

MCA5

5W ULTRAMINIATURE MODULAR SWITCHING POWER SUPPLIES

The MCA-5 series is a 5W ultraminiature modular switching power supply, designed for efficiency and reliability. It is available in single, dual, and triple outputs and features a universal 90 to 264VAC input and output voltages from 3.3VDC to 24VDC. With 3,000 input-to-output isolation, it ensures safety. The MCA-5 series is available in both PCB and chassis mount packages, offering versatile installation options to fit different design needs. Additionally, they come with Full Safety Approvals, ensuring compliance with international safety standards and providing peace of mind for users.

HOW TO ORDER

MSCC-5000/DRL	
DRL: DIN RAIL MOUNT	
OUTPUT VOLTAGE:	
0 = 3.3 VDC	
1 = 5 VDC	
2 = 12 VDC	
3 = 15 VDC	
5 = 24 VDC	
6 = ±12 VDC	
7 = ±15 VDC	
9 = +5,±12 VDC	
11 = +5,±15 VDC	
OUTPUT POWER: 5W	
FORM FACTOR:	C = CHASSIS MOUNT A = PCB MOUNT
# OF OUTPUTS:	S = SINGLE OUTPUT D = DOUBLE OUTPUT T = TRIPLE OUTPUT
FAMILY: MCA SERIES	



FEATURES

INPUT VOLTAGE

90-264VAC (100-240VAC Nominal)

INPUT FREQUENCY

47-440Hz, 50-60Hz nom.

OPERATING TEMPERATURE

0 to +50°C(FL) See Derate* (Free-air Convection)

SAFETY APPROVALS

ESD:	EN61000-4-2, 6kV Contact, 8kV Air
RS:	(Note 7) EN61000-4-3
EFT:	EN61000-4-4, 2kV on AC Line
Surge:	EN61000-4-5, 1kV L-N
CS:	EN61000-4-6, 3V EMF
Dips:	(Note 8) EN61000-4-11
EMI	CISPR EN55011 class B

INPUT-OUTPUT ISOLATION

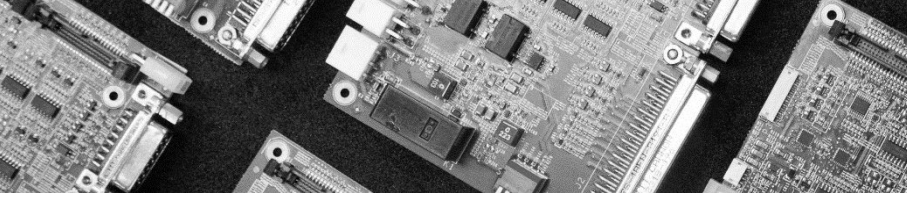
3000VAC, 60S

OPERATING FREQUENCY

140 KHz, typ., fixed

EFFICIENCY

See model selection chart



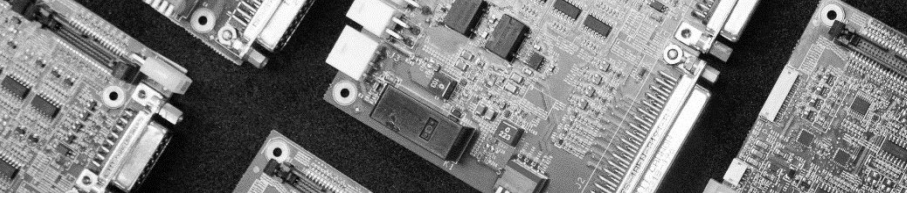
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PARAMETERS

