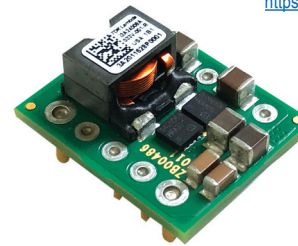


100W, 9 to 53V Input Non-Isolated Step-Down DC-DC Buck Converter

<https://product.tdk.com/en/power/i3a>
www.emea.lambda.tdk.com/i3a



Industrial



COTS



Test



COMM



Broadcast



Robotics

The i3A series of non-isolated DC-DC step-down converters are ideal for creating additional output voltage rails from a single output 12V, 24V or 48V AC-DC or DC-DC power supply including battery sources. The highly efficient i3A series accepts a wide DC input and has a wide output adjustment range in a compact 1/32nd brick footprint. Standard features include output trim, remote sense and negative logic remote On/Off, with an optional power good feature available.

Features	Benefits
• Up to 100 W in a 1/32nd brick package	• High Power Density, Less Board Area Needed
• High Efficiency Up to 98%	• Longer Battery Life / Less Power Consumed
• Wide 3.3 to 16.5V or 5 to 30V Output Adjustment	• One Part Supports Multiple System Voltages
• 9 to 53V Input Range	• Can Operate From Different DC Source Voltages Including Batteries
• Low Component Count With Minimal External Components	• Low Cost
• Minimal Derating Requirements in Low Airflow Environments	• Easy to Cool in End System

Model Selector						
Model	Input Voltage (V)	Output Voltage (V)	Max Current (A)	Max Power (W)	Negative Logic On/Off	Power Good
i3A4W008A033V-001-R	9 - 53	3.3 - 16.5	8	100	Yes	-
i3A4W005A150V-001-R	9 - 53	5 - 30	4.5	100	Yes	-
i3A4W008A033V-003-R	9 - 53	3.3 - 16.5	8	100	Yes	Yes
i3A4W005A150V-003-R	9 - 53	5 - 30	4.5	100	Yes	Yes

Related Products		
Type	Part Number	Description
DC-DC Buck-Boost Converter	i1C	200W, Input 9-36V or 18-75V, Output 9.6-28V, 1x1 inch Footprint
DC-DC Buck Converter	i6A4W	250W, Input 9-53V, Output 3.3-40V 10A or 3.3-15V 20A
DC-DC Buck Converter	i6A24	250W, Input 9-40V, Output 3.3-24V 14A
DC-DC Buck Converter	i6AN	75W, Input 9-40V, Negative Output -3.3 to -30V, 8A
Ruggedized DC-DC Buck Converter	RGA	250W, Input 9-40V or 9-53V, Output 3.3-24V or 3.3 up to 40V
Ruggedized DC-DC Buck Converter	RGB	400-750W, 9-18Vin, 0.8-8Vo 60A, 18-32Vin, 3.3-18Vo 45A, 18-60Vin, 3.3-24Vo 33A
Ruggedized DC-DC Buck-Boost Converter	RGC	300W, Input 9-53V, Output 9.6-48V, 8A; or 5-28V, 12.5A
DC-DC Buck Converter	i7A	500-750W, Input 18-60V or 18-32V, Output 3.3-24V 33A or 3.3-18V 45A
DC-DC Buck-Boost Converter	i7C	300W, Input 9-53V or 9-36V, Output 9.6-48V 8A, 5-28V 12.5A or 8-24V 20A
Evaluation Kit	i3A05A-C01-EVK-S1	Compact Evaluation kit with i3A4W005A150V-001-R module
Evaluation Kit	i3A08A-C01-EVK-S1	Compact Evaluation kit with i3A4W008A033V-001-R module
Evaluation Kit	i3A5A8A-001-VK-D2PP	Evaluation kit with i3A4W005A150V-001-R and i3A4W008A033V-001-R modules

