

**FEATURES**

- 10 WATTS OUTPUT POWER
- OUTPUT CURRENT UP TO 2.5A
- STANDARD 2.0 X 1.0 X 0.4 INCH PACKAGE
- HIGH EFFICIENCY UP TO 87%
- 2:1 AND 4:1 WIDE INPUT VOLTAGE RANGE
- SIX-SIDED CONTINUOUS SHIELD
- FIXED SWITCHING FREQUENCY (300KHz)
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

**DESCRIPTION**

The MT10A and MT10A-W series offer 10 watts of output power from a 2.0 x 1.0 x 0.4 inch package. MT10A series have 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC. MT10A-W series have 4:1 ultra wide input voltage of 9-36 and 18-75VDC.

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

OUTPUT SPECIFICATIONS			
Output power	10 Watts, max.		
Voltage accuracy	Full load and nominal Vin	± 1%	
Minimum load	0%		
Line regulation	LL to HL at Full Load	± 0.2%	
Load regulation	No Load to Full Load	Single Dual	± 0.5% ± 1%
Cross regulation(Dual)	Asymmetrical load 25% / 100% FL	± 5%	
Ripple and noise	20MHz bandwidth	Single Dual	See table
Temperature coefficient	±0.02% / °C, max.		
Transient response recovery time	25% load step change	250µS	
Over voltage protection	3.3V output	3.9VDC	
	5V output	6.2VDC	
	Zener diode clamp	12V output	15VDC
	15V output	18VDC	
Over load protection	% of FL at nominal input	150%, max.	
Short circuit protection	Hiccup, automatics recovery		

GENERAL SPECIFICATIONS			
Efficiency	See table		
Isolation voltage	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	2.00 X 1.00 X 0.40 Inch (50.8 X 25.4 X 10.2 mm)		
Weight	27g (0.95oz)		
MTBF (Note 1)	BELLCORE TR-NWT-000332	1.976 x 10 <sup>6</sup> hrs	
	MIL-HDBK-217F	1.416 x 10 <sup>6</sup> hrs	

INPUT SPECIFICATIONS			
Input voltage range	MT10A	12V nominal input	9 – 18VDC
		24V nominal input	18 – 36VDC
		48V nominal input	36 – 75VDC
	MT10A-W	24V nominal input	9 – 36VDC
		48V nominal input	18 – 75VDC
Input filter	Pi type		
Input surge voltage 100mS max	12V input		36VDC
	24V input		50VDC
	48V input		100VDC
Input reflected ripple current	Nominal Vin and full load		30mA <sub>p-p</sub>
Start up time	Nominal Vin and constant resistive load	Power up	20mS, typ.
Remote ON/OFF (Option) (Note 6)			
(Positive logic)	DC-DC ON	Open or 3.5V < Vr < 12V	
	DC-DC OFF	Short or 0V < Vr < 1.2V	
(Negative logic)	DC-DC ON	Short or 0V < Vr < 1.2V	
	DC-DC OFF	Open or 3.5V < Vr < 12V	
Input current of remote control pin	Nominal Vin	-0.5mA ~ +1mA	
Remote off state input current	Nominal Vin	20mA	

ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature (Reference derating curve)	Standard	-25°C ~ +85°C (with derating)	
	M1 (Note 7)	-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 (Note 8)	Nature convection	12°C/watt	
	Nature convection with heat-sink	10°C/watt	
Thermal shock	MIL-STD-810F		
Vibration	MIL-STD-810F		
Relative humidity	5% to 95% RH		

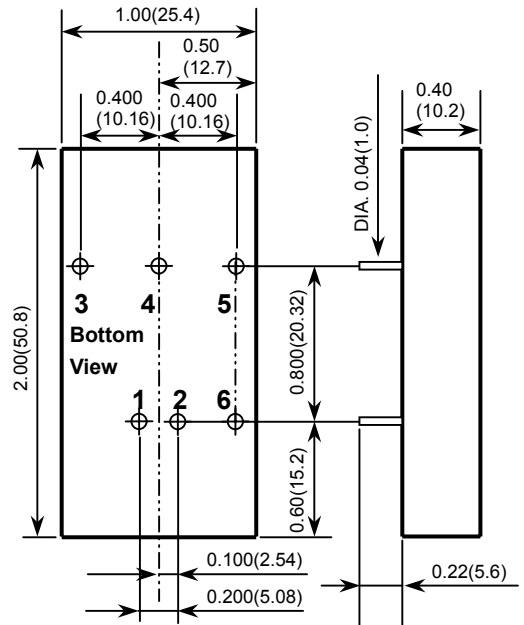
EMC CHARACTERISTICS			
EMI (Note 9)	EN55022	Class A	
ESD	EN61000-4-2	Air	± 8KV
		Contact	± 6KV
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (Note 10)	EN61000-4-4	± 2KV	Perf. Criteria B
Surge (Note 10)	EN61000-4-5	± 1KV	Perf. Criteria B
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