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Input Voltage	90-264VAC (100-240VAC, nom.)
Input Frequency	47-440Hz, 50-60Hz Nom.
Input Current (LL/HL)	0.2A/0.1A
Inrush Current (Note 1)	20A@100Vin, 40A@200Vin, typ
Leakage Current	<3.5mA at 264Vin, 50Hz
Output Voltage/Current	See Model Selection Chart
Preset Accuracy	Single & Matched Dual: $\pm 1\%$ nom. Triple O/P: (5, $\pm$ O/P): $\pm 2\%$, $\pm 5\%$ nom.
Voltage Adjust	$\pm 6\%$, typ
Load/Line Regulation (Note 3)	See Model Selection Chart
Cross Regulation (Note 11)	Dual O/P: 3% max. Triple O/P: (5, $\pm$ O/P) N/A, $\pm 0.5\%$ max.
Temperature Coefficient	$\pm 0.03\%/^{\circ}\text{C}$
Ripple/Noise (Note 2)	See Model Selection Chart
Over Voltage Protection	Clamp*
Turn On Delay Time	<1S
Hold Up Time	Single O/P: 30mS, typ Multi O/P: <20mS
Rise Time	<20mS
Over-Shoot/Under-Shoot	<10% nominal O/P voltage
Short Circuit Protection	Continuous, self-recovering*
<i>* These are stress ratings. Exposure of the devices to any of these conditions may adversely affect long-term reliability. Proper operation under conditions other than the standard operating conditions is neither warranted nor implied.</i>	
On/Off Control (Note 4)	Open Collector Logic "1"/Open=ON Logic "0"/GND=OFF
Input-Output Isolation	3000VAC, 60S
Insulation Resistance (Note 6)	$\geq 20\text{M}\Omega$
Operating Frequency	140 KHz, typ., fixed
Efficiency	See Model Selection Chart
Safety UL/cUL:	UL60950-1 2 nd ed. C22.2 60950-1 2 nd ed.
UL-EU:	EN60950-1 2 nd ed.
CE:	EN60601-1-2
CB:	IEC60950-1 2 nd ed.



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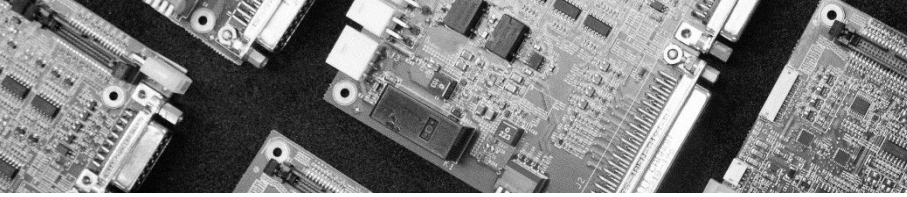
PARAMETERS

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Oper. Temperature	0 to +50°C FL See Derate* (Free-air Convection)
Relative Humidity (Note 5)	0-95%, Non-Condensing
Storage Temperature	-25 to +71°C *
MTBF, Single/Multi O/P (Note 9)	180,000 / 110,000 Hrs
Vibration (Note 10)	2G Peak, 10~500Hz, 3 Axes
Drop Test	70 cm
EMS:	ESD: EN61000-4-2, 6kV Contact, 8kV Air RS: EN61000-4-3 EFT: EN61000-4-4, 2kV on AC Line Surge: EN61000-4-5, 1kV L-N CS: EN61000-4-6, 3V EMF Dips (Note 8): EN61000-4-11
EMI	CISPR EN55011 class B
Case Material	Rynite, 94V-0 Rated
Construction	Encapsulated, Soft Pot
Weight PCS/CHA	4 oz (113g) / 8.5 oz (241g)

NOTES

1. Cold Start and 25°C
2. Test by dc loading side parallel with a 0.1uF ceramic capacitor and measured bandwidth with DC-20MHz.
3. Regulation includes line, cross temperature drift, and tolerance variation Load regulation measured from 20% to Full load. All other outputs at nominal load.
4. No termination is necessary with the Control pin to maintain constant "On" operation.
5. Operating or Storage
6. 500Vdc, 1 Sec between primary to secondary
7. FR: 80MHz-2.5GHz; Field Strength 3V/M
8. 95% 250Cy, 70% 25Cy, 40% 5Cy, 5% 0.5Cy
9. MIL STD 217, 25°C
10. Tested with a shipping container for 30 minutes
11. Measured at nominal load with the other output(s) varied between 20% and 100% nominal load.

