VDC	≥ 1000		MΩ
Capacitance	100kHz/ 0.1V	5	10	pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	10% -100% load, See Typical Characteristic			
Line regulation	For Vin change of ±1%	± 1.2	± 1.5	%
Load regulation	10% - 100%, Vo1	6	20	%
	10% - 100%, Vo2	8	15	%
Short circuit protection	Continuous, Auto recovery			
Ripple & Noise	20MHz bandwidth, 10%-100% load	100	150	mV pk-pk
Minimum load*		10		%

*** Operating with less than 10% of rated load will not cause permanent damage to the converters, but the performance data may not fall into the specifications, and reliable operating is not assured.**

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% Load	250		KHz

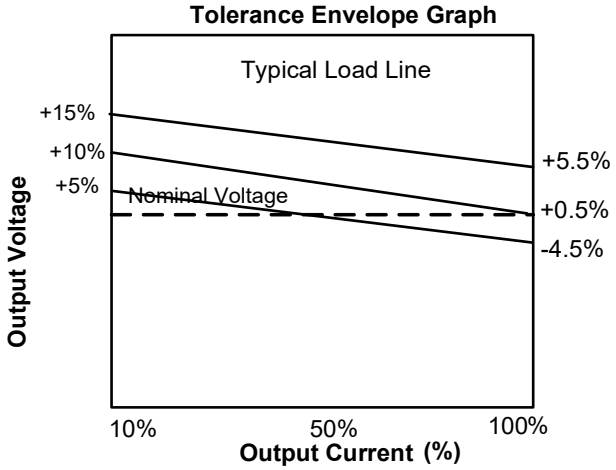
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Operating temperature	With derating at 85°C	-40 to +105		°C
Storage temperature		-55 to +125		°C
Soldering temperature	1.5mm distance ≤ 10s	260	300	°C
Case temperature rise	100% Load	30		°C
Temperature coefficient	100% Load	± 0.04	± 0.1	%/ °C
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Vibration	10-150Hz, 5G, 0.75mm. along X, Y and Z			
Case material	Heat resistant black Plastic (flammability to UL 94V-0)			
Weight		4.2		g
Dimensions (L x W x H)	0.77 x 0.39 x 0.49 inches (19.50 × 9.80 × 12.50 mm)			
MTBF	> 3 500 000 hrs (MIL-HDBK -217F, t=+25°C)			
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.				

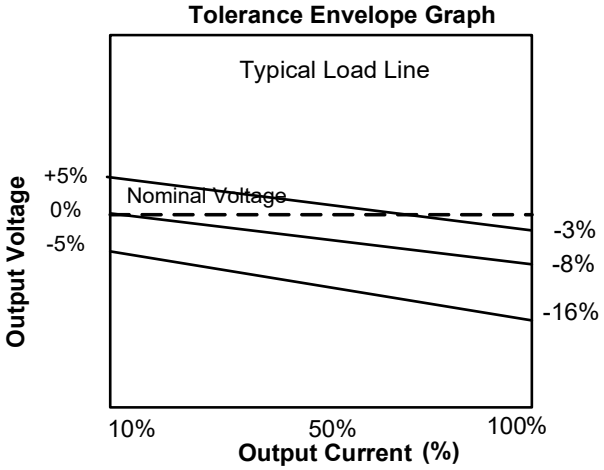
Safety Specifications		
Parameters		
Standards	Designed to meet UL/EN/IEC62368-1	
	EMC - Conducted and radiated emission	CISPR32/EN55032, Class B with the recommended EMC circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2, contact ±8kV, Criteria B

