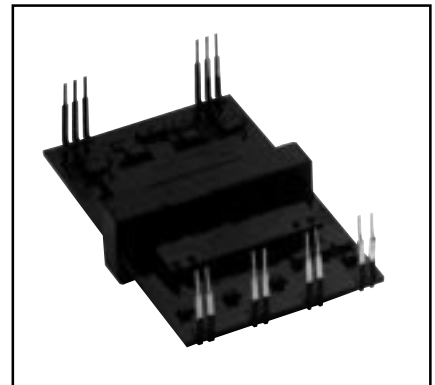
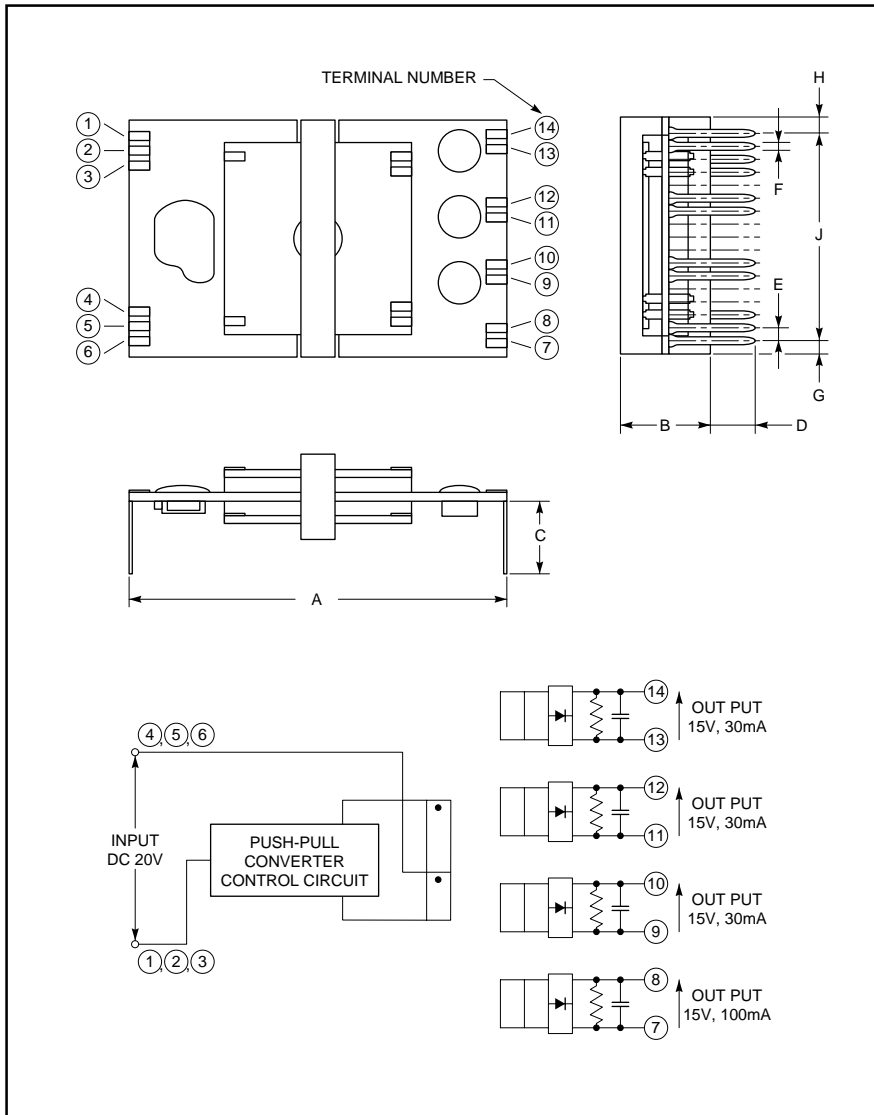


# M57140-01

IPM POWER SUPPLY HYBRID IC



**Description:**

M57140-01 is an isolated DC-to-DC converter designed to drive IPMs (Intelligent Power Modules). With an input of DC 20V, the module supplies four 15V outputs. Isolation is provided from primary to secondary and also between the secondaries. Interwinding isolation is designed for driving the IPM.

**Features:**

- Output Specification:  
+15V x 4, Total 3W max.
- Primary-to-secondary Isolation:  
2500 V<sub>RMS</sub>, One Minute
- Secondary-to-secondary Isolation Voltage:  
1500 V<sub>RMS</sub>, One Minute
- Compact, Low Profile Design

**Applications:**

- IPMs for General Purpose Inverter and AC Servo
- Power Source for MOSFET Driving Circuits

**Ordering Information:**

M57140-01

**Outline Drawing and Circuit Diagram**

Dimensions	Inches	Millimeters
A	2.03	51.5
B	0.71	18.0 MAX
C	.39±.06	12.5±1.5
D	.18±.06	4.5±1.5
E	0.07	1.8

