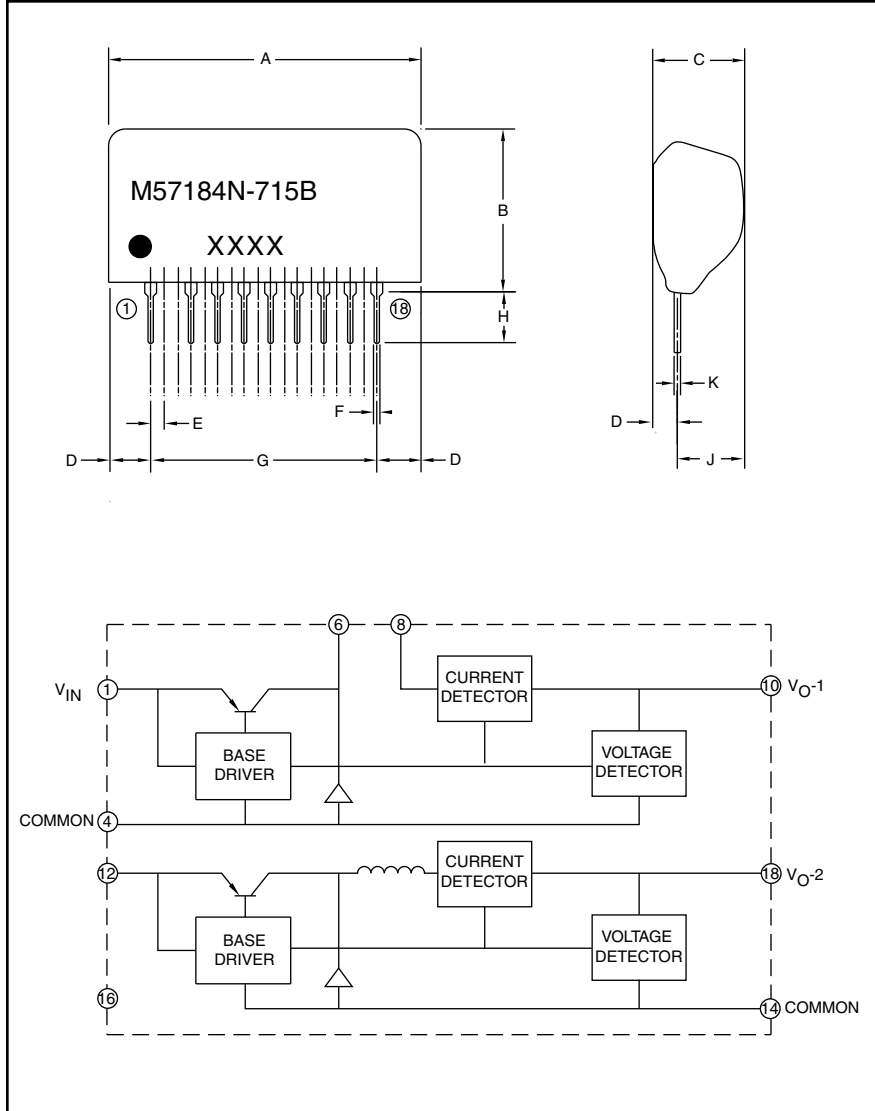


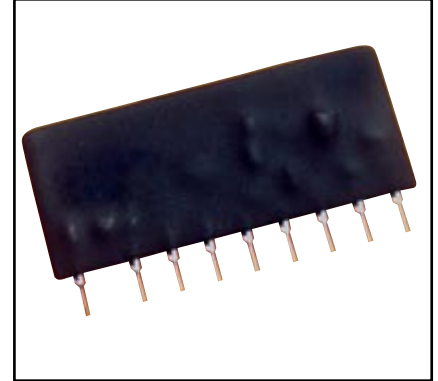
### High Voltage Input DC-to-DC Converter



Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	2.05 Max.	52.0 Max.
B	0.95 Max.	24.0 Max.
C	0.47 Max.	12.0 Max.
D	0.18 Max.	4.5 Max.
E	0.10	2.54

Dimensions	Inches	Millimeters
F	0.02±0.004	0.55±0.1
G	1.70	43.18
H	0.16±0.4	4.0±1.0
J	0.3 Max.	7.5 Max.
K	0.01±0.008	0.35±0.2



#### Description:

M57184N-715B is a non-isolated step down DC-to-DC converter designed to take direct input of 140 ~ 360 V<sub>DC</sub> and provide 2 outputs. One output is +15V/350mA and the other is rated at +5V/200mA. This converter allows use of fewer external components than does a combination of electrolytic capacitors and choke coils only.