Specification					
Model		i3A4W008A033V		i3A4W005A150V	
Input					
Input Voltage Range		Vdc	9 - 53		
Input Current (max)		A	10 (max)		
Turn-ON Input Voltage		Vdc	8		
Turn-OFF Input Voltage		Vdc	7 - 9		
Efficiency		%	89 - 96.5		95.5 - 98
Safety Certifications and Markings		-	IEC/UL/CSA/EN 62368-1, 60950-1, CE Mark and UKCA Mark		
Output					
Output Voltage Tolerance		%	± 4		
Line Regulation		%	0.3		0.2
Load Regulation		%	0.7		0.5
External Load Capacitance (1)		uF	0 - 1200		0 - 1000
Ripple & Noise		mVpp	20		40
Switching Frequency		kHz	450		400
Overcurrent Protection Threshold (typ)		A	14		9
Overtemperature Protection		-	Yes		
Output Voltage Adjustment Range		Vdc	3.3 - 16.5		5 - 30
Remote Sense		-	(+) Sense, compensating up to 5% of output voltage		
Remote On/Off		-	Negative Logic		
Power Good		-	Optional (see Model Selector Table)		
Environmental					
Operating Temperature (Tref)		°C	-40 to 125		
Storage Temperature		°C	-55 to 125		
Humidity (non condensing)		%RH	5 - 95 (Operating & Storage)		
Altitude ⁽³⁾		m	2000		
Cooling		-	Convection or forced air		
Other					
Weight (Typ)		g	8		
Size (LxWxH)		mm	19.1 x 23.4 x 9.6		
Size (LxWxH)		Inches	0.75 x 0.92 x 0.38		
MTBF - Telcordia SR-332			> 14 MHrs; 100% Load; Ta = 40 °C		
Warranty		yrs	3 years		

(1) For Vo ≥ 8Vdc, minimum Cout = 200 uF.

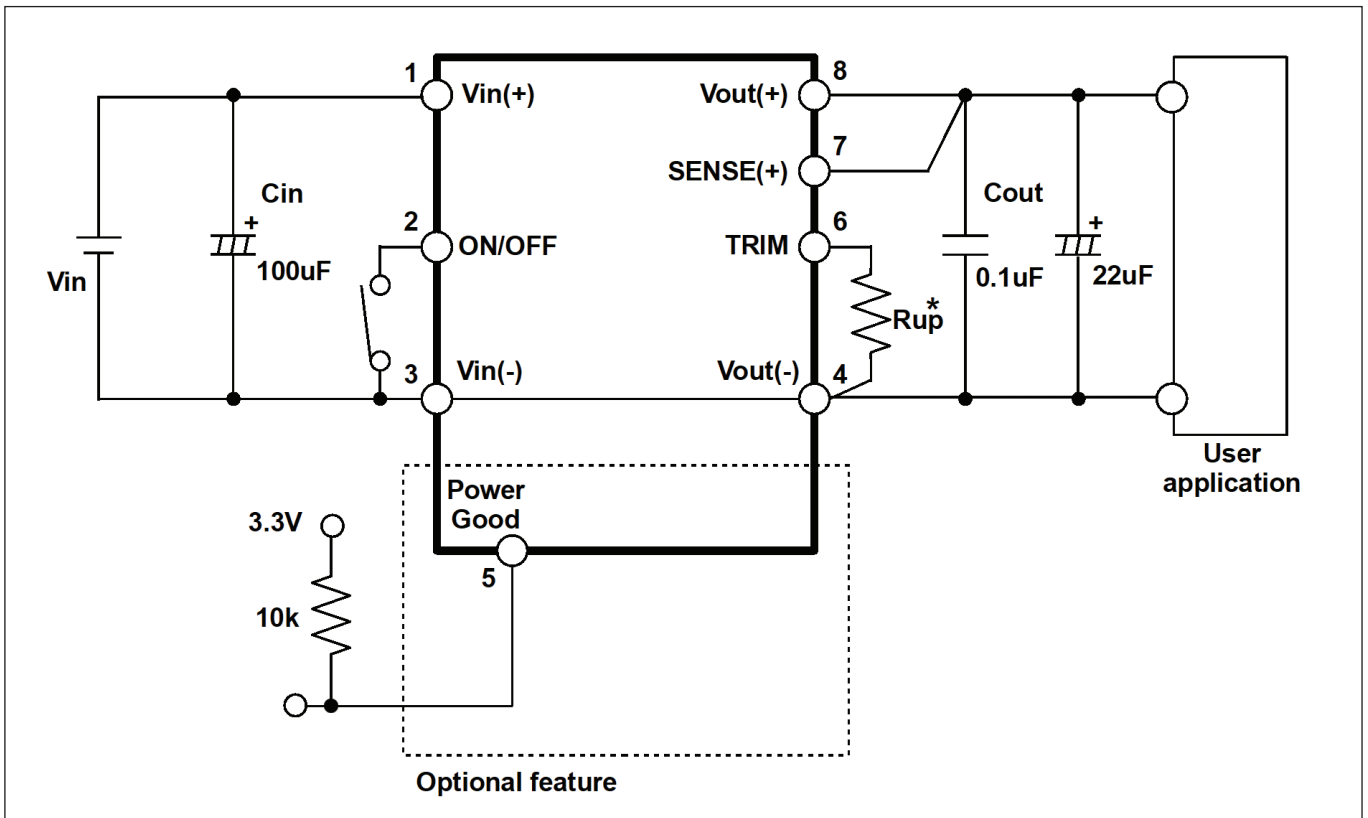
(2) See website for detailed [product specifications](#).