Model Number	Input Range	Output Voltage	Output Current		Output <sup>(4)</sup> Ripple & Noise	Input Current		Eff <sup>(4)</sup> (%)	Capacitor <sup>(5)</sup> Load max
			Min. load	Full load		No load <sup>(3)</sup>	Full load <sup>(2)</sup>		
MT10A-1233SI	9 – 18 VDC	3.3 VDC	0mA	2000mA	50mVp-p	17mA	724mA	80	6800µF
MT10A-1205SI	9 – 18 VDC	5 VDC	0mA	2000mA	50mVp-p	21mA	1082mA	81	4700µF
MT10A-1212SI	9 – 18 VDC	12 VDC	0mA	830mA	50mVp-p	38mA	1037mA	84	690µF
MT10A-1215SI	9 – 18 VDC	15 VDC	0mA	670mA	50mVp-p	36mA	1046mA	84	470µF
MT10A-1205WI	9 – 18 VDC	± 5 VDC	0mA	± 1000mA	75mVp-p	39mA	1042mA	84	± 680µF
MT10A-1212WI	9 – 18 VDC	± 12 VDC	0mA	± 416mA	75mVp-p	47mA	1053mA	83	± 330µF
MT10A-1215WI	9 – 18 VDC	± 15 VDC	0mA	± 333mA	75mVp-p	45mA	1041mA	84	± 110µF
MT10A-2433SI (W)	18 – 36 (9 – 36) VDC	3.3 VDC	0mA	2000(2500mA)	50mVp-p	15(13mA)	362(465mA)	80(78)	6800µF
MT10A-2405SI (W)	18 – 36 (9 – 36) VDC	5 VDC	0mA	2000mA	50mVp-p	22(11mA)	534 (548mA)	82 (80)	4700µF
MT10A-2412SI (W)	18 – 36 (9 – 36) VDC	12 VDC	0mA	830mA	50mVp-p	18(16mA)	519 (519mA)	84 (84)	690µF
MT10A-2415SI (W)	18 – 36 (9 – 36) VDC	15 VDC	0mA	670mA	50mVp-p	36(26mA)	523 (544mA)	84 (81)	470µF
MT10A-2405WI (W)	18 – 36 (9 – 36) VDC	± 5 VDC	0mA	± 1000mA	75mVp-p	28(15mA)	527 (534mA)	83 (82)	± 680µF
MT10A-2412WI (W)	18 – 36 (9 – 36) VDC	± 12 VDC	0mA	± 416mA	75mVp-p	24(15mA)	513 (547mA)	85 (80)	± 330µF
MT10A-2415WI (W)	18 – 36 (9 – 36) VDC	± 15 VDC	0mA	± 333mA	75mVp-p	31(22mA)	520 (548mA)	84 (80)	± 110µF
MT10A-4833SI (W)	36 – 75(18 – 75) VDC	3.3 VDC	0mA	2000(2500mA)	50mVp-p	11(10mA)	181(239mA)	80(76)	6800µF
MT10A-4805SI (W)	36 – 75 (18 – 75) VDC	5 VDC	0mA	2000mA	50mVp-p	14(9mA)	260 (270mA)	84 (81)	4700µF
MT10A-4812SI (W)	36 – 75 (18 – 75) VDC	12 VDC	0mA	830mA	50mVp-p	14(9mA)	253 (259mA)	86 (84)	690µF
MT10A-4815SI (W)	36 – 75 (18 – 75) VDC	15 VDC	0mA	670mA	50mVp-p	10(11mA)	252 (262mA)	87 (84)	470µF
MT10A-4805WI (W)	36 – 75 (18 – 75) VDC	± 5 VDC	0mA	± 1000mA	75mVp-p	16(12mA)	260 (267mA)	84 (82)	± 680µF
MT10A-4812WI (W)	36 – 75 (18 – 75) VDC	± 12 VDC	0mA	± 416mA	75mVp-p	19(20mA)	254 (281mA)	86 (78)	± 330µF
MT10A-4815WI (W)	36 – 75 (18 – 75) VDC	± 15 VDC	0mA	± 333mA	75mVp-p	16(20mA)	256 (270mA)	85 (81)	± 110µF

**Note**

- BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C.  
MIL-HDBK-217F Notice2 @Ta=25 °C, Full load (Ground, Benign, controlled environment).
- Maximum value at nominal input voltage and full load of standard type.
- Typical value at nominal input voltage and no load.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistive load.
- The ON/OFF control pin voltage is referenced to -Vin.  
To order positive logic ON/OFF control add the suffix-P (Ex:MT10A-1205SI-P); To order negative logic ON-OFF control add the suffix-N (Ex: MT10A-1205SI-N)
- M1 version is more efficient; therefore, it can be operated in a more extensive temperature range than standard and M2 version.
- Heat sink is optional and P/N: **7G-0020C-F**.
- The MT10A series can meet EN55022 Class A with parallel an external capacitor to the input pins.  
Recommend: 12Vin : 4.7µF/25V 1210 MLCC .  
24Vin : 2.2µF/50V 1812 MLCC .  
48Vin : 1.5µF/100V 1812 MLCC .
- An external input filter capacitor is required if the module has to meet **EN61000-4-4, EN61000-4-5**. The filter capacitor Kaga USA suggests: Nippon chemi-con KY series, 220µF/100V, ESR 48mΩ.

PIN CONNECTION		
PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
3	+ OUTPUT	+ OUTPUT
4	NO PIN	COMMON
5	- OUTPUT	- OUTPUT
6	CTRL (Option)	CTRL (Option)



- All dimensions in Inches (mm)  
Tolerance: X.XX±0.02 (X.X±0.5)  
X.XXX±0.01 (X.XX±0.25)
- Pin pitch tolerance ±0.01(0.25)
- Pin dimension tolerance ±0.004 (0.1)