Typical Characteristic

AM3DG-051505DH40LPZ Vo1

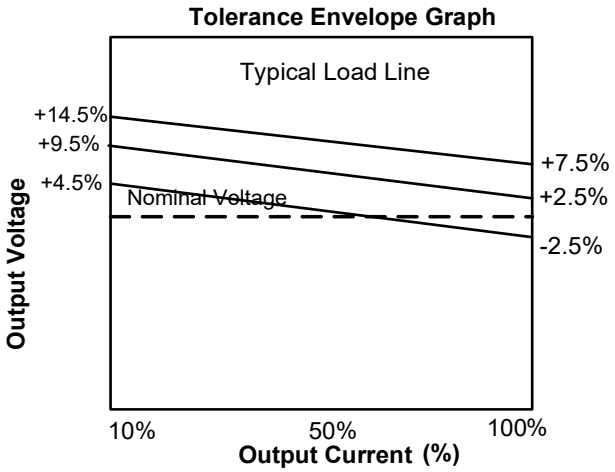


AM3DG-051505DH40LPZ Vo2

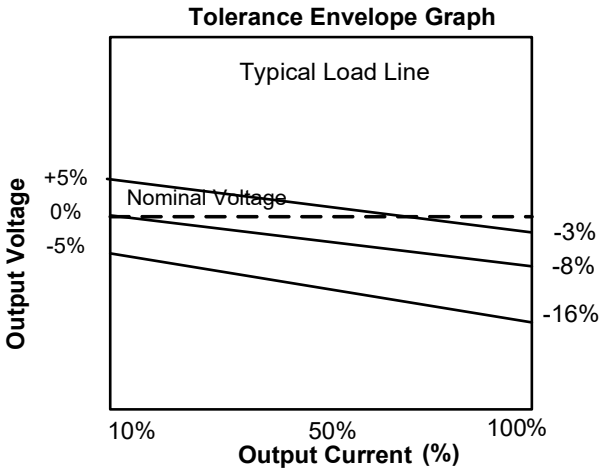


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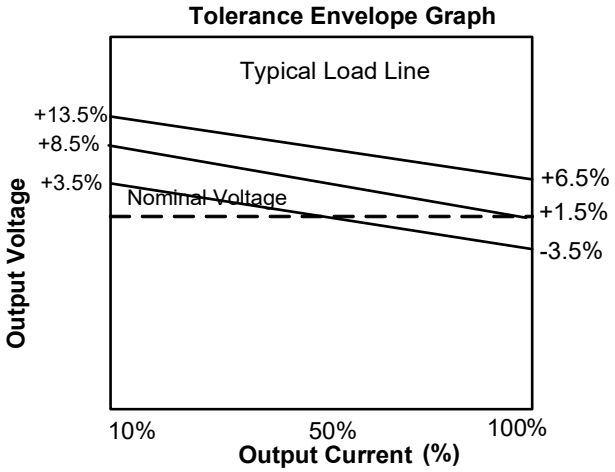
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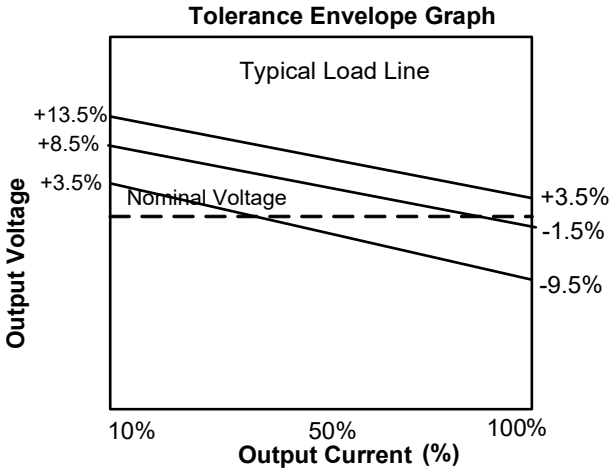
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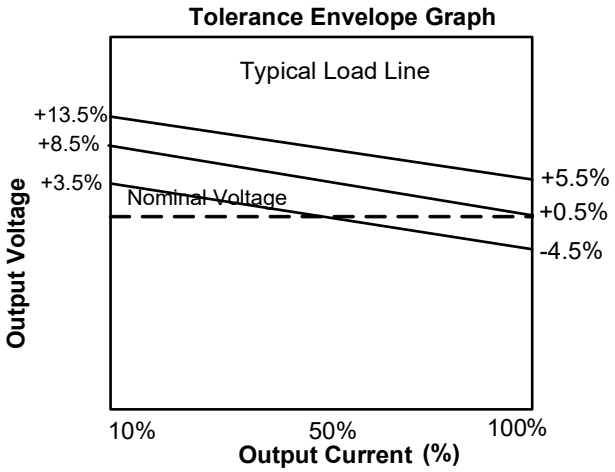
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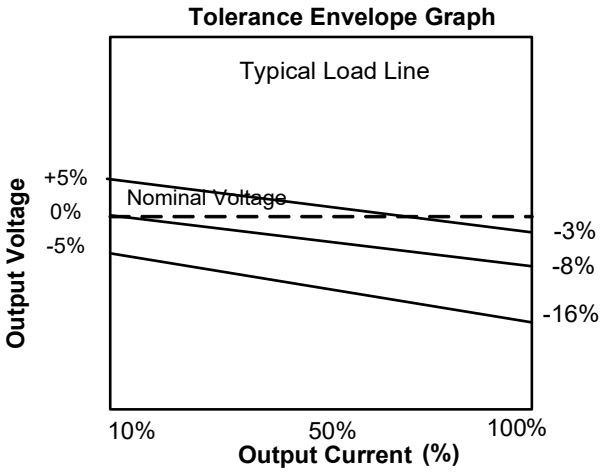
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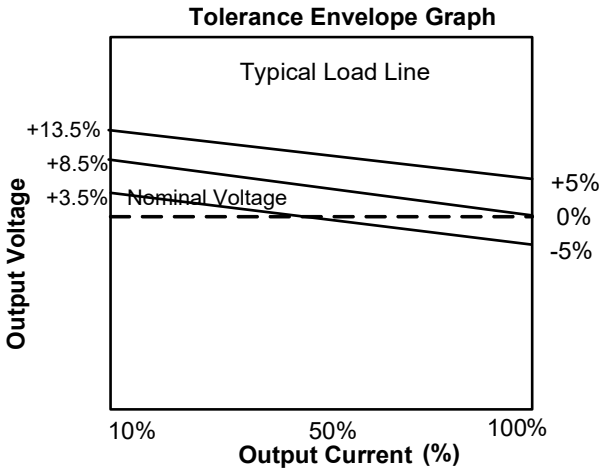


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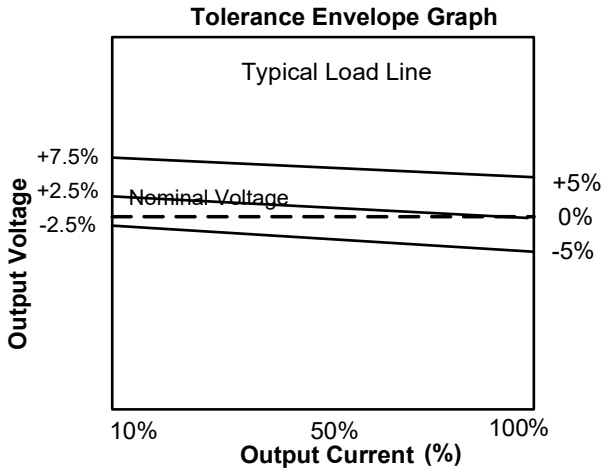


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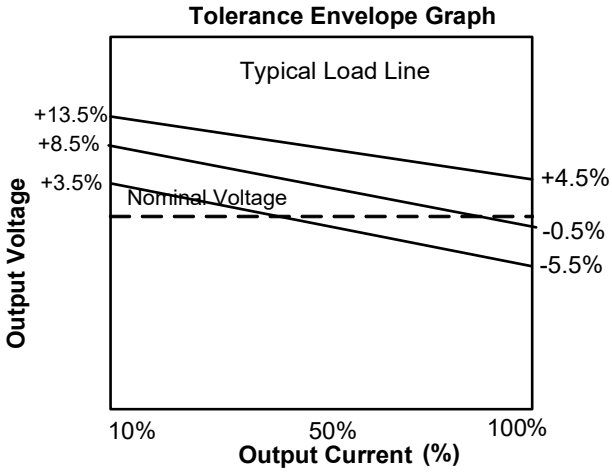
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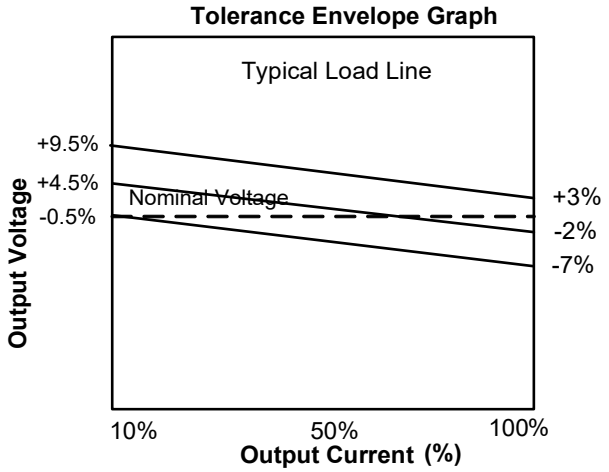
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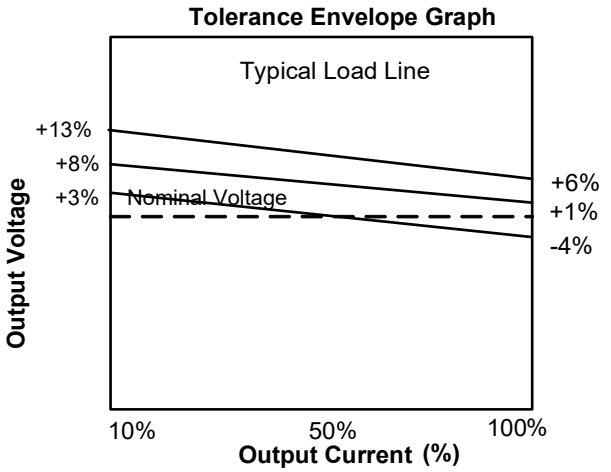
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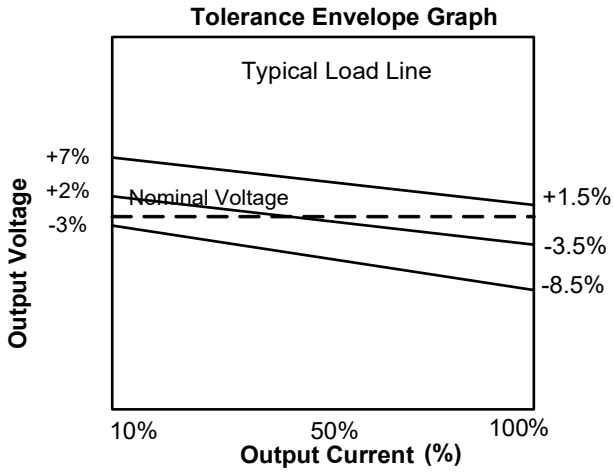
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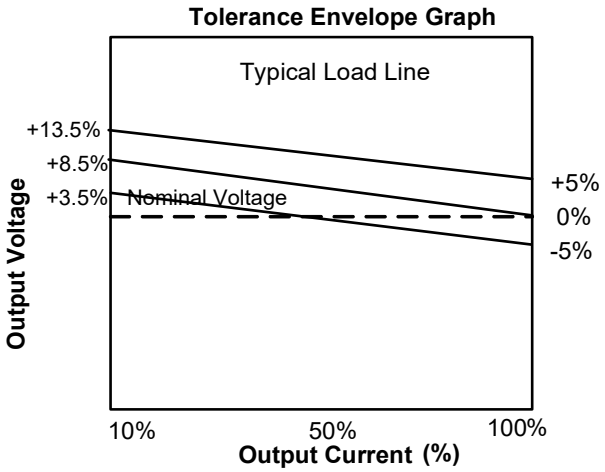


