

MES1505

DC/DC Converter

General Description

MES1505 is a DC-to-DC converter which can be used to supply DC output from a commercial power supply (85 to 265 VAC). Using these module enable simple, easy drive of microcomputers, LEDs, and other electronic components without using a transformer.

It also allows set PCBs to be kept compact and lightweight, with extremely few attachments. It can accommodate the 100VAC~220VAC power supplies used as household power supplies.



Application

- Small multi-purpose power supply.
- Stand-by power supply aimed at low power consumption when loaded light.
- Insulated-type DC-DC converted.

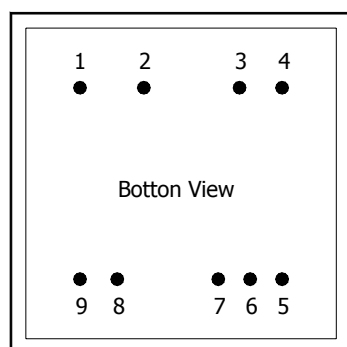
Features

- Wide Input Range : FREEVOLT (AC 85V ~ 265V)
- A switching power supply can be made easily by adding simply external circuit
- Permits reduction of power consumption at low loads(when in stand-by)
- Able to deal with inputs of worldwide areas
- Ultra-compact size attained by application of high-density mounting technique
- Application of the unique molding technique features
 - Compliance with various safety regulations from the compact size
 - Humming is prevented when intermittent oscillation
- Over Temperature Protection
- Output Short Circuit Protection
- Over Load Protection

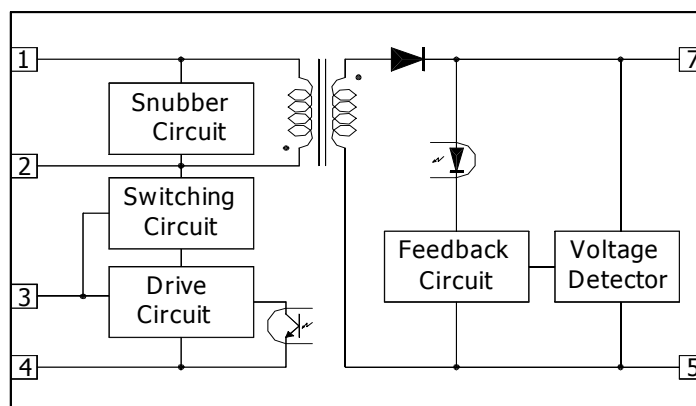
Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Input Voltage	V _{IN}	120 ~ 375	V _{DC}
Output Voltage	V _{OUT}	15	V
Maximum Output Current	I _{OMAX}	500	mA
ESD Endurance	V _{SURGE}	2	kV
Maximum Surface Temperature	T _{CMAX}	105	°C
Operating Temperature Range	T _{OPR}	0 ~ +50	°C
Storage Temperature Range	T _{STG}	-40 ~ +105	°C

Pin Assignment



Block Diagram



Pin Descriptions

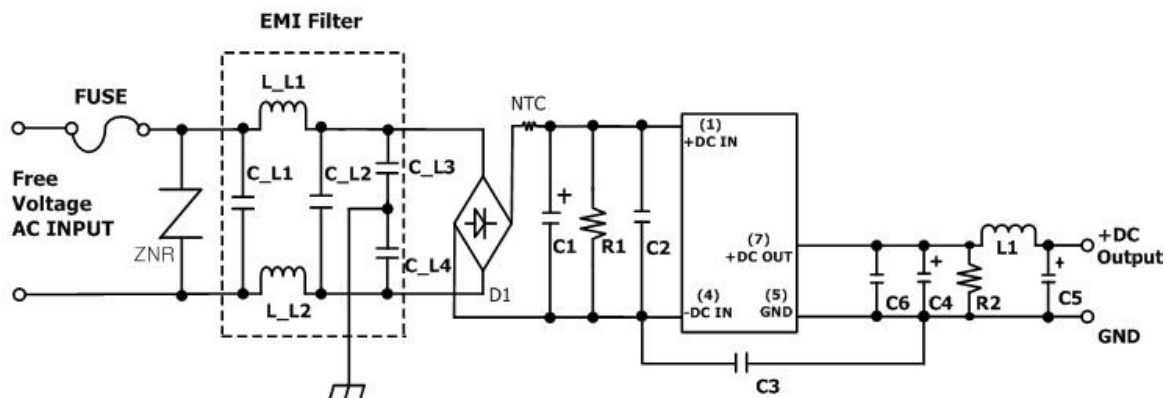
Pin Name	Pin No.	I/O	Description
+DC IN	1	I	Voltage Input Terminal, 120~375 V _{IN}
DRAIN	2	O	Drain Output Terminal
NC	3		No Connection
- DC IN	4	I	Voltage Input Terminal, 0 V _{IN}
GND	5	O	Voltage Output Terminal, 0V _{DC}
NC	6		No Connection
+DC OUT	7	O	DC Voltage Output Terminal, 15 V _{DC}
NC	8		No Connection
NC	9		No Connection

(Note1) Refer to the application circuit over pin connection

Electrical Characteristics

Characteristics	Symbol	Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	V _{IN}		120	311	375	V _{DC}
Output Voltage	V _O	V _i =311V, I _o =200mA	14.5	15.0	15.5	V
Output Current	I _O	V _i =311V	-	-	500	mA
Line Regulation	V _R	V _i =120~375V, I _o =100mA	-0.10	0.05	0.10	V
Load Regulation	V _L	V _i =311V, I _o =0~450mA	-0.15	0.05	0.15	V
Output Ripple Voltage	V _p	V _i =311V, I _o =100mA	-	0.05	0.10	V _{p-p}
Power Conversion Efficiency	η	V _i =311V, I _o =100mA	68	75	-	%