Dimensions	Inches	Millimeters
F	0.02	0.55
G	0.08	2.1
H	0.08	2.1
J	1.13	28.8

# M57140-01

## IPM POWER SUPPLY HYBRID IC

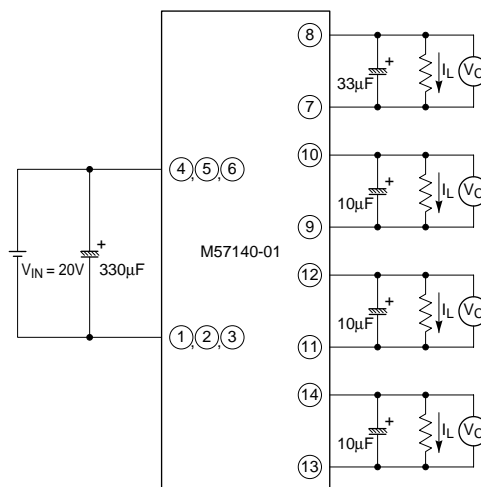
### Absolute Maximum Ratings, $V_{IN} = 20V$ , $T_a = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	M57140-01	Units
Input Voltage	$V_{IN}$	Terminals (4), (5), (6)-(1), (2), (3)	25	Volts
Load Current	$I_L$	Terminals (14)-(13), (12)-(11), (10)-(9)	30	mA
		Terminals (8)-(7)	100	mA
Operating Temperature	$T_{opr}$	There Should be	-10 ~ +75	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	No Condensation	-20 ~ +85	$^\circ\text{C}$
Internal Power Dissipation	$P_d$	-	1.5	Watts
Primary-to-Secondary Isolation		1 Minute	2500	$V_{rms}$
Secondary-to-Secondary Isolation		1 Minute	1500	$V_{rms}$

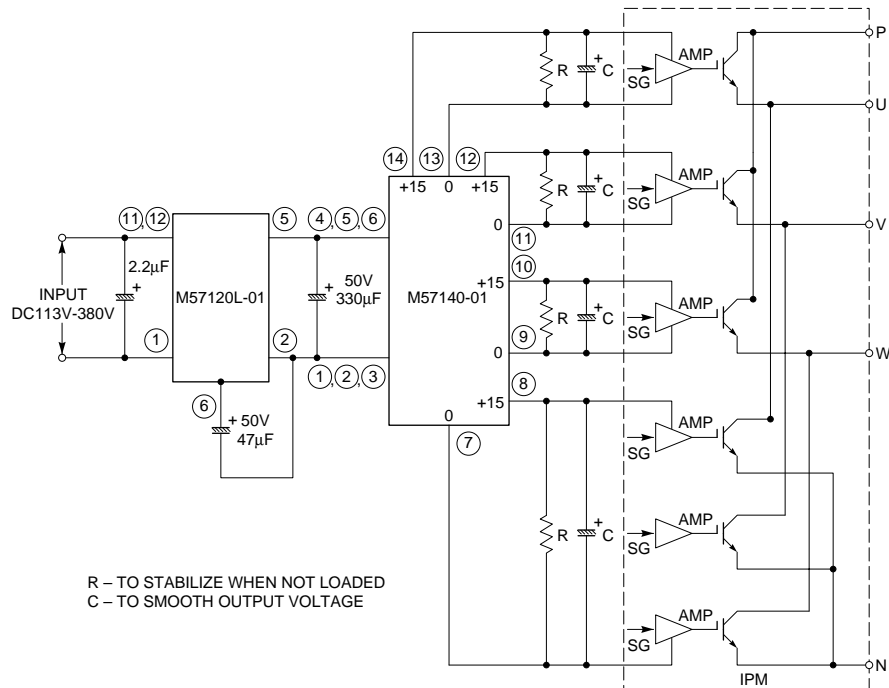
### Electrical Characteristics, $V_{IN} = 20V$ , $T_a = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Source Voltage	$V_{IN}$	Direct Current	18	20	22	Volts
Output Voltage	$V_O$	Between Pins (10)-(9), (12)-(11), (14)-(13) $I_L = 30\text{mA}$	13.5	15.0	16.5	Volts
		Between Pins (8)-(7), $I_L = 100\text{mA}$	13.5	15.0	16.5	Volts
Peak Load Current	$I_{LP}$	Between Pins (10)-(9), (12)-(11), (14)-(13)	-	33	-	mA
		Between Pins (8)-(7)	-	110	-	mA
Load Regulation	Reg-out	Between Pins (10)-(9), (12)-(11), (14)-(13) $I_L = 0 \sim 30\text{mA}$	-	5	10	%
		Between Pins (8)-(7), $I_L = 0 \sim 100\text{mA}$	-	7	12	%
Efficiency	$\eta$	Between Pins (10)-(9), (12)-(11), (14)-(13) $I_L = 30\text{mA}$	-	70	-	%
		Between Pins (8)-(7), $I_L = 100\text{mA}$	-	70	-	%

