Description:

The 1363/1364 series high voltage power supplies are miniature flyback boost converters operating from 2 to 16VDC input, with an output of 150 to 200VDC set by a single resistor to ground. An enable pin allows the module to be controlled by a logic signal from 1.20 to Vin volts, drawing only 40uA in shut down.

Table 1: Electrical Specifications

Specification	Min	Typ	Max	Units	Notes
Input voltage	---	---	16.00	Volts	Absolute Max, Survivability
	2.00	---	---	Volts	Pout < 4.0W (See Fig 8/9)
	---	---	16.00	Volts	Pout < 11.5W (See Fig 8/9)
$EnablePin_{Threshold}$	---	---	0.45	Volts	Module off
	1.20	---	---	Volts	Module on, Ven-max = Vin
$EnablePin_{Current}$	-2	---	+4	uAmps	In to/Out of enable pin: Venable = 0-16V
Shutdown current	---	---	40	uAmps	Into module: Vin=16V, Ven=0V, T_{amb}+85C
R_{ADJUST}	0.00	---	Open	Ohms	For 200V-150V respectively
HV output	200	---	150	Volts	Short (Gnd) ⩽ Radj ⩽ Open, +/-5%
Efficiency	---	80	---	%	At 50-100% rated load, 5-16VDC in

Notes:

1. R_{ADJUST} connected to ground; Ground=42uA / Open=1.24V / Zin=30.1K.
2. No input reverse polarity protection is provided.
3. Short circuit protected via pulse-pulse current limiting.
4. Bias output may not be loaded at any time, for module testing only.