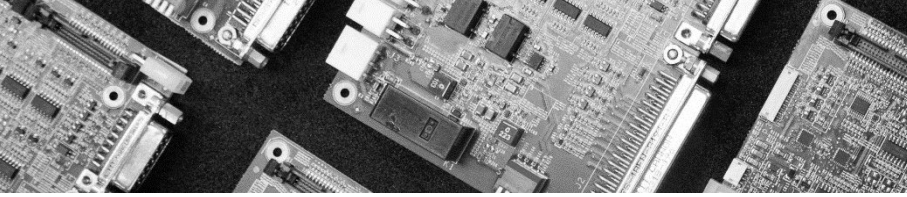


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MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT AMPS	OUTPUT WATTS	RIPPLE & NOISE MAX. (NOTE 2)	LINE/LOAD REG. MAX. (NOTE 3)	EFFICIENCY
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SINGLE OUTPUT – PCB Mount						
MSCA-5000	3.3VDC	1.5	4W	100mV pk-pk	1% / 2%	62% nom.
MSCA-5001	5VDC	1	5W	75mV pk-pk	1% / 1%	71% nom.
MSCA-5002	12VDC	0.42	5W	50mV pk-pk	1% / 1%	71% nom.
MSCA-5003	15VDC	0.33	5W	50mV pk-pk	0.5% / 0.5%	71% nom.
MSCA-5005	24VDC	0.23	5W	50mV pk-pk	0.5% / 0.5%	72% nom.
SINGLE OUTPUT – Chassis Mount						
MSCC-5000	3.3VDC	1.5	4W	100mV pk-pk	1% / 2%	62% nom.
MSCC-5001	5VDC	1	5W	75mV pk-pk	1% / 1%	71% nom.
MSCC-5002	12VDC	0.42	5W	50mV pk-pk	1% / 1%	71% nom.
MSCC-5003	15VDC	0.33	5W	50mV pk-pk	0.5% / 0.5%	71% nom.
MSCC-5005	24VDC	0.23	5W	50mV pk-pk	0.5% / 0.5%	72% nom.
SINGLE OUTPUT – DIN Rail Mount						
MSCC-5000/DRL	3.3VDC	1.5	4W	100mV pk-pk	1% / 2%	62% nom.
MSCC-5001/DRL	5VDC	1	5W	75mV pk-pk	1% / 1%	71% nom.
MSCC-5002/DRL	12VDC	0.42	5W	50mV pk-pk	1% / 1%	71% nom.
MSCC-5003/DRL	15VDC	0.33	5W	50mV pk-pk	0.5% / 0.5%	71% nom.
MSCC-5005/DRL	24VDC	0.23	5W	50mV pk-pk	0.5% / 0.5%	72% nom.
DUAL OUTPUT – PCB Mount						
MDCA-5006	±12VDC	±0.21	5W	100mV pk-pk	0.5% / 2%	66% nom.
MDCA-5007	±15VDC	±0.18	5W	100mV pk-pk	0.5% / 2%	67% nom.
DUAL OUTPUT – Chassis Mount						
MDCC-5006	±12VDC	±0.21	5W	100mV pk-pk	0.5% / 2%	66% nom.
MDCC-5007	±15VDC	±0.18	5W	100mV pk-pk	0.5% / 2%	67% nom.
DUAL OUTPUT – DIN Rail Mount						
MDCC-5006/DRL	±12VDC	±0.21	5W	100mV pk-pk	0.5% / 2%	66% nom.
MDCC-5007/DRL	±15VDC	±0.18	5W	100mV pk-pk	0.5% / 2%	67% nom.