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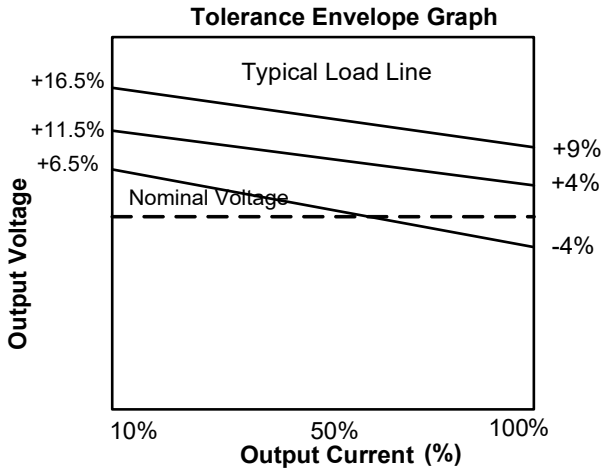


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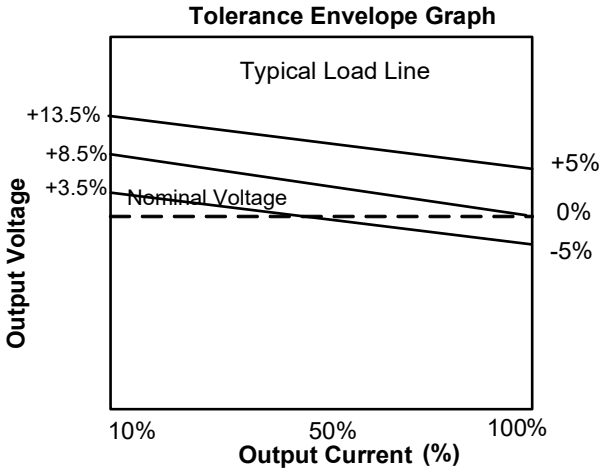
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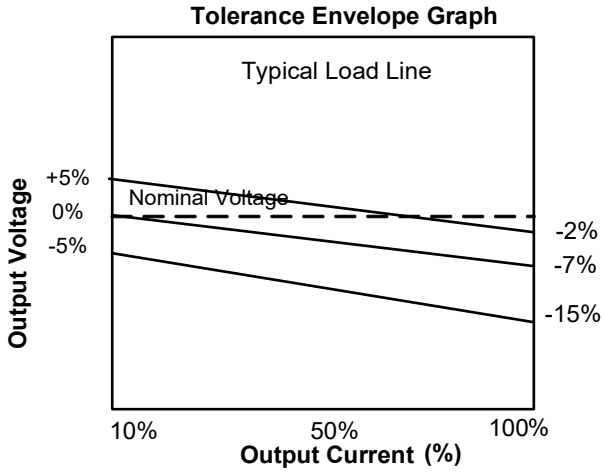
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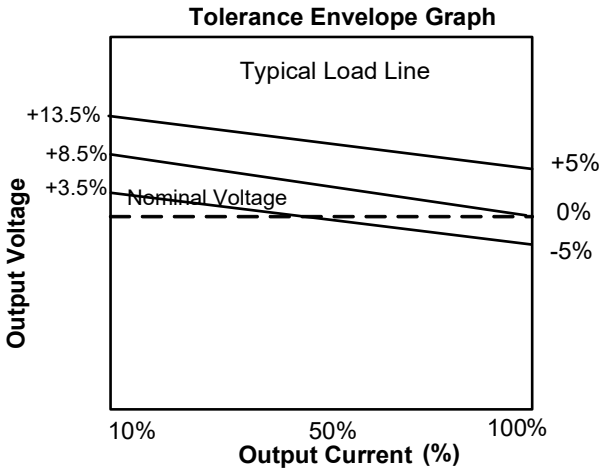
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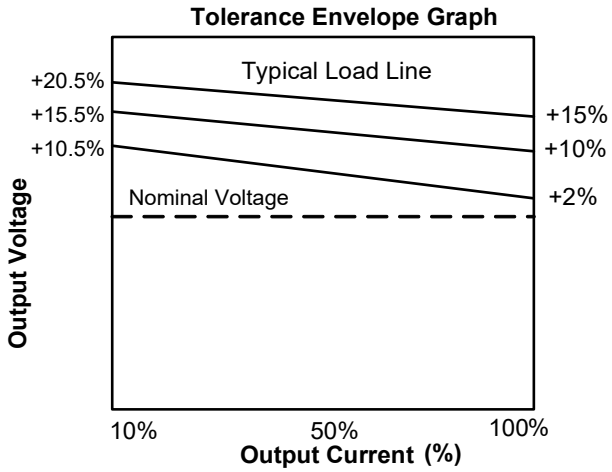
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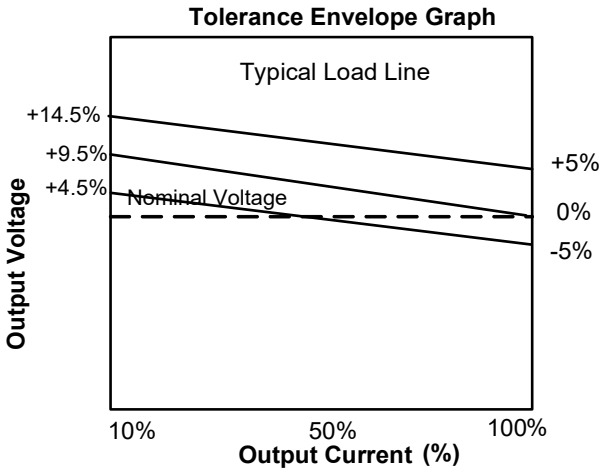


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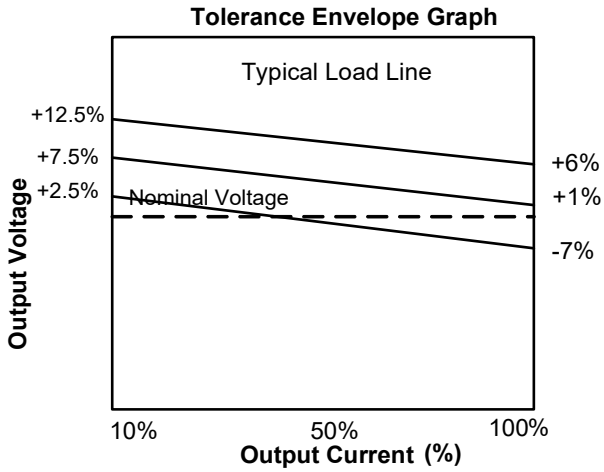