(3) Contact Technical Support for operation at higher altitudes.

Pinout			
PIN	Function	PIN	Function
1	Vin (+)	5	Power Good (option)
2	On / Off	6	Trim
3	Vin (-) / GND	7	Sense +
4	Vout (-) / GND	8	Vout (+)

Pin base material is brass or copper with gold over nickel plating.

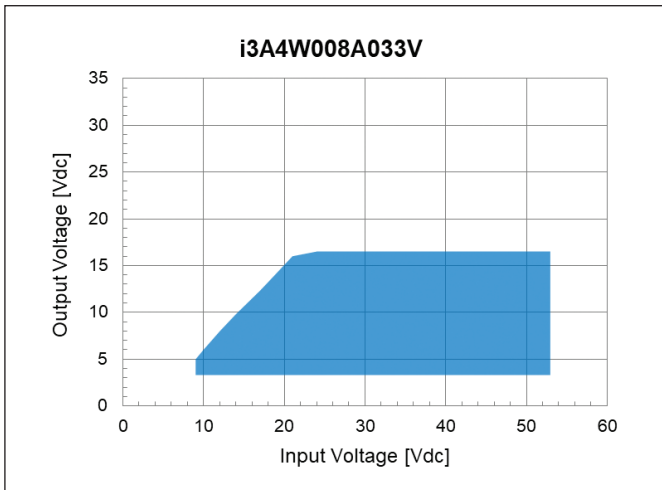
Typical Application Circuit (i3A)



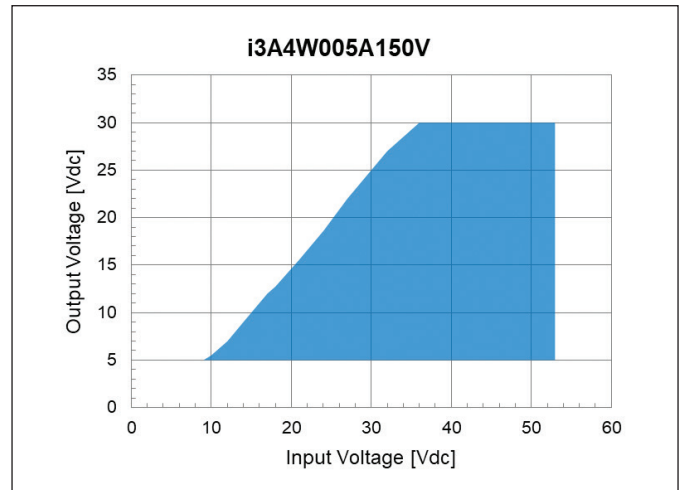
Recommendations:

- 1) TRIM resistor R_{up} should be connected to the i3A module as close as possible.