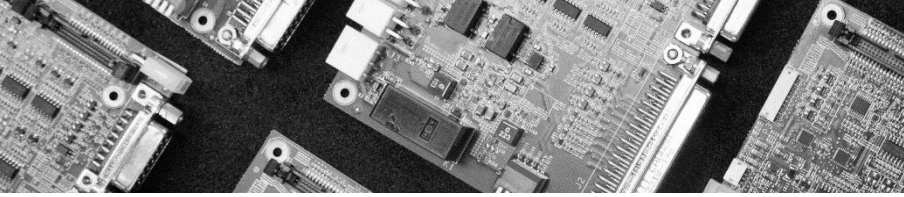


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MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT AMPS	OUTPUT WATTS	RIPPLE & NOISE MAX. (NOTE 2)	LINE/LOAD REG. MAX. (NOTE 3)	EFFICIENCY
TRIPLE OUTPUT – PCB Mount						
MTCA-5009	+5,±12 VDC	0.6, ±0.1	5W	50, ±75mV pk-pk	0.6%, ±0.2 / 0.5%	63% nom.
MTCA-5011	+5,±15 VDC	0.45, ±0.1	5W	50, ±75mV pk-pk	0.6%, ±0.2 / 0.5%	61% nom.
TRIPLE OUTPUT - Chassis Mount						
MTCC-5009	+5,±12 VDC	0.6, ±0.1	5W	50, ±75mV pk-pk	0.6%, ±0.2 / 0.5%	63% nom.
MTCC-5011	+5,±15 VDC	0.45, ±0.1	5W	50, ±75mV pk-pk	0.6%, ±0.2 / 0.5%	61% nom.
TRIPLE OUTPUT– DIN Rail Mount						
MTCC-5009/DRL	+5,±12 VDC	0.6, ±0.1	5W	50, ±75mV pk-pk	0.6%, ±0.2 / 0.5%	63% nom.
MTCC-5011/DRL	+5,±15 VDC	0.45, ±0.1	5W	50, ±75mV pk-pk	0.6%, ±0.2 / 0.5%	61% nom.

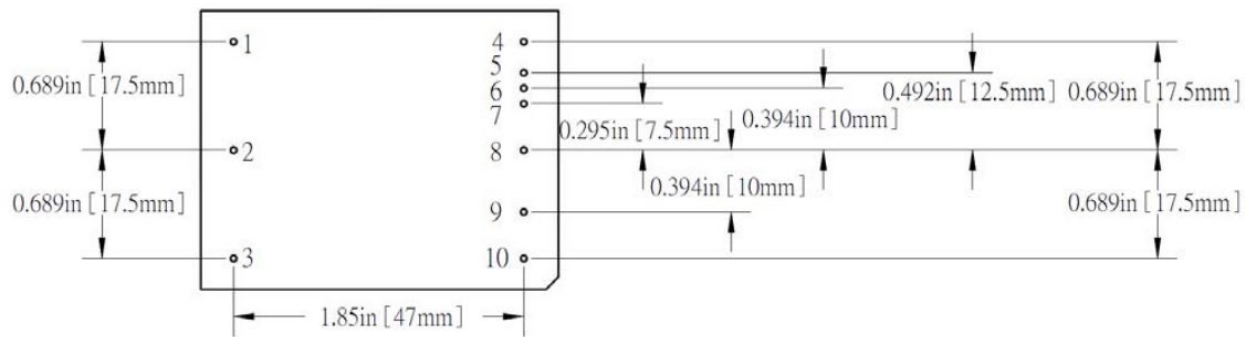
These Specifications are subject to change at any time without prior notification
All specifications are typical at nominal input, full load, and 25DegC unless otherwise noted
**These are stress ratings. Exposure of the devices to any of these conditions may adversely affect long-term reliability.*
Proper operation under conditions other than the standard operating conditions is neither warranted nor implied.