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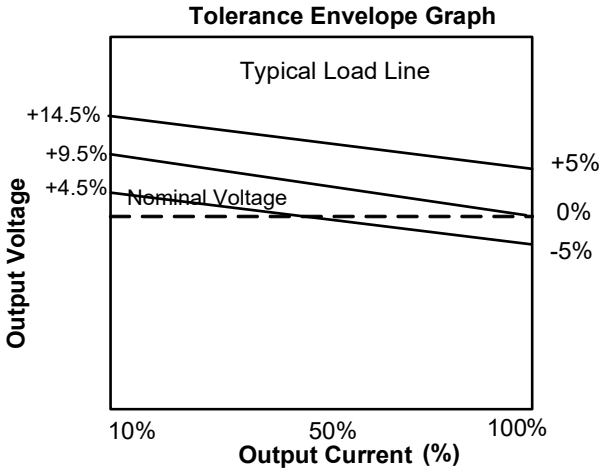
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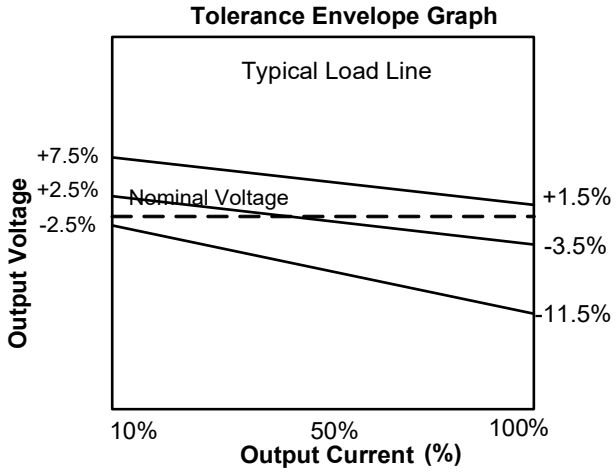
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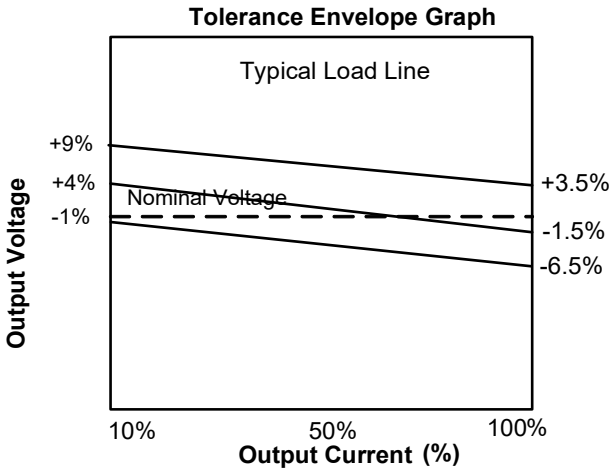
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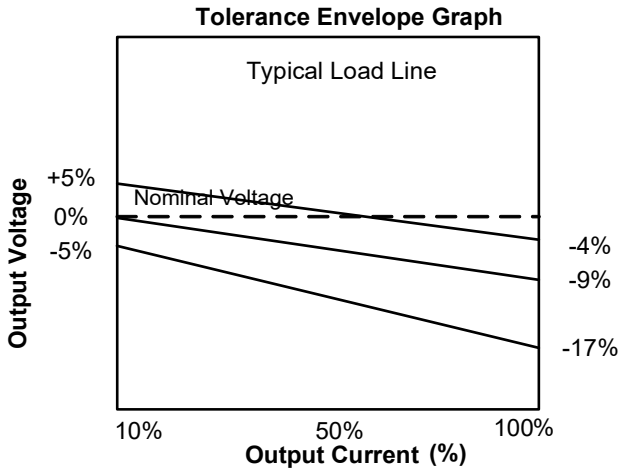
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AM3DG-15152.5DH40LPZ Vo1

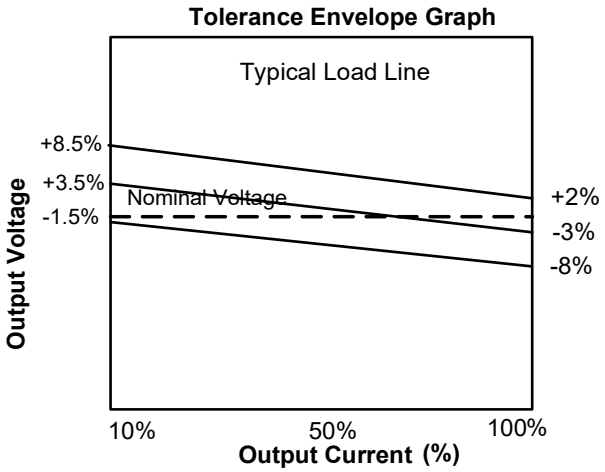


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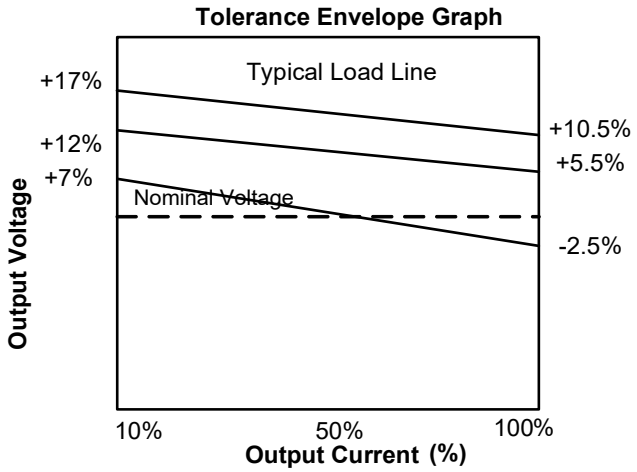


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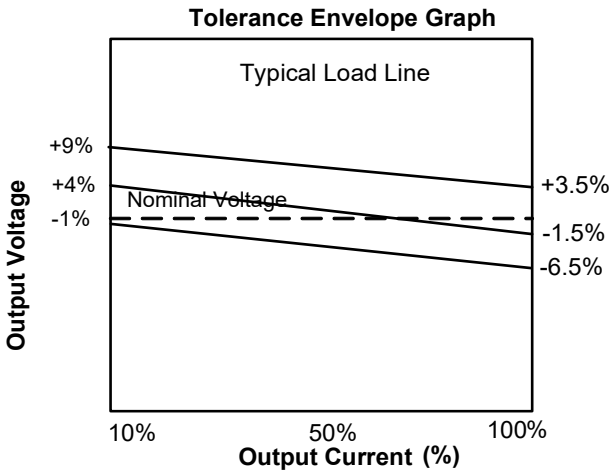
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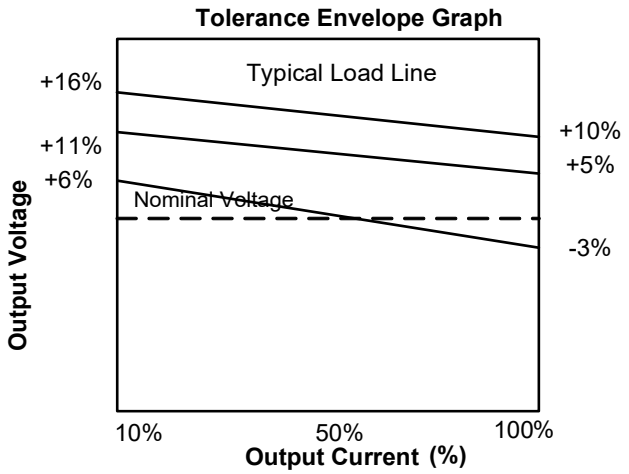
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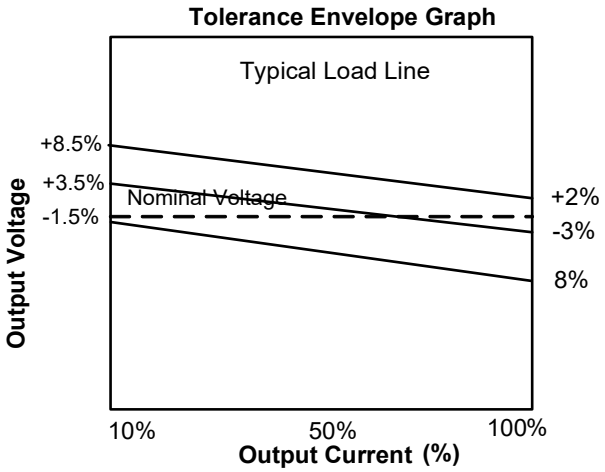
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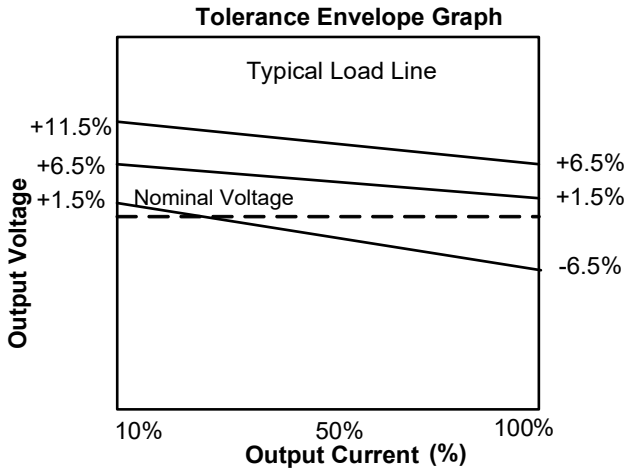
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AM3DG-151508DH40LPZ Vo1

