



## Kaga Electronics (USA) Inc.

2480 N. First St, Suite #100

San Jose, CA 95131

Tel: (408)570-0955 Fax: (408)570-0186

www.volgen.com

- 5 WATTS OUTPUT POWER
- 2:1 AND 4:1 WIDE INPUT VOLTAGE RANGE
- FIVE-SIDED SHIELD
- HIGH EFFICIENCY UP TO 84%
- STANDARD 24 PIN DIP PACKAGE
- FIXED SWITCHING FREQUENCY



### TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25°C otherwise noted

OUTPUT SPECIFICATIONS			
Output power			5 Watts, max
Voltage accuracy	Full load and nominal Vin	± 1%	
Minimum load (Note 1)			10% of FL
Line regulation	LL to HL at Full Load	± 0.2%	
Load regulation	25% to 100% FL	Single	± 0.5%
		Dual	± 1%
Cross regulation(Dual)	Asymmetrical load 25% / 100% FL	± 5%	
Ripple and noise	20MHz bandwidth	50mVp-p	
Temperature coefficient			±0.02% / °C, max
Transient response recovery time	25% load step change	200uS	
Over load protection	% of FL at nominal input	170%, typ	
Short circuit protection			Continuous, automatic recovery
INPUT SPECIFICATIONS			
Input voltage range	MT5A	12V nominal input	9 – 18VDC
		24V nominal input	18 – 36VDC
	MT5A-W	48V nominal input	36 – 75VDC
		24V nominal input	9 – 36VDC
Input filter			Pi type
	Input surge voltage 100mS max	12V input	36VDC
24V input		50VDC	
48V input		100VDC	
Input reflected ripple	Nominal Vin and full load	20mA <sub>p-p</sub>	
Start up time	Nominal Vin and constant resistive load	Power up	450mS, max

GENERAL SPECIFICATIONS			
Efficiency			See table
Isolation voltage	Input to Output	1600VDC, min	
	Input ( Output ) to Case	1600VDC, min	
Isolation resistance			10 <sup>9</sup> ohms, min
Isolation capacitance			300pF, max
Switching frequency			300KHz, typ
Case material			Nickel-coated copper
Base material			Non-conductive black plastic
Potting material			Epoxy (UL94-V0)
Dimensions			1.25 X 0.80 X 0.40 Inch (31.8 X 20.3 X 10.2 mm)
Weight			16g (0.55oz)
MTBF (Note 3)			3.165 x 10 <sup>6</sup> hrs
ENVIRONMENTAL SPECIFICATIONS			
Operating temperature range	Standard	-25°C~+85°C (with derating)	
	M1 (Note 2)	-40°C~+85°C (non-derating)	
	M2 (W series)	-40°C~+85°C (with derating)	
Maximum case temperature			+100°C
Storage temperature range			-55°C ~ +105°C
Thermal impedance	Nature convection	20°C/watt	
Thermal shock			MIL-STD-810D
Vibration			10~55Hz, 10G, 30minutes along X,Y and Z
Relative humidity			5% to 95% RH
EMC CHARACTERISTICS			
Conducted emissions	EN55022	Class A	
Radiated emissions	EN55022	Class A	
ESD	EN61000-4-2	Perf. CriteriaB	
Radiated immunity	EN61000-4-3	Perf. CriteriaA	
Fast transient	EN61000-4-4	Perf. CriteriaB	
Surge	EN61000-4-5	Perf. CriteriaB	
Conducted immunity	EN61000-4-6	Perf. CriteriaA	