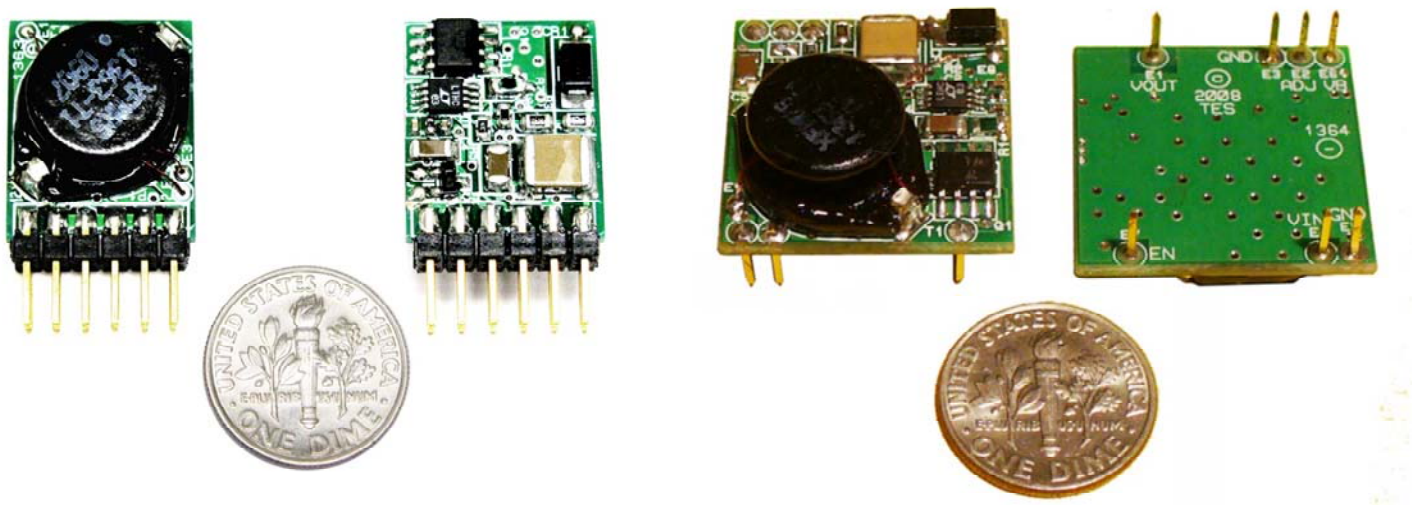


Fig 1. 1363 and 1364 modules

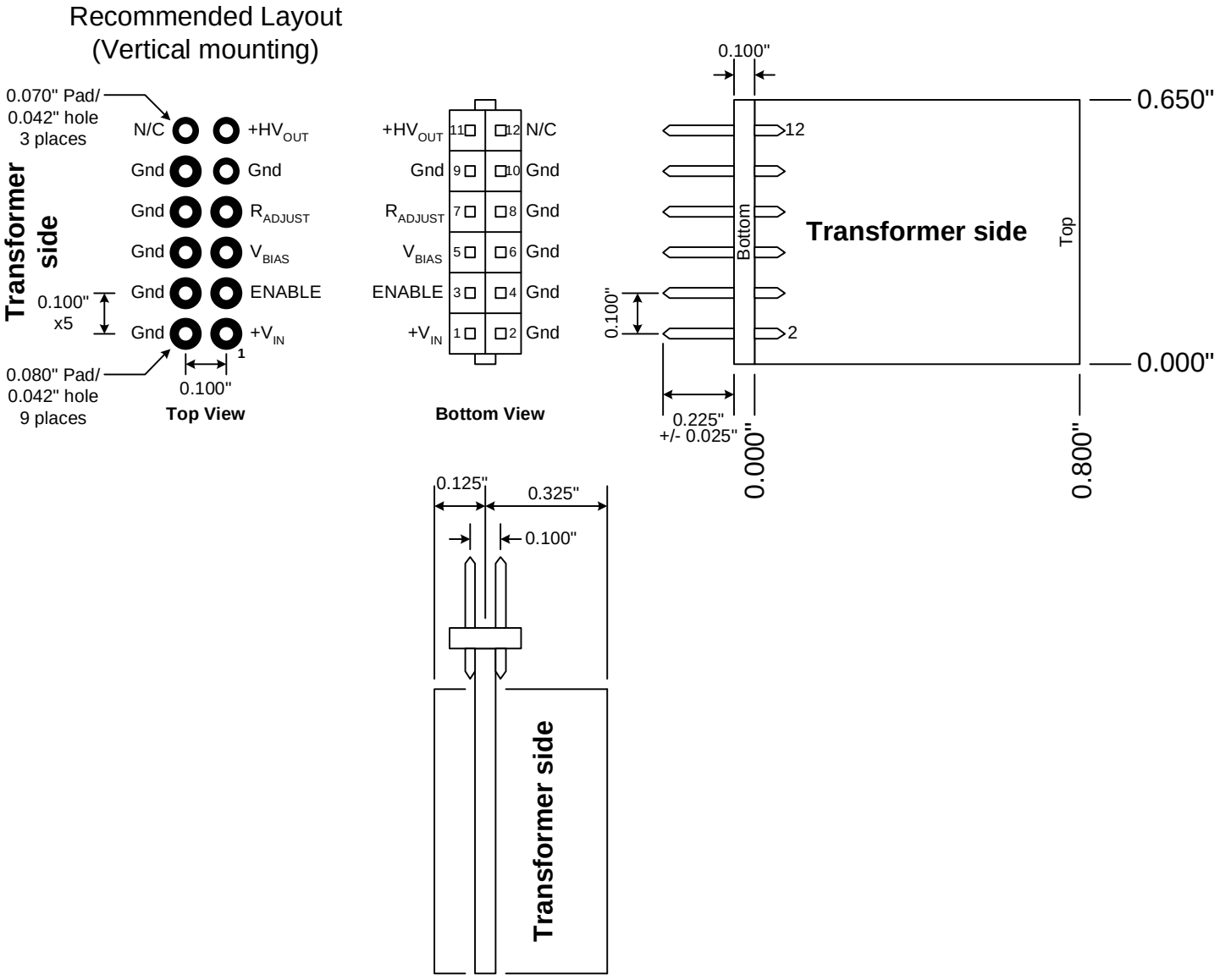


Fig 2. 1363 module outline and recommended PCB layout