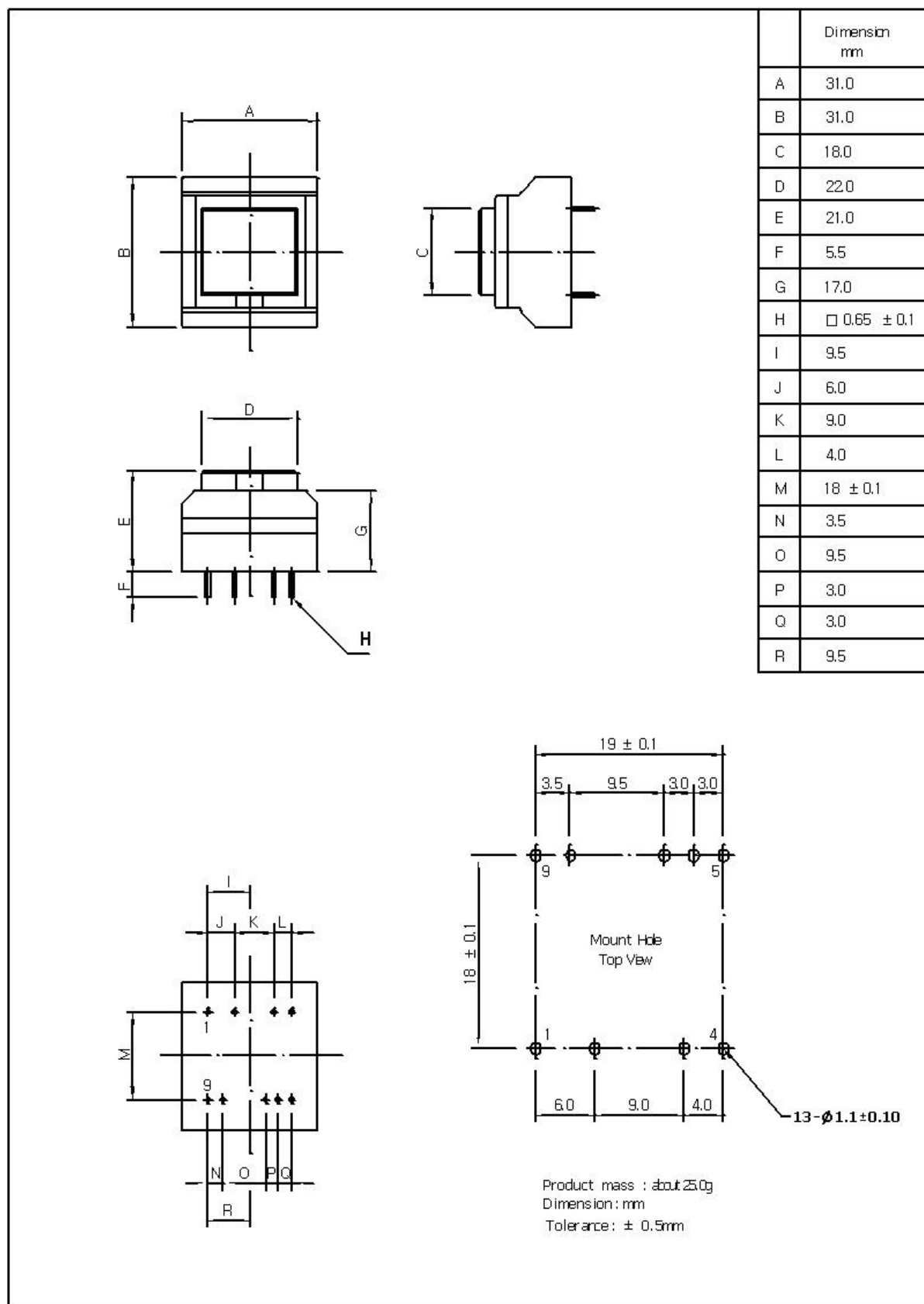
Application Circuit



External Component Setting

FUSE	Fuse	Please make sure to use quick acting fuse 1A or higher
C1	Capacitor for input voltage smoothing	Capacitance : 10 μ F~820 μ F, Rated voltage : 400V or higher Ripple current is 0.13Arms above.
C2	For noise terminal voltage reduction	Capacitance : 0.1 μ F~0.22 μ F, Rated voltage : 400V or higher Film capacitor or ceramic capacitor. Reduce the noise terminal voltage. The constant value should be evaluated in the set.
C3	Capacitor for Safety	Capacitance : 1nF~4.7nF, Rated voltage : 400V or higher
C4,C5	Capacitor for output voltage smoothing	Capacitance : 470 μ F~1000 μ F, Rated voltage : 16V or higher ESD is 0.4 Ω max. Ripple current is 0.25Arms above. Output noise voltage is influenced. Please evaluate it in the actual set.
C6	Bypass Capacitor for high frequency noise	Capacitance : 10nF~100nF, Rated voltage : 50V or higher Film capacitor or ceramic capacitor. Reduce the high frequency noise terminal output.
R1	Discharge Resistor	500k Ω higher , 1W higher
R2	Dummy Resistor	600 Ω lower, 0.5W
L1	Choke Coil	L : 4.7~10 μ H, Allowable current : 2A or higher Please use the one that is hard to be magnetic saturated even in the high temperature.
D1	Rectifier Diode	In the absolute maximum ratings, the reverse peak voltage should be 500V or higher, the average rectifying current should be 1A or higher, and the peak surge current should be 10A or higher. (Full-wave rectifier can be used in out part.)

Package Outline



Ordering Information

Order Number	Temperature Range	Package Type
MES1505	0°C ~ 50°C	

* Please consult the factory or sales representative for pricing and availability.

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