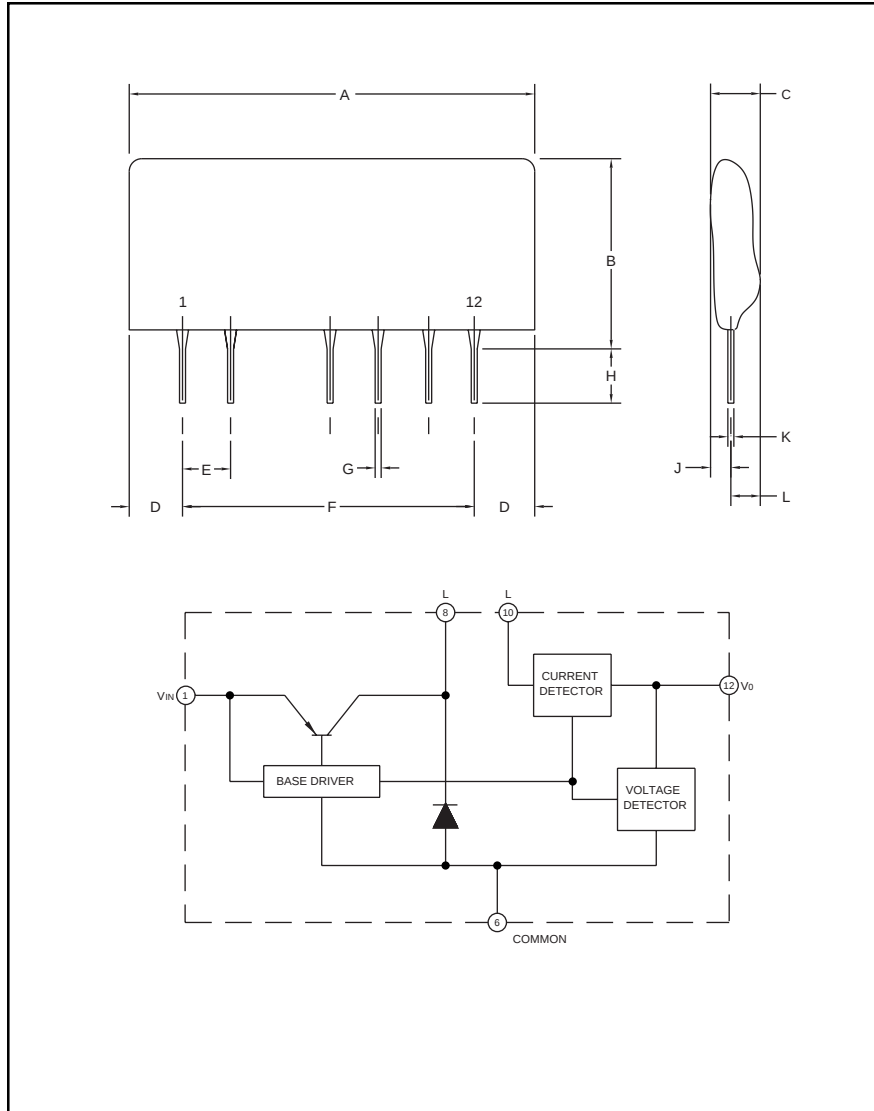


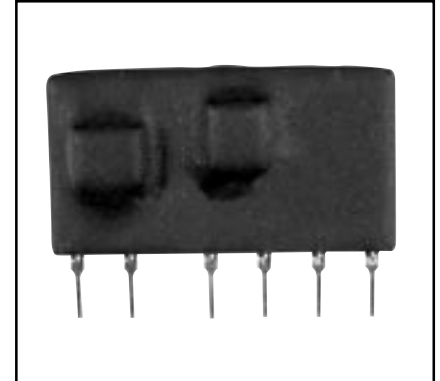
High Voltage Input DC-to-DC Converter



Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	1.38 Max.	35.0 Max.
B	0.79 Max.	20.0 Max.
C	0.34 Max.	8.5 Max.
D	0.14 Max.	3.5 Max.
E	0.20	5.08
F	1.1	27.94

Dimensions	Inches	Millimeters
G	0.02	0.55±0.1
H	0.18±0.6	4.5±1.5
J	0.15 Max.	3.8 Max.
K	0.01±0.01	0.35±0.2
L	0.20 Max.	5.0 Max.



Description:

M57182N-315 is a hybrid IC for non-isolated type DC-to-DC converters. Wide range of input voltage (DC 140V-380V) enables direct connection to rectified 120V and 240V AC. This device is best suited for use as a pre-regulator for standard DC-to-DC converters.

Features:

- ☐ Wide Range of Input Source Voltage (140V-380V DC)
- ☐ Built-in Surface-mount Transformer
- ☐ SIP Structure Enables Efficient use of PCB Area

Applications:

- ☐ Power Source for Standard DC-to-DC Converters
- ☐ Pre-regulator

Ordering Information:

M57182N-315

M57182N-315
High Voltage Input
DC-to-DC Converter

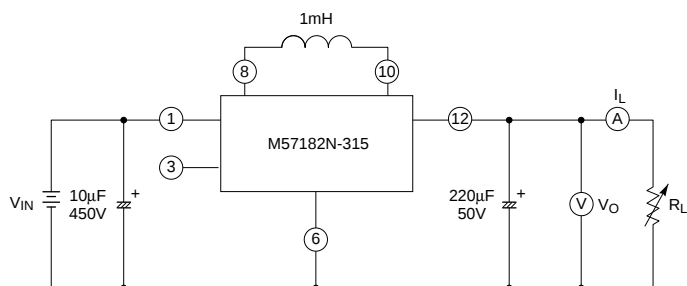
Absolute Maximum Ratings, $T_a = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	M57182N-315	Units
Input Voltage	V_{IN}	—	450	Volts
Load Current	I_L	—	200	mA
Operating Temperature	T_{opr}	There Should be	-10 ~ +70	$^\circ\text{C}$
Storage Temperature	T_{stg}	No Condensation	-20 ~ +85	$^\circ\text{C}$