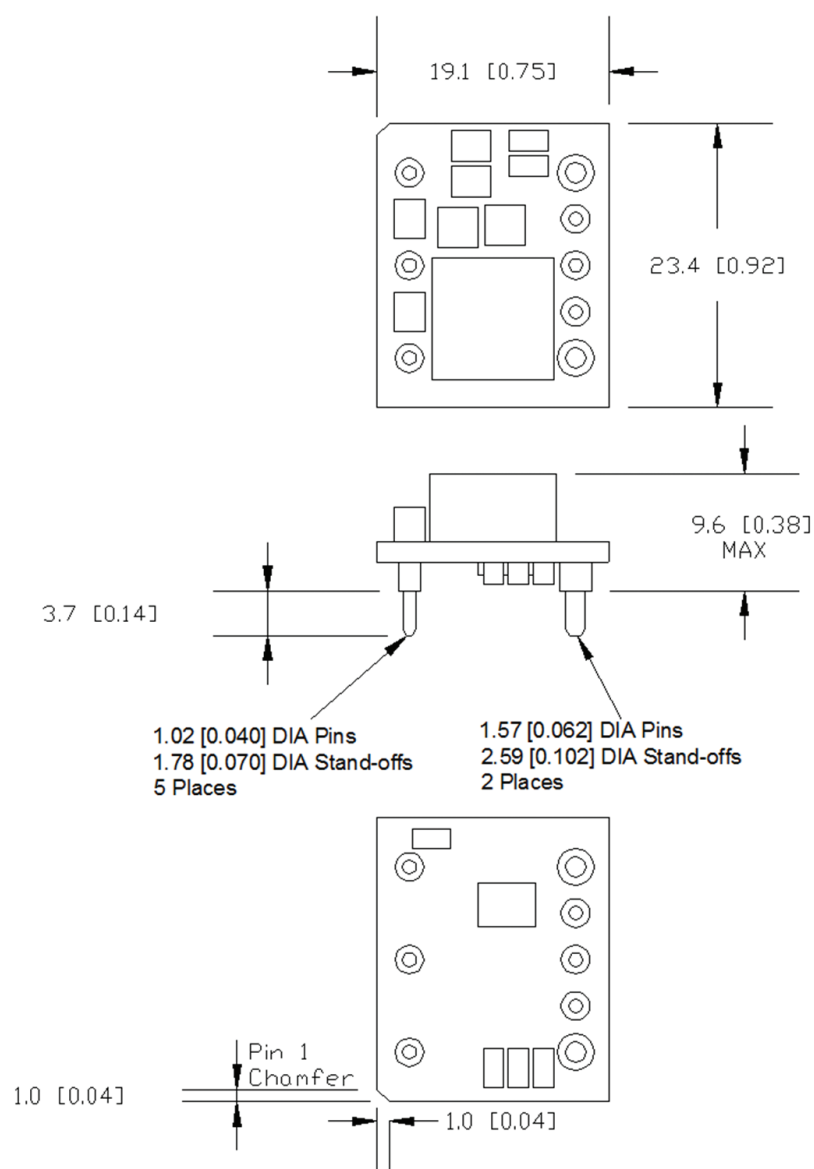
Output vs. Input Voltage Operating Range