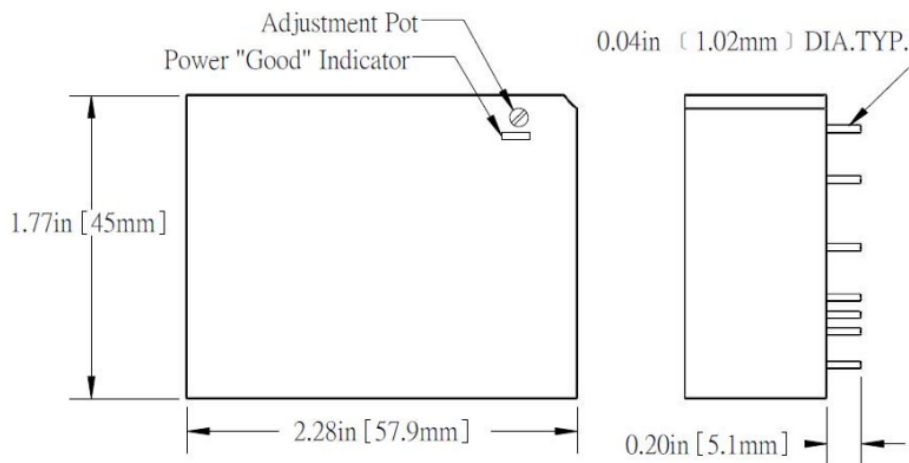
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MECHANICAL DIMENSION- PCB MOUNT



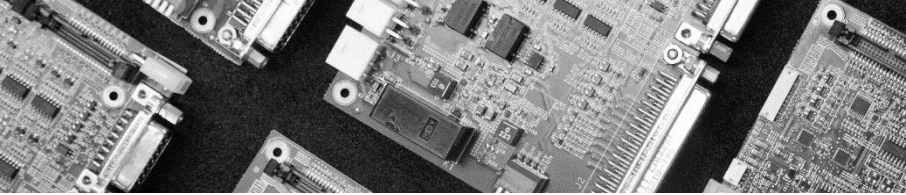
PIN-OUT VIEWED FROM BOTTOM



Model Type / Pin#	Single	Dual	Unmatched Dual	Triple
1	AC HI	AC HI	AC HI	AC HI
2	AC LO	AC LO	AC LO	AC LO
3	GND	GND	GND	GND
4	No Pin	No Pin	No Pin	+Vout
5	No Pin	No Pin	No Pin	Out Com
6	+Vout	+Vout	+12Vout	No Pin
7	No Pin	No Pin	No Pin	-Vout
8	No Pin	Out Com	+5Vout	+5Vout
9	-Vout	-Vout	Out Com	5V Ret
10	Ctrl	Ctrl	Ctrl	Ctrl

Tolerance : .XX $\pm$ 0.02 (0.508)
.XXX $\pm$ 0.01 (0.254)

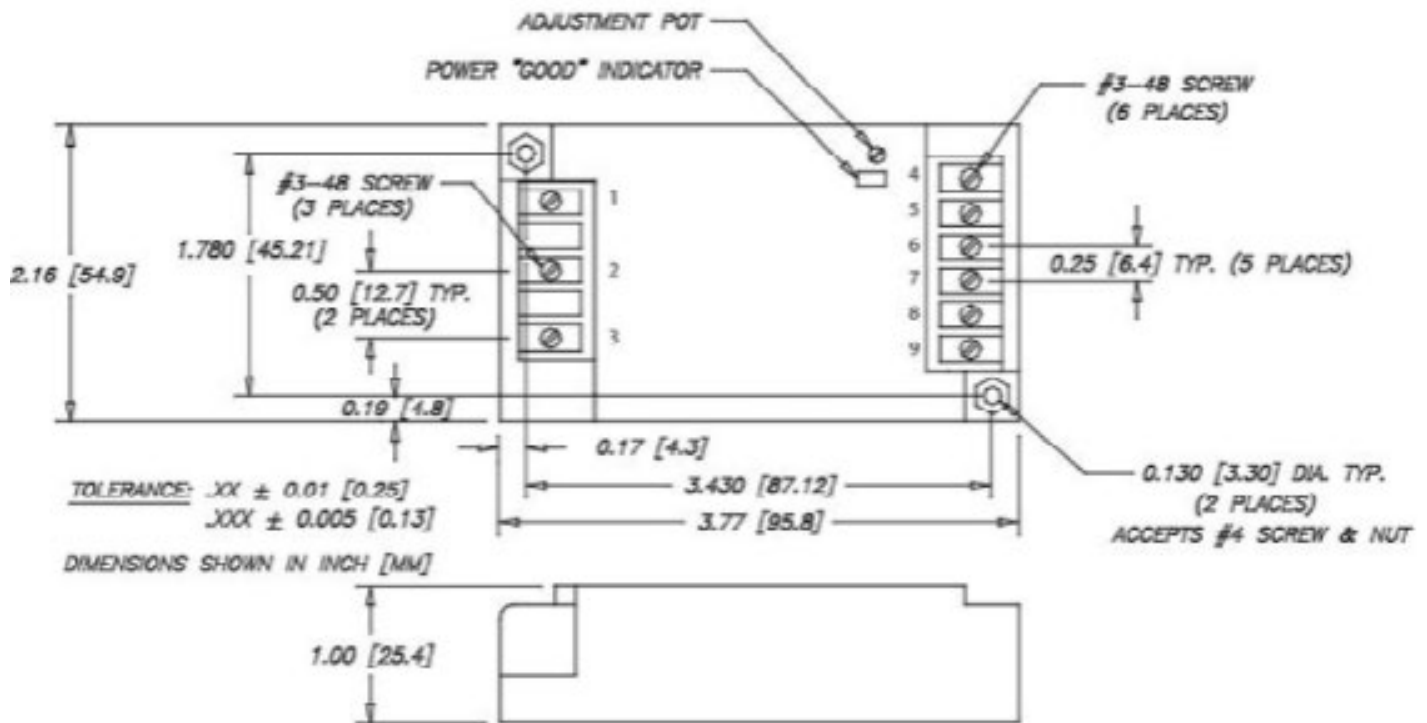
Dimensions shown in inch (mm)