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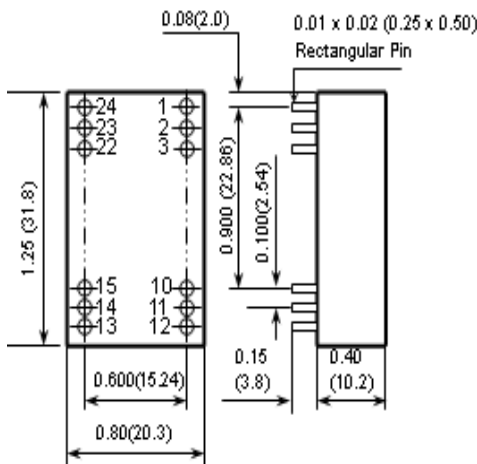
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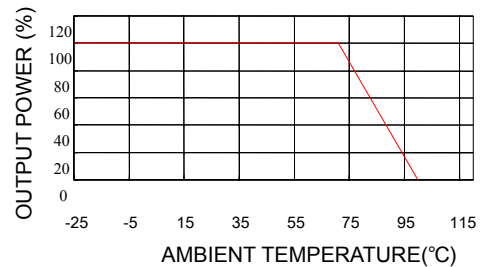
Model Number	Input Range	Output Voltage	Output Current	Input Current <sup>(4)</sup>	Efficiency <sup>(5)</sup> (%)
MT5A-1233SI	9 – 18 VDC	3.3 VDC	1000mA	382mA	76
MT5A-1205SI	9 – 18 VDC	5 VDC	1000mA	563mA	78
MT5A-1212SI	9 – 18 VDC	12 VDC	470mA	603mA	82
MT5A-1215SI	9 – 18 VDC	15 VDC	400mA	649mA	81
MT5A-1205WI	9 – 18 VDC	± 5 VDC	± 500mA	563mA	78
MT5A-1212WI	9 – 18 VDC	± 12 VDC	± 230mA	597mA	81
MT5A-1215WI	9 – 18 VDC	± 15 VDC	± 190mA	594mA	84
MT5A-2433SI (W)	18 – 36 (9 – 36) VDC	3.3 VDC	1000mA	194mA (191mA)	75 (76)
MT5A-2405SI (W)	18 – 36 (9 – 36) VDC	5 VDC	1000mA	285mA (278mA)	77 (79)
MT5A-2412SI (W)	18 – 36 (9 – 36) VDC	12 VDC	470mA	305mA (305mA)	81 (81)
MT5A-2415SI (W)	18 – 36 (9 – 36) VDC	15 VDC	400mA	325mA (312mA)	81 (84)
MT5A-2405WI (W)	18 – 36 (9 – 36) VDC	± 5 VDC	± 500mA	274mA (282mA)	80 (78)
MT5A-2412WI (W)	18 – 36 (9 – 36) VDC	± 12 VDC	± 230mA	288mA (295mA)	84 (82)
MT5A-2415WI (W)	18 – 36 (9 – 36) VDC	± 15 VDC	± 190mA	308mA (297mA)	81 (84)
MT5A-4833SI (W)	36 – 75 (18 – 75) VDC	3.3 VDC	1000mA	98mA (100mA)	74 (73)
MT5A-4805SI (W)	36 – 75 (18 – 75) VDC	5 VDC	1000mA	143mA (138mA)	77 (79)
MT5A-4812SI (W)	36 – 75 (18 – 75) VDC	12 VDC	470mA	151mA (155mA)	82 (80)
MT5A-4815SI (W)	36 – 75 (18 – 75) VDC	15 VDC	400mA	162mA (160mA)	81 (82)
MT5A-4805WI (W)	36 – 75 (18 – 75) VDC	± 5 VDC	± 500mA	141mA (145mA)	78 (76)
MT5A-4812WI (W)	36 – 75 (18 – 75) VDC	± 12 VDC	± 230mA	147mA (151mA)	82 (80)
MT5A-4815WI (W)	36 – 75 (18 – 75) VDC	± 15 VDC	± 190mA	150mA (156mA)	83 (80)

### Note

- The MT5A series required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
- BELLCORE TR-NWT-000332. Case 1 :  
50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
- M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard and M2 version
- Maximum value at nominal input voltage and full load of standard type.
- Typical value at nominal input voltage and full load
- There is no pin at PIN10 & PIN15 for MT5A-W series



- All dimensions in Inches (mm)  
Tolerance :  $x.xx \pm 0.02(x.x \pm 0.5)$   
 $x.xxx \pm 0.01(x.xx \pm 0.25)$
- Pin pitch tolerance  $\pm 0.014(0.35)$



DIP PIN CONNECTION					
PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
2	- INPUT	- INPUT	23	+ INPUT	+ INPUT
3	- INPUT	- INPUT	22	+ INPUT	+ INPUT
9	NC	COMMON	16	- OUTPUT	COMMON
10	NC (Note6)	NC (Note6)	15	NC (Note6)	NC (Note6)
11	NC	- OUTPUT	14	+ OUTPUT	+ OUTPUT