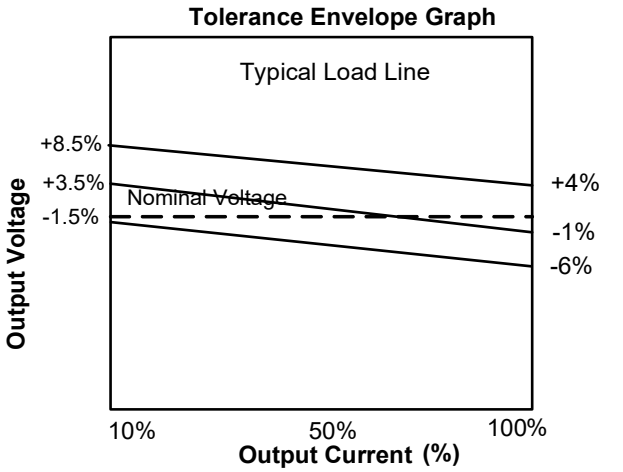


AM3DG-151508DH40LPZ Vo2

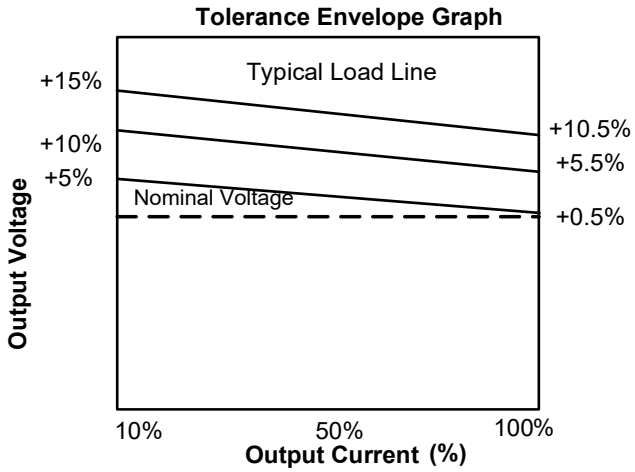


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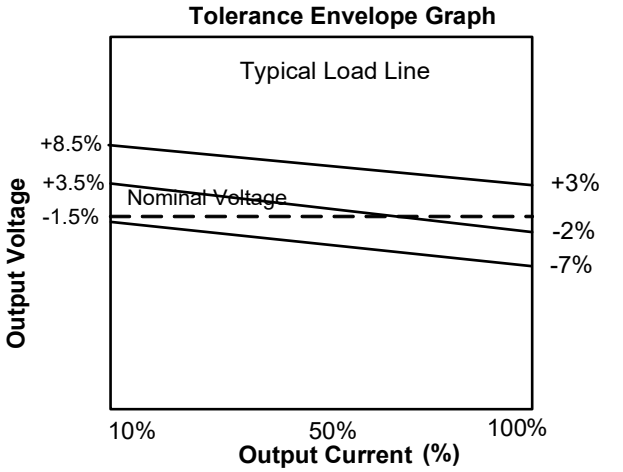
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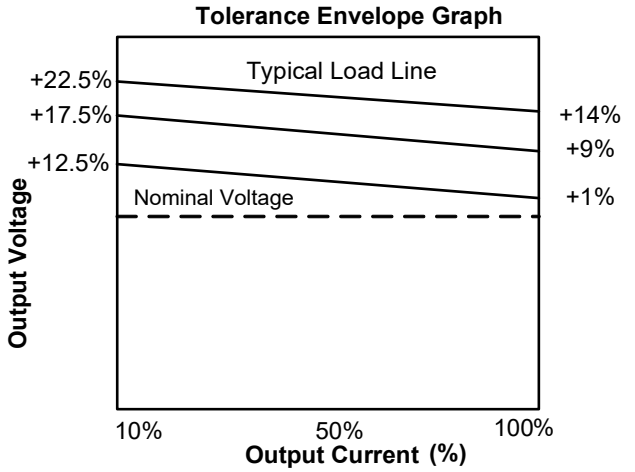
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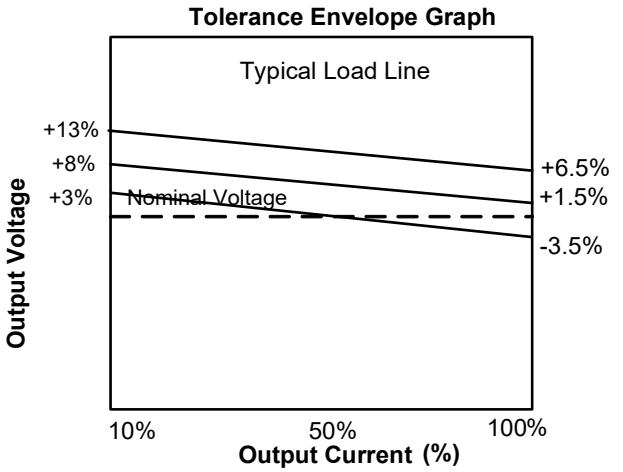
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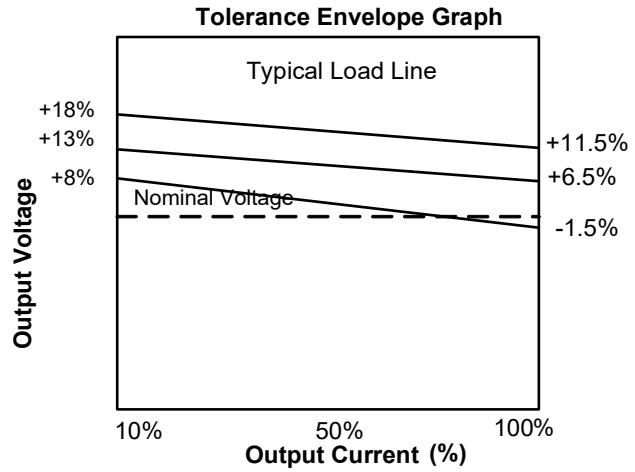
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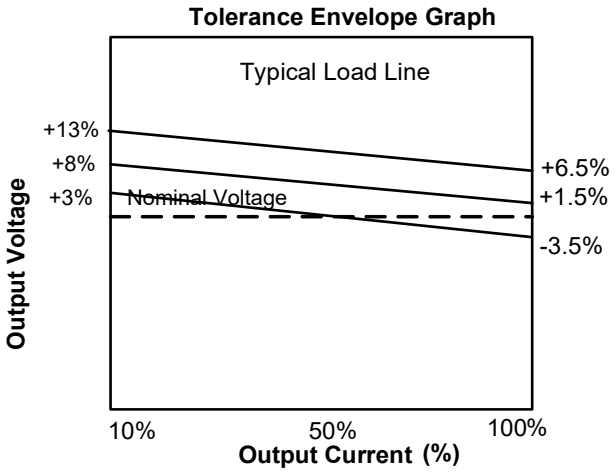