#### Features:

- Input Voltage Range  
DC 140V ~ 360V
- Output Specifications  
15V, 350mA and  
5V, 200mA

#### Applications:

- Power Source for DIP IPMs  
and ASIPMs
- Home Appliances
- Industrial Controls

#### Ordering Information:

M57184N-715B

**M57184N-715B**  
**High Voltage Input**  
**DC-to-DC Converter**

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

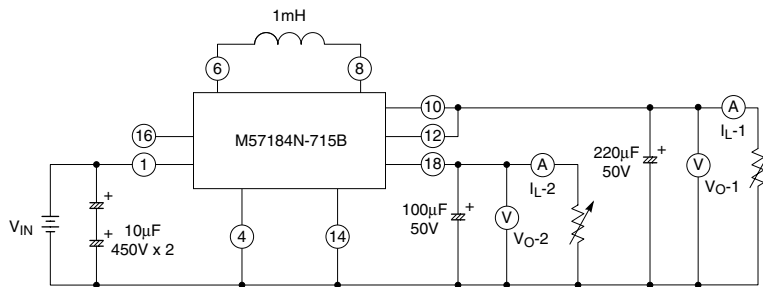
Characteristics	Symbol	Test Conditions	M57184N-715B	Units
Input Voltage	$V_{IN}$	—	600	Volts
Load Current-1	$I_{L-1}$	—	350	mA
Load Current-2	$I_{L-2}$	—	200	mA
Operating Temperature	$T_{opr}$	No Condensation	-20 ~ +70	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	Allowable	-25 ~ +85	$^\circ\text{C}$

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

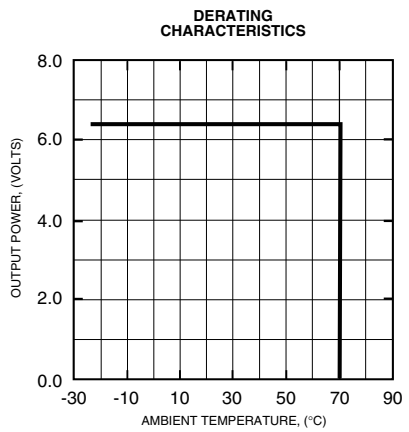
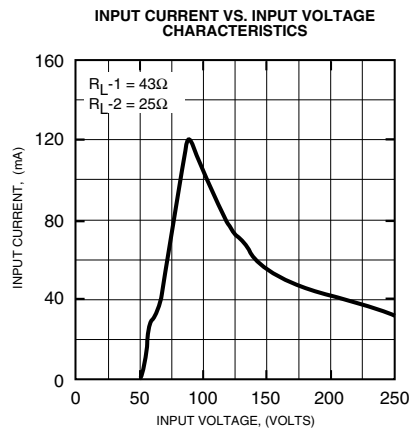
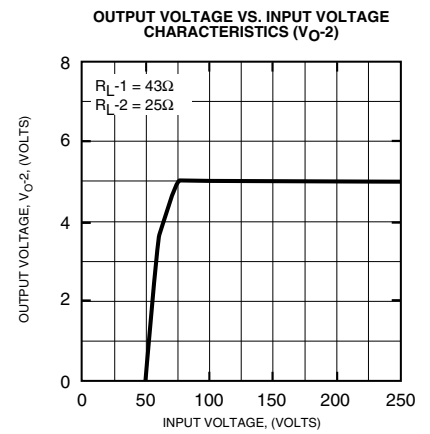
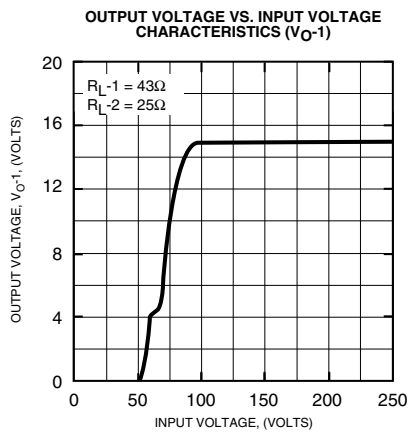
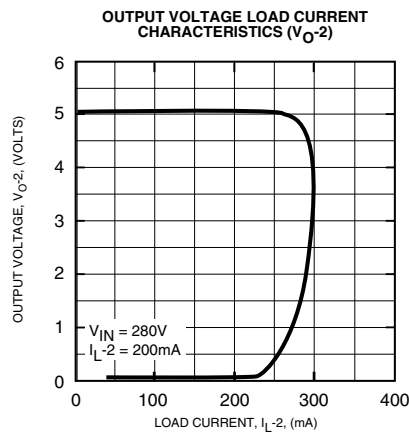
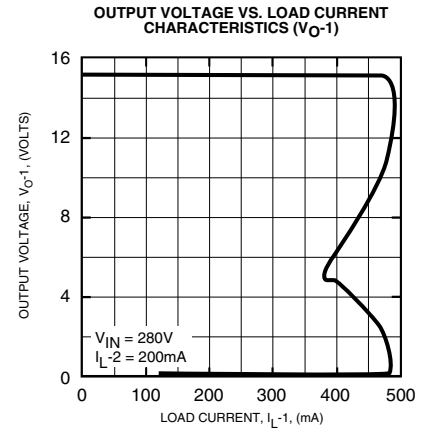
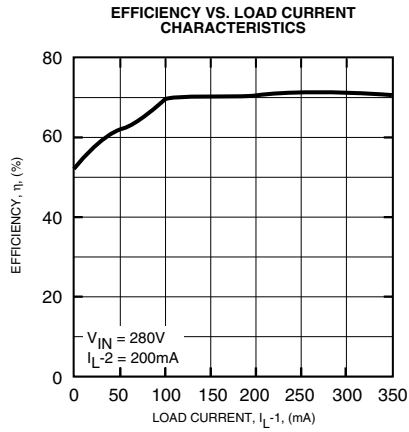
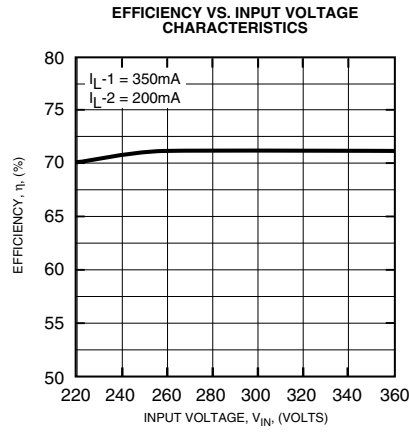
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Source Voltage	$V_{IN}$	Recommended Range	140*	280	360	Volts
Output Voltage-1, Pin 10	$V_{O-1}$	$I_{L-1} = 350\text{mA}$	14	15	16	Volts
Output Voltage-2, Pin 18	$V_{O-2}$	$I_{L-2} = 200\text{mA}$	4.7	5.0	5.3	Volts
Efficiency	$\eta$	$I_{L-1} = 350\text{mA}$ , $I_{L-2} = 200\text{mA}$	65	73	—	$\text{mV}_{p-p}$
Ripple	$V_{p-p}$	$I_{L-1} = 350\text{mA}$ , $I_{L-2} = 200\text{mA}$	—	0.1	0.2	Volts