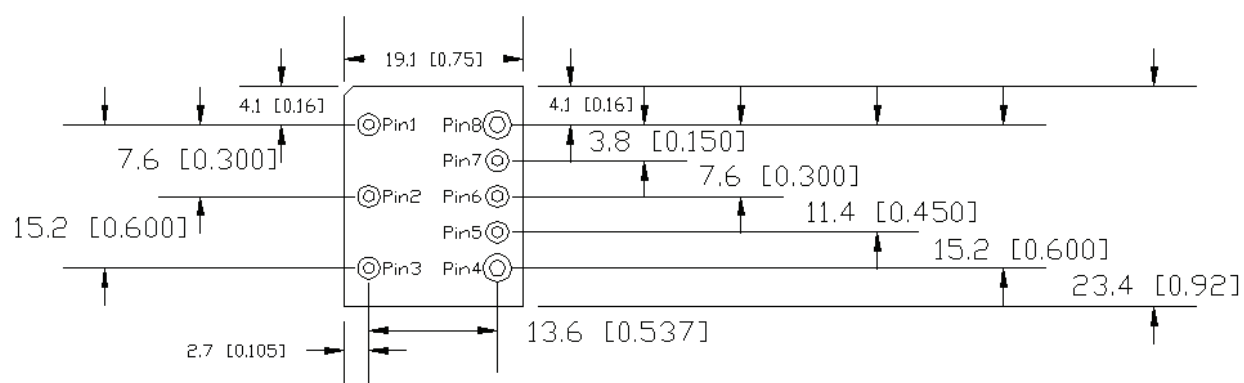
Output vs. Input Voltage Operating Range



Mechanical Specification



Recommended PCB Hole Pattern





TDK-Lambda France SAS

Tel: +33 1 60 12 71 65
tlf.fr-powersolutions@tdk.com
www.emea.lambda.tdk.com/fr



Italy Sales Office

Tel: +39 02 61 29 38 63
tlf.it-powersolutions@tdk.com
www.emea.lambda.tdk.com/it



Netherlands

tlf.nl-powersolutions@tdk.com
www.emea.lambda.tdk.com/nl



TDK-Lambda Germany GmbH

Tel: +49 7841 666 0
tlg.powersolutions@tdk.com
www.emea.lambda.tdk.com/de



Austria Sales Office

Tel: +43 2256 655 84
tlg.at-powersolutions@tdk.com
www.emea.lambda.tdk.com/at



Switzerland Sales Office

Tel: +41 44 850 53 53
tlg.ch-powersolutions@tdk.com
www.emea.lambda.tdk.com/ch



Nordic Sales Office

Tel: +45 8853 8086
tlg.dk-powersolutions@tdk.com
www.emea.lambda.tdk.com/dk



TDK-Lambda UK Ltd.

Tel: +44 (0) 12 71 85 66 66
tlu.powersolutions@tdk.com
www.emea.lambda.tdk.com/uk



TDK-Lambda Ltd.

Tel: +9 723 902 4333
tli.powersolutions@tdk.com
www.emea.lambda.tdk.com/il-en



TDK-Lambda Americas

Tel: +1 800-LAMBDA-4 or 1-800-526-2324
tla.powersolutions@tdk.com
www.us.lambda.tdk.com



TDK Electronics do Brasil Ltda

Tel: +55 11 3289-9599
sales.br@tdk-electronics.tdk.com
www.tdk-electronics.tdk.com/en



TDK-Lambda Corporation

Tel: +81-3-6778-1113
www.jp.lambda.tdk.com



TDK-Lambda (China) Electronics Co. Ltd.

Tel: +86 21 6485-0777
tlc.powersolutions@tdk.com
www.lambda.tdk.com.cn



TDK-Lambda Singapore Pte Ltd.

Tel: +65 6251 7211
tts.marketing@tdk.com
www.sg.lambda.tdk.com



TDK India Private Limited, Power Supply Division

Tel: +91 80 4039-0660
mathew.philip@tdk.com
www.sg.lambda.tdk.com