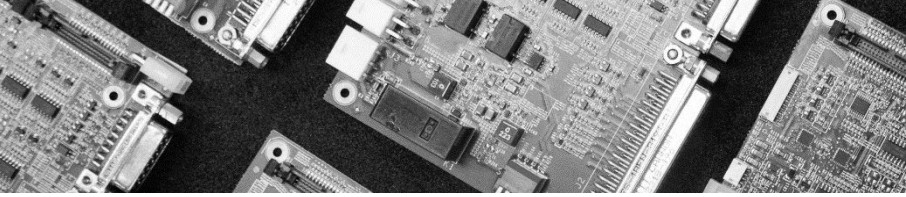
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MECHANICAL DIMENSION- CHASSIS MOUNT



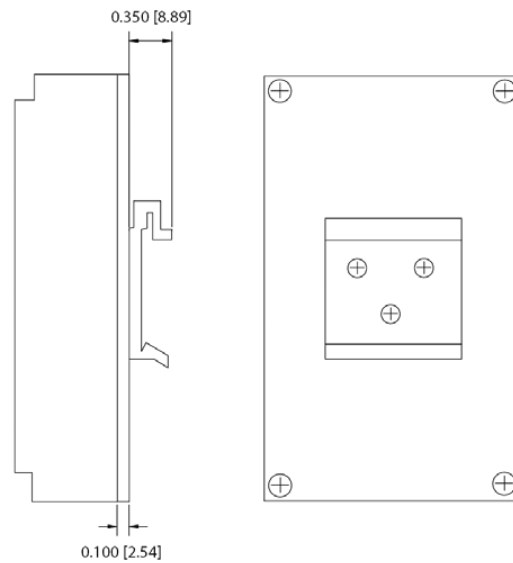
Model Type / Pin#	Single	Match Dual	Unmatch Dual	Triple
1	AC LO	AC LO	AC LO	AC LO
2	GND	GND	GND	GND
3	AC III	AC III	AC III	AC III
4	Ctrl	Ctrl	Ctrl	Ctrl
5	-Vout	-Vout	Com	+5 Ret
6	-Vout	Com	Com	+5Vout
7	+Vout	Com	+5Vout	-Vout
8	+Vout	+Vout	+12Vout	+/- Com
9	N/C	N/C	N/C	+Vout



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MECHANICAL DIMENSION- DIN RAIL



DIN Rail mounting kit available for Chassis-mount modules, specify part # M-DRL-01. Kit includes mounting plate, DIN Rail clip, and assembly hardware.

DERATE CURVE