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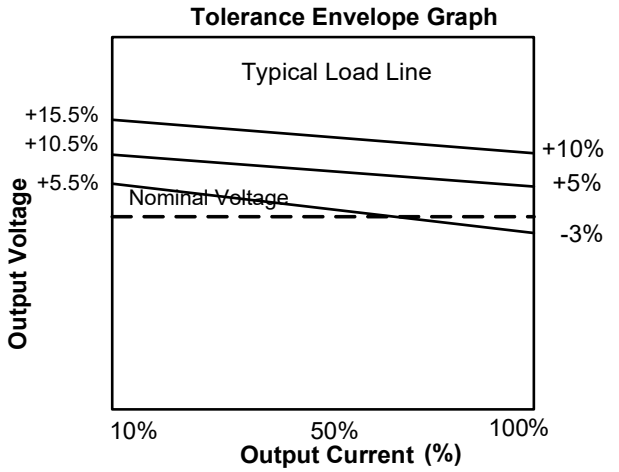


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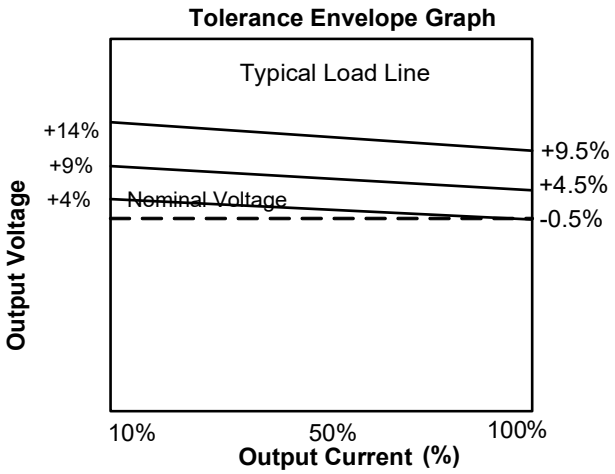
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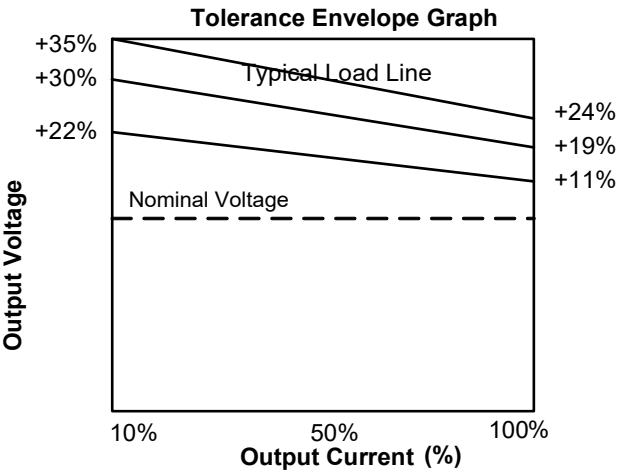
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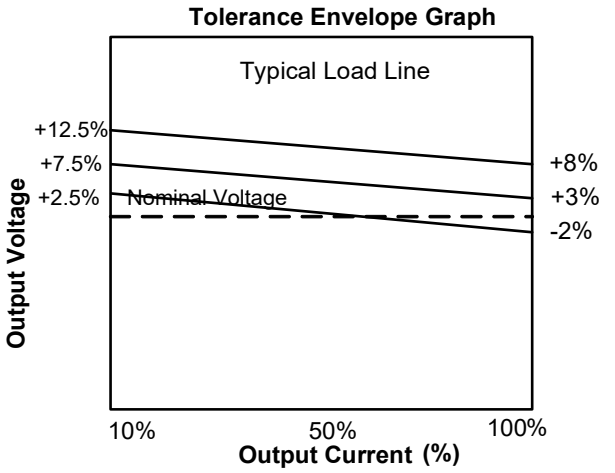
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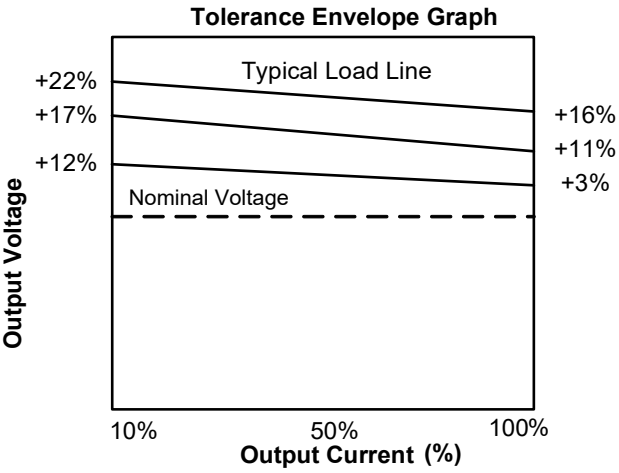
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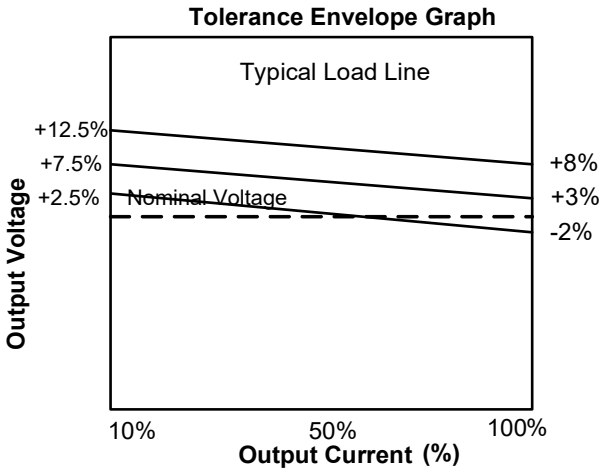


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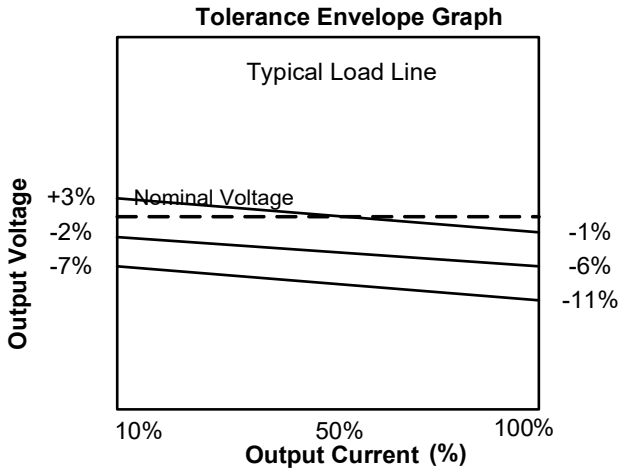