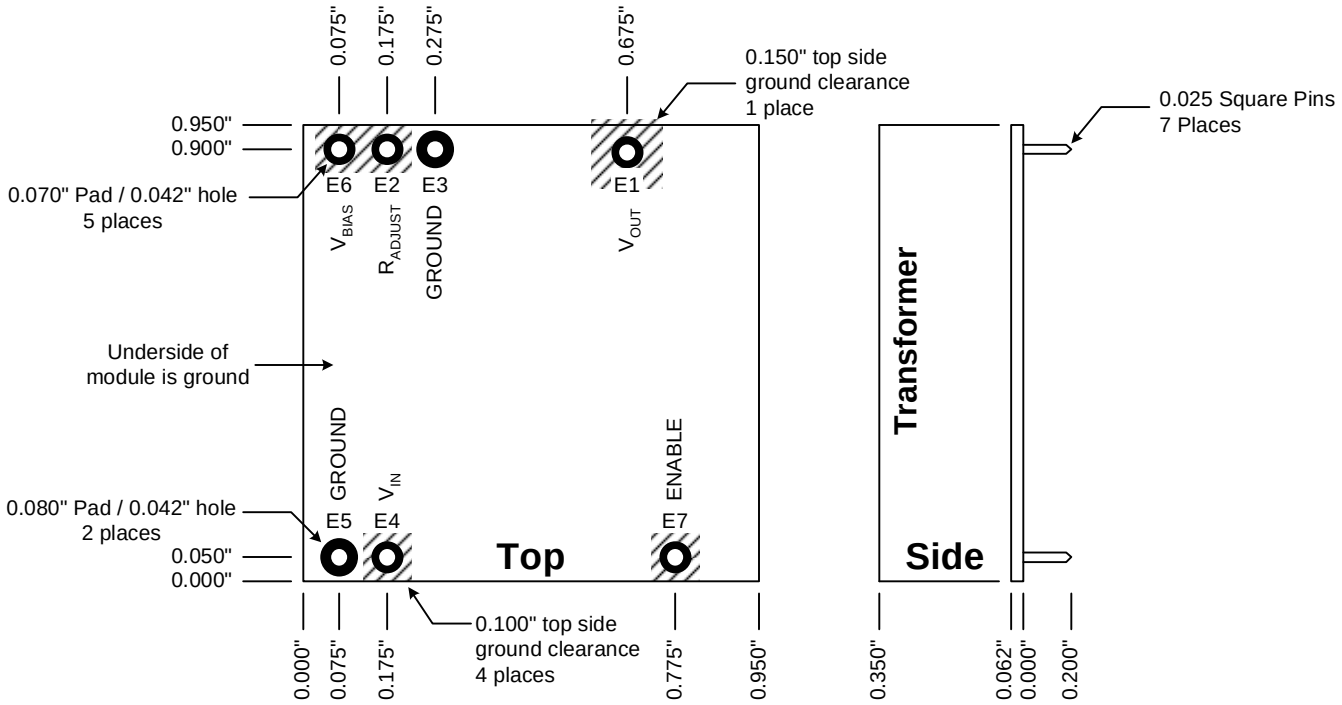


Fig 3. 1364 module outline and recommended PCB layout

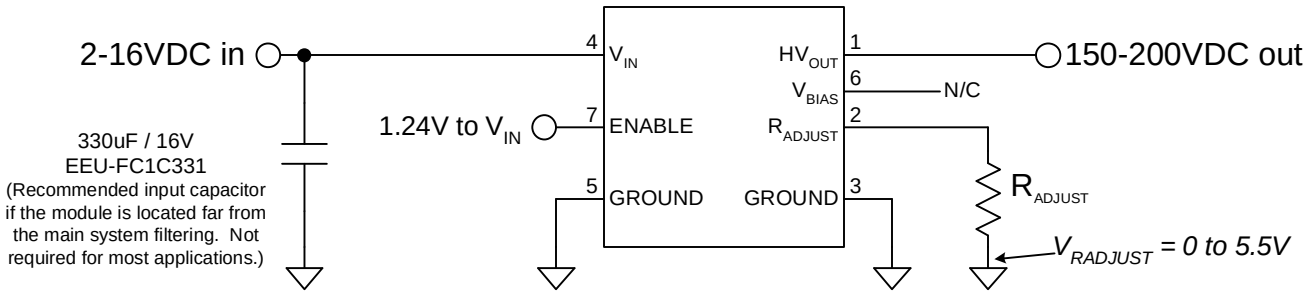
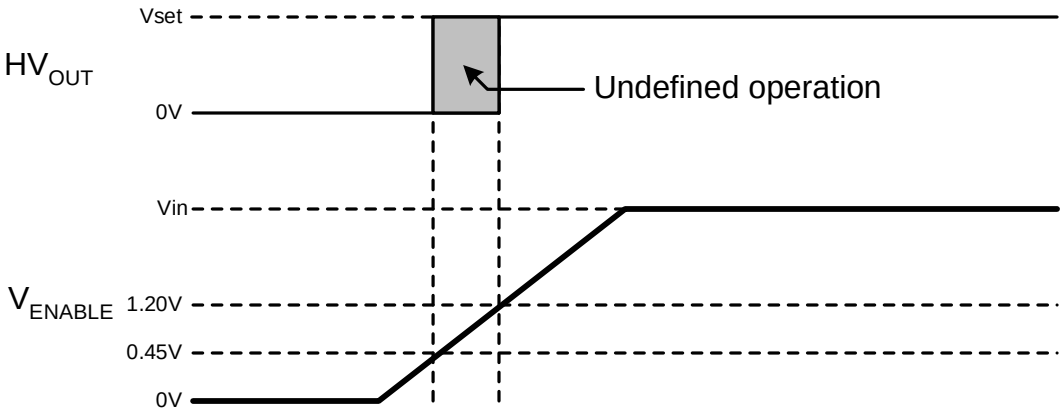