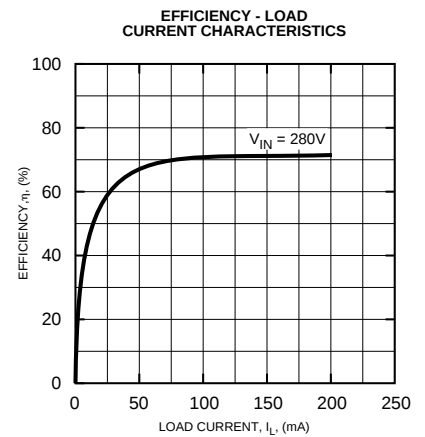
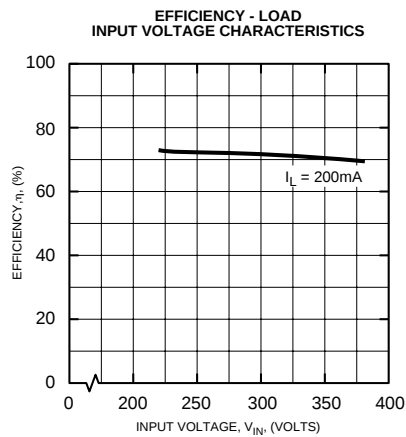
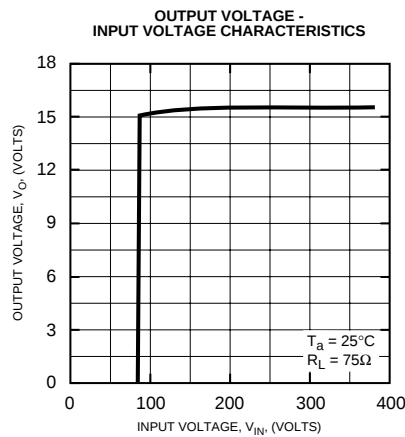
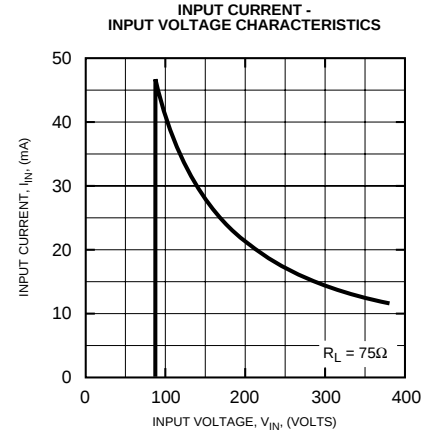
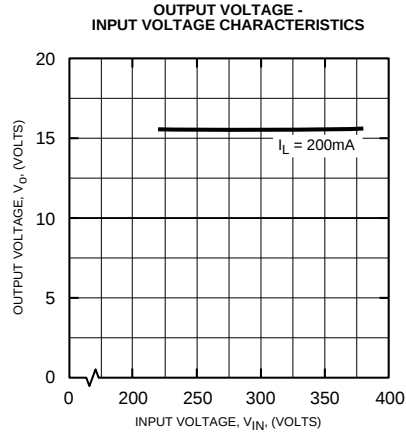
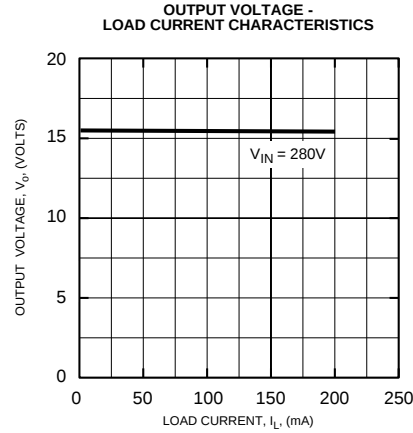
Electrical Characteristics, $V_{IN} = 280\text{V}$, $T_a = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Source Voltage	V_{IN}	Direct Current	140	280	380	Volts
Output Voltage, Pin 12	V_O	$I_L = 0 \sim 200\text{mA}$	14	15	16	Volts
Input Regulation	Reg-I	$I_L = 200\text{mA}$, $V_I = 220 \sim 380\text{V}$	—	—	200	mV
Load Regulation	Reg-L	$I_L = 0 \sim 200\text{mA}$	—	—	200	mV
Efficiency	η	$I_L = 200\text{mA}$	—	70	—	%

Application Circuit



M57182N-315
High Voltage Input
DC-to-DC Converter



M57182N-315
High Voltage Input
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Inductor for Application Example Circuit

1. Recommended Inductors

Manufacturer	Part Number
Mitsumi	C13-FR Series, Type # GA 102
API Delevan	4590-105K
J.W. Miller	5900-102

2. Specifications for Inductor

We recommend an inductor with these specifications: an inductance of 1mH, rated current of at least 500mA, and good performance with DC superimposition. Please note there must be no magnetic saturation in the inductor.

The following waveforms illustrate good versus bad inductor for this application. They are output ripple voltage waves taken with the oscilloscope on AC coupling.