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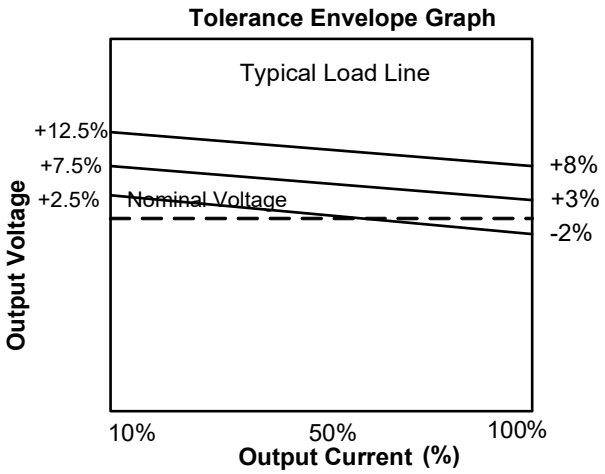
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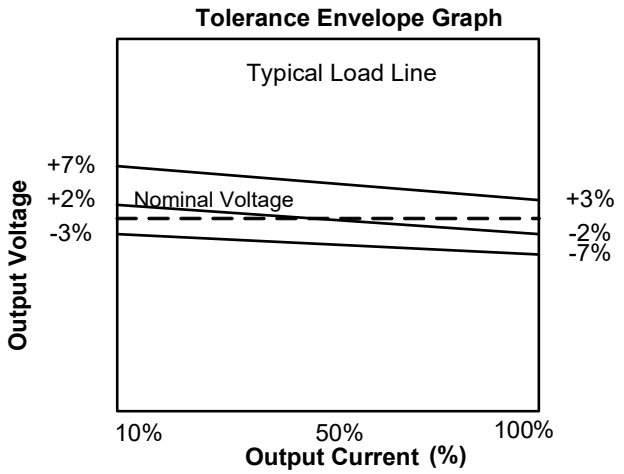
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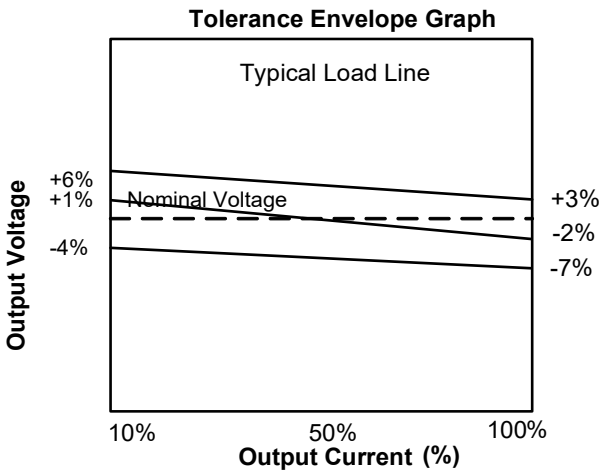
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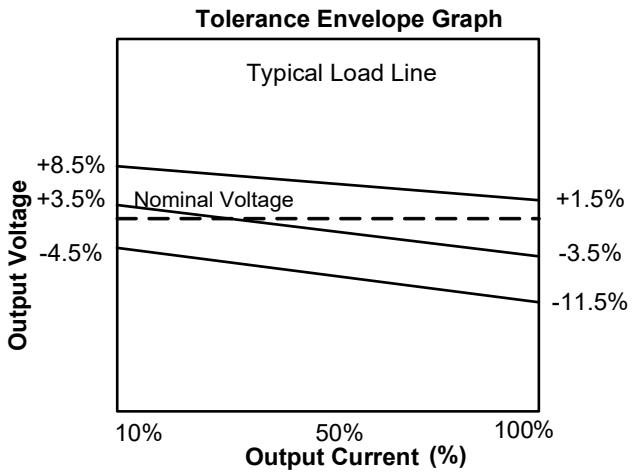
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AM3DG-24182.5DH40LPZ Vo1

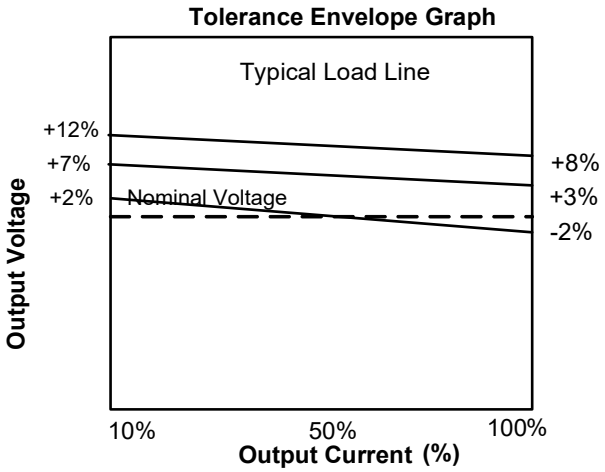


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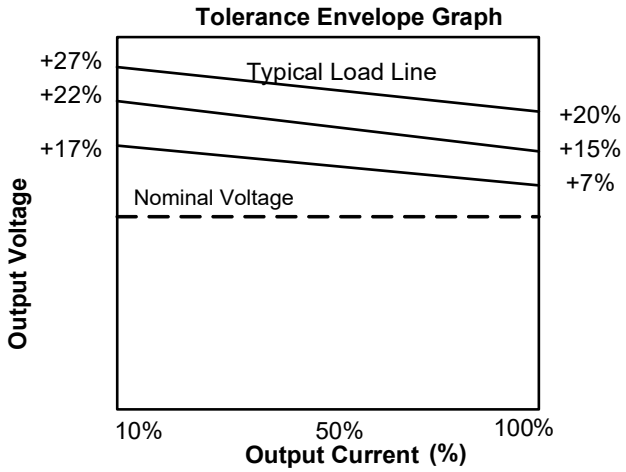