Fig 4. Typical connection



0-0.45V = Shutdown
1.20-Vin = Enabled
Shutdown current is 40uA Max @ 16V in

Fig 5. Enable function

Fig 6a: $V_{RADJUST}$ = 0V

$$R_{ADJUST}\ (kOhms) = \left(\frac{-1.24}{0.124 - \frac{V_{OUT} - 1.24}{1208}} \right) - 30.1$$

The value of R_{ADJUST} can range from open to short-to-ground for 150V to 200V output respectively.

Example, For 170V out: R_{ADJUST} = 48.9K to ground

Using standard 5% resistor values: 47K=170.4V, 51K=169.5V

Fig 6b: $V_{RADJUST}$ >= 0V

$$R_{ADJUST}\ (kOhms) = \left(\frac{V_{RADJUST} - 1.24}{0.124 - \frac{V_{OUT} - 1.24}{1208}} \right) - 30.1$$

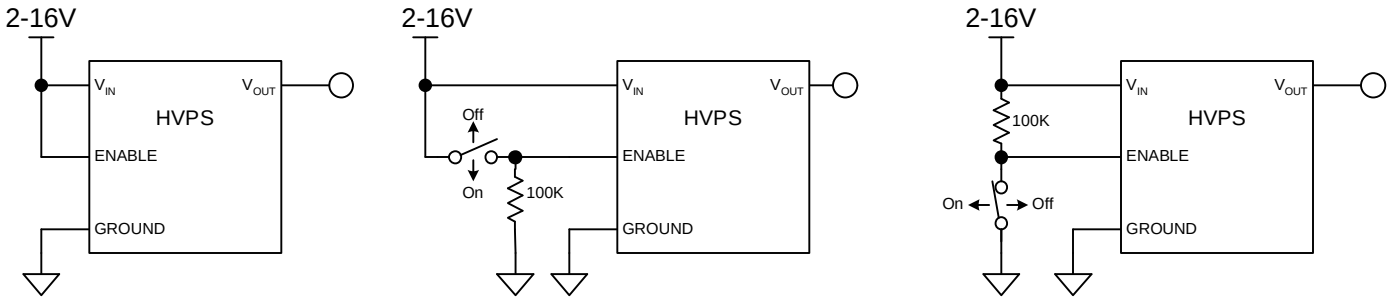
The value of R_{ADJUST} can range from open to short-to-$V_{RADJUST}$.

Example, For 125V out with $V_{RADJUST}$=5V: R_{ADJUST} = 144.38K to ground

Using standard 5% resistor values: 140K=124.32V, 150K=125.81V

Fig 6. R_{ADJUST} calculations

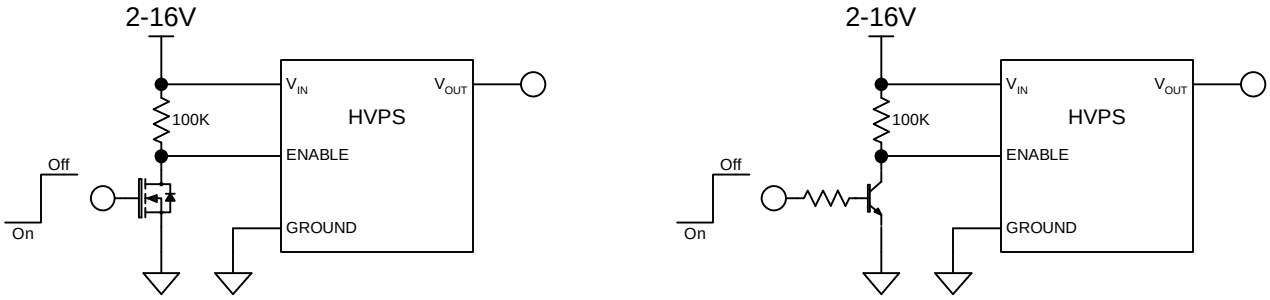
See: http://www.tayloredge.com/utilities/vbapps/Installers/iCalculators.exe