\*At input voltages less than 220VAC,  $I_{L-1}$  must be limited to less than 250mA.

**Application Circuit**



**M57184N-715B**  
**High Voltage Input**  
**DC-to-DC Converter**



M57184N-715B  
High Voltage Input  
DC-to-DC Converter

## Inductor for Application Example Circuit

### 1. Recommended Inductors

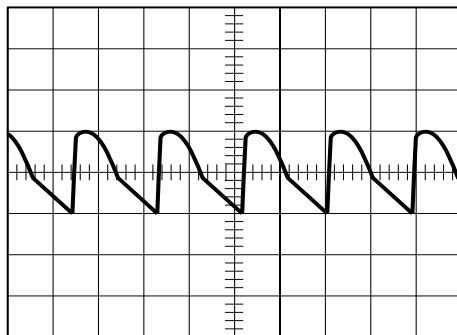
Manufacturer	Part Number
Mitsumi	C13-FR Series, Type # GA 102
API Delevan	4590-105K
J.W. Miller	5900-102

### 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 show the output ripple voltage on  $V_{O-1}$  for good versus bad inductors. These waveforms are produced with output  $V_{O-2}$  unloaded and the scope coupling set to AC.

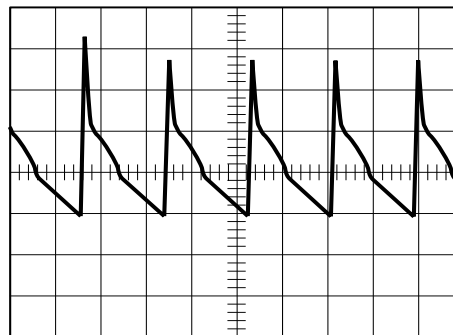
GOOD INDUCTOR



50.0mV/div

50.0μsec/div

BAD INDUCTOR



50.0mV/div

50.0μsec/div