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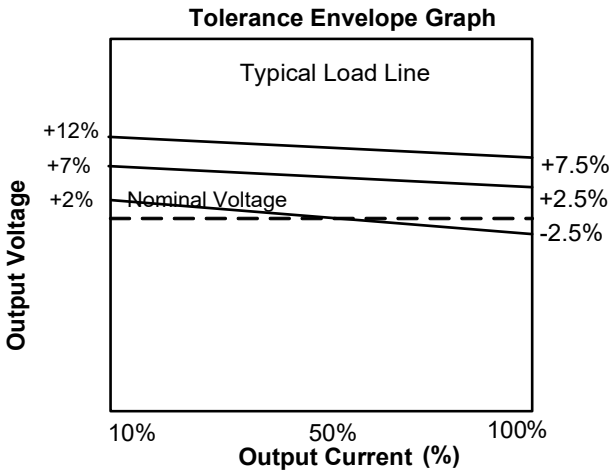
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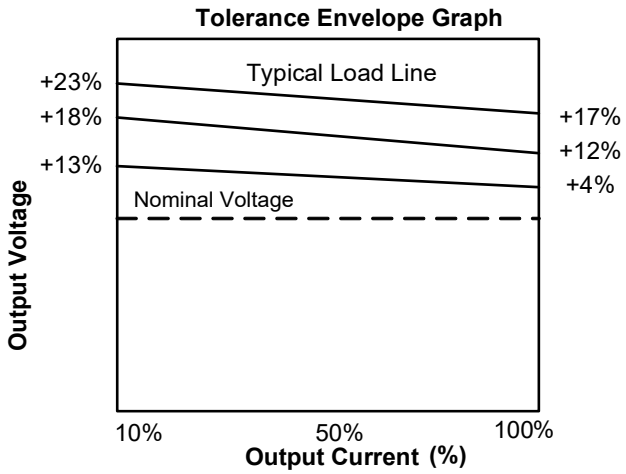
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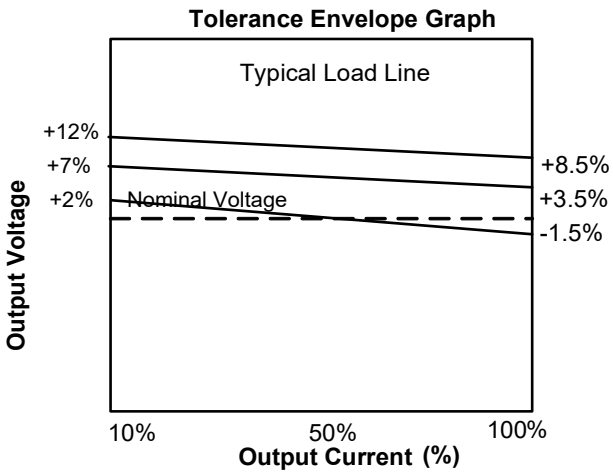
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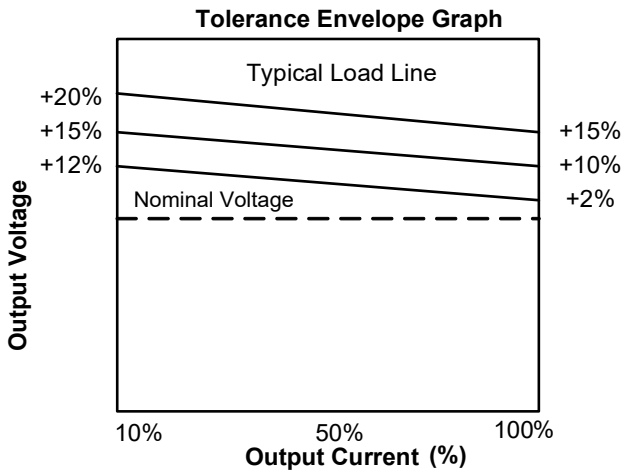
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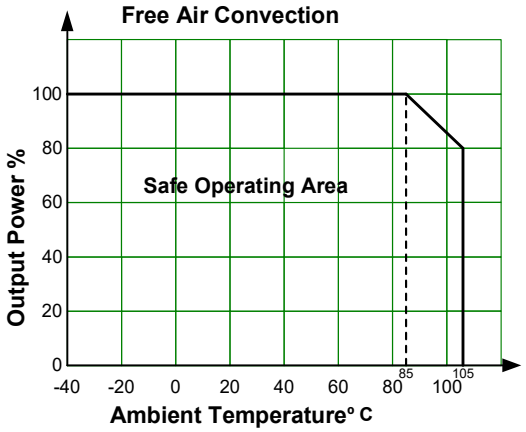


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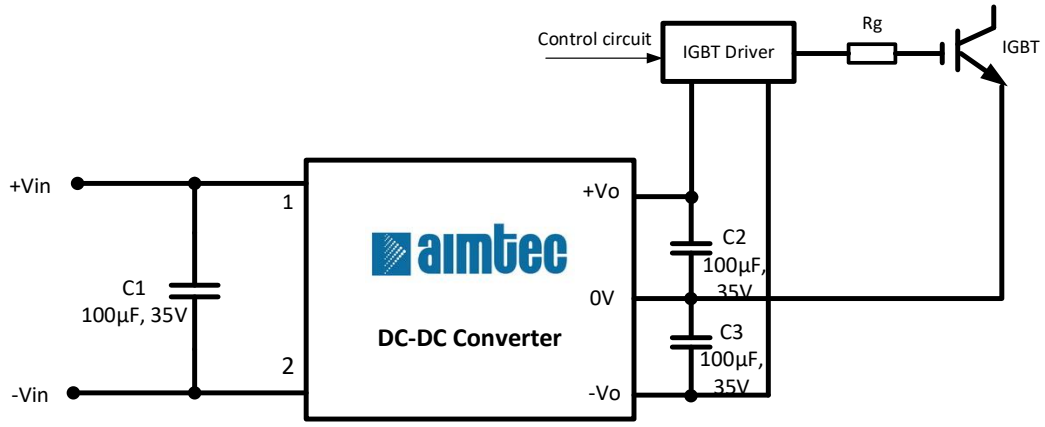


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Derating

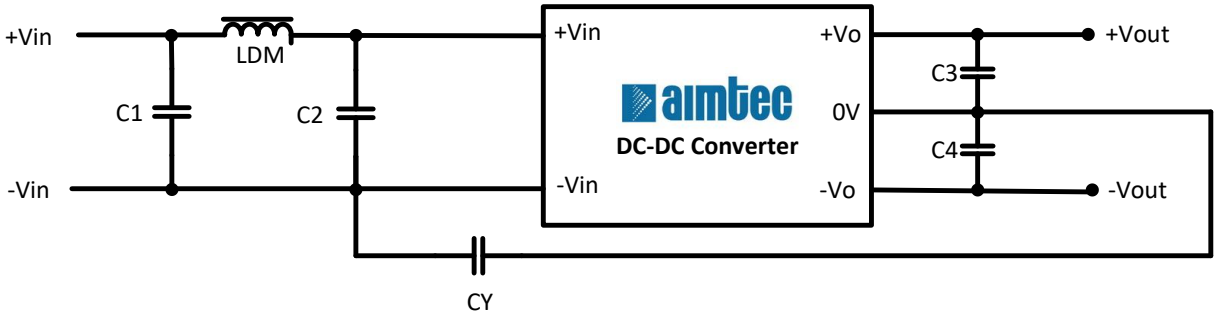


Typical Application Circuit



Note: Low internal resistance capacitors are recommended.

Recommended EMC circuit

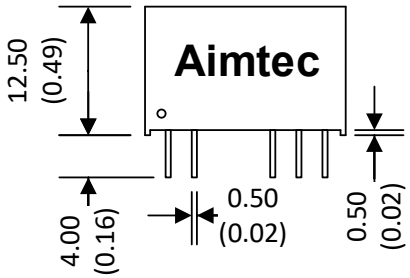


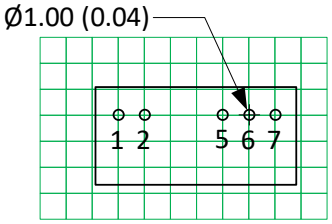
Component	Specification
C1, C2	4.7µF/50V
LDM	33µH
CY	330pF
C3, C4	10µF/50V

Note: Input and output capacitors are recommended to use ceramic or electrolytic types. Tantalum capacitors are not recommended.

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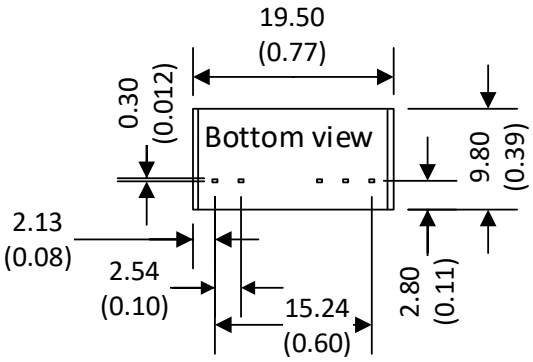
Dimensions





Grid size: 2.54 x 2.54 mm

Pin Out Specifications	
Pin	Dual
1	+V Input
2	-V Input
5	-V Output 2
6	Com
7	+V Output 1



Note:
Unit: mm (inch)
General tolerance: ±0.5 (±0.02)
Pin tolerance: ±0.1 (±0.004)

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