a) Always-on operation

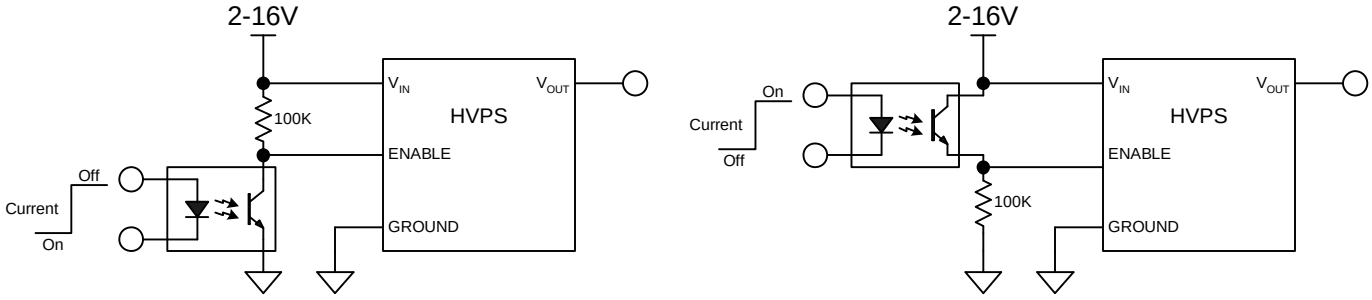
b) On with switch close

c) On with switch open



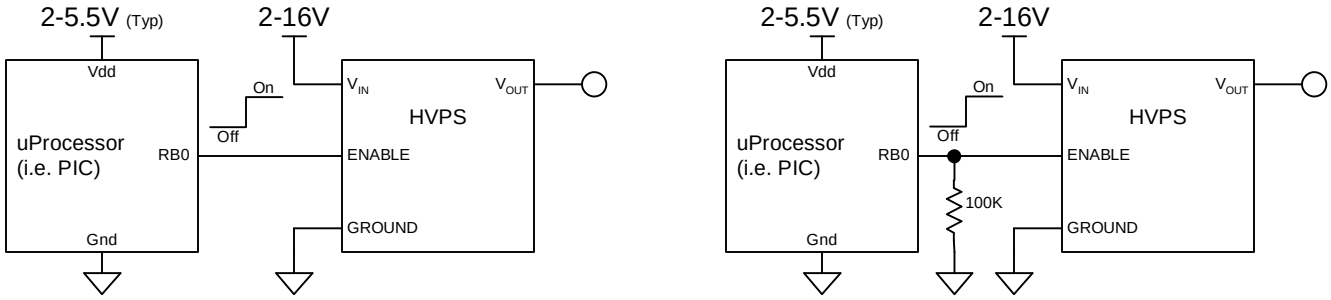
d) Off with open drain

e) Off with open collector



f) Off with opto coupler

g) On with opto coupler



h) uProcessor control

i) uProcessor control with optional off-at-boot pull down resistor

Fig 7. Examples of alternative enable connections

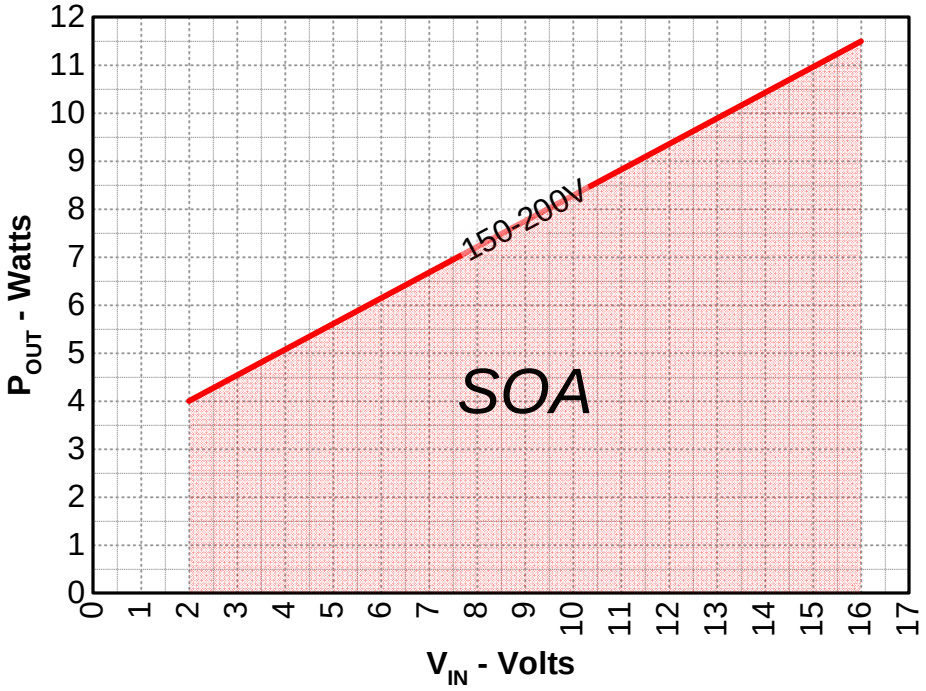


Fig 8. P_{OUT} vs V_{IN}

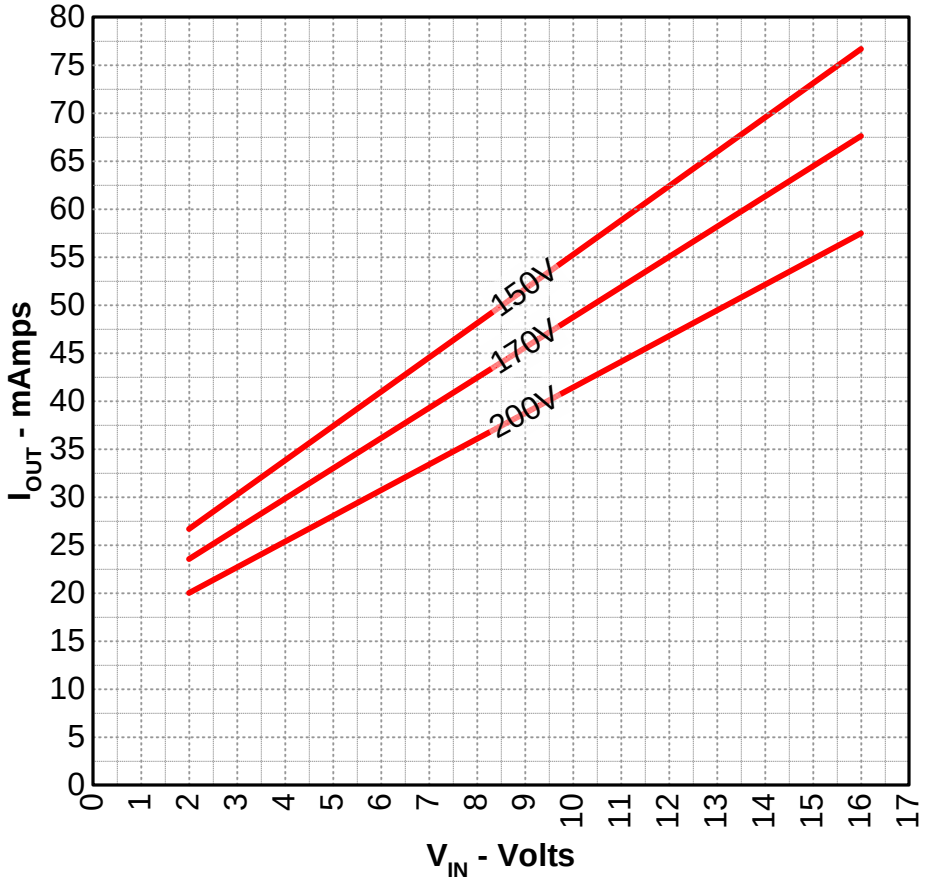


Fig 9. I_{OUT} vs V_{OUT} vs V_{IN}

Revision History

Revision	Description
-	Initial release.
A	Updated 1363 and 1364 individual datasheets.
B	Combined 1363 and 1364. Added Enable pin functional description. Simplified R_{adjust} calculation.
C	Added Fig 7 to show various ways to enable the module. Clarified meaning of enable and disable currents in spec table.
D	Added Fig 8/9 output power and current graphs
E	Changed Fig. 6 adjustment resistor from 56K to 51K to use standard 5% values just above and below calculated value. Changed Table 1 enable threshold note to indicate maximum enable voltage is equal to Vin.
F	General cleanup and addition of R_{ADJUST} formula for $V_{RADJUST}$ bias voltages other than ground to allow setting the voltage to less than 150V.