### Application Circuit



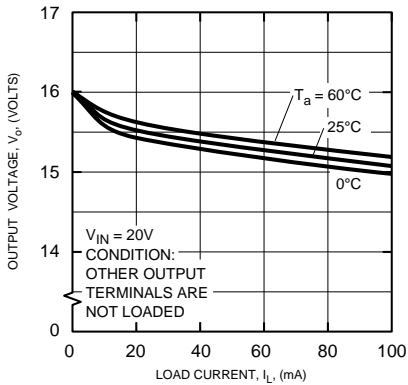
**Application Circuit**



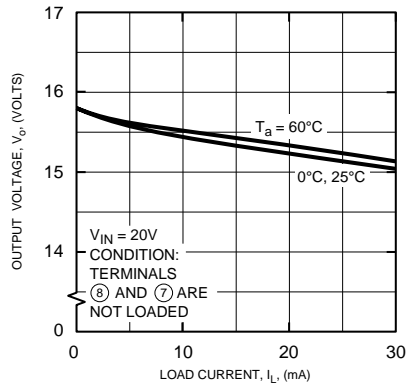
**Handling Precautions:**

- When M57140-01 is used under excessive load condition, output side rectifying diodes will be destroyed. Care should be exercised so as not to operate the device above the rated maximum load current.
- Coating Materials should not be applied on this device because the application of coating materials for waterproofing could cause a stress and destroy a device.

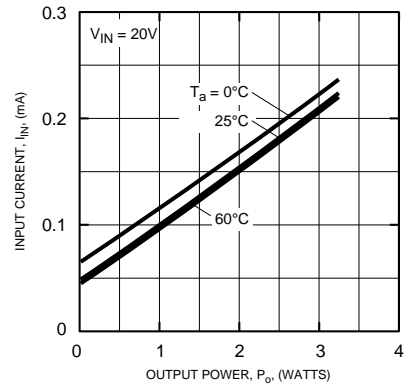
OUTPUT VOLTAGE - LOAD CURRENT CHARACTERISTICS BETWEEN TERMINALS ⑧ AND ⑦



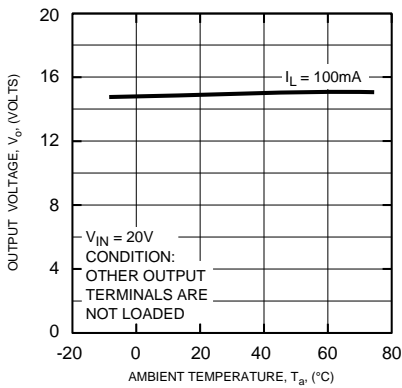
OUTPUT VOLTAGE - LOAD CURRENT CHARACTERISTICS BETWEEN TERMINALS ⑩-⑨, ⑫-⑪, ⑬-⑭



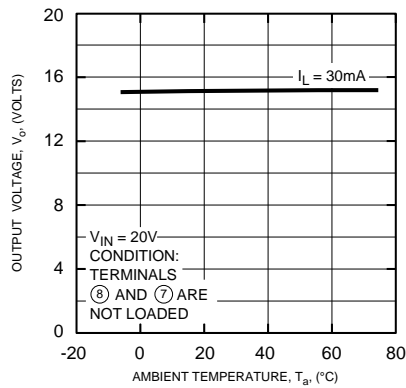
INPUT CURRENT - OUTPUT POWER



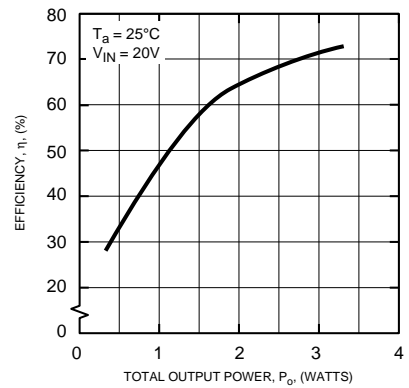
OUTPUT VOLTAGE VS AMBIENT TEMPERATURE BETWEEN TERMINALS ⑧ AND ⑦



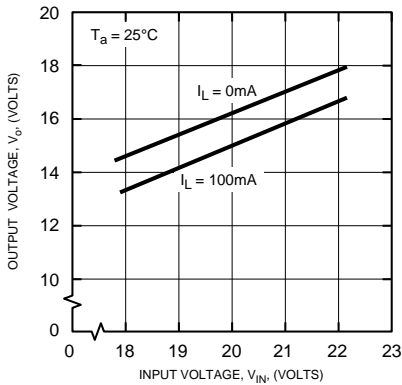
OUTPUT VOLTAGE VS AMBIENT TEMPERATURE BETWEEN TERMINALS ⑩-⑨, ⑫-⑪, ⑬-⑭



EFFICIENCY CHARACTERISTICS



OUTPUT VOLTAGE VS INPUT VOLTAGE BETWEEN TERMINALS ⑧ AND ⑦



OUTPUT VOLTAGE VS INPUT VOLTAGE BETWEEN TERMINALS ⑩-⑨, ⑫-⑪, ⑬-⑭

