

FEATURES

- 20 WATTS MAXIMUM OUTPUT POWER
- OUTPUT CURRENT UP TO 5.5A
- STANDARD 2.0 X 1.0 X 0.4 INCH PACKAGE
- HIGH EFFICIENCY UP TO 89%
- 4:1 ULTRA WIDE INPUT VOLTAGE RANGE
- SIX-SIDED CONTINUOUS SHIELD
- FIXED SWITCHING FREQUENCY
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC



OPTIONS

Negative logic Remote On/Off

DESCRIPTION

The MT20E-W series offer 20 watts of output power from a 2 x 1 x 0.4 inch package. The MT20E-W series with 4:1 ultra wide input voltage of 9-36 and 18-75VDC and features 1600VDC of isolation, short-circuit and over-voltage protection.

APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Measurement Equipment
Semiconductor Equipment

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

Output Specifications			
Output power	20 Watts, max.		
Voltage accuracy	Full load and nominal Vin		± 1%
Minimum load	0%		
Voltage adjustability	Single output		± 10%
Line regulation	LL to HL at Full Load	Single	± 0.2%
		Dual	± 0.5%
Load regulation	No Load to Full Load	Single	± 0.5%
		Dual	± 1%
Cross regulation (Dual)	Asymmetrical load 25% / 100% FL		± 5%
Ripple and noise	20MHz bandwidth (Measured with a 0.1µF/50V MLCC)		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%, typ.	
Short circuit protection	Hiccup, automatics recovery		

GENERAL SPECIFICATIONS

Efficiency		See table
Isolation voltage	Input to Output Input(Output) to case	1600VDC, min. 1600VDC, min.
Case grounding		Connect case to -Vin with decoupling Y Cap
Isolation resistance		10 ⁹ ohms, min.
Isolation capacitance		1500pF, max.
Switching frequency		400KHz, typ.
Case material		Nickel-coated copper
Base material		FR4 PCB
Potting material		Epoxy (UL94-V0)
Dimensions		2.00 X 1.00 X 0.40 Inch (50.8X 25.4 X 10.2 mm)
Weight		27g (0.95oz)
MTBF (Note 1)	BELLCORE TR-NWT-000332 MIL-HDBK-217F	1.620 x 10 ⁶ hrs 6 590 x 10 ⁵ hrs

INPUT SPECIFICATIONS

Input voltage range	24V nominal input 48V nominal input	9 – 36VDC 18 – 75VDC
Input filter		Pi type
Input surge voltage 100mS max	24V input 48V input	50VDC 100VDC
Input reflected ripple current	Nominal Vin and full load	20mA p-p
Start up time	Nominal Vin and constant resistive load	Power up Remote ON/OFF 20mS, typ. 20mS, typ.
Start-up voltage	24V input 48V input	9VDC 18VDC
Shutdown voltage	24V input 48V input	7.5VDC 15VDC
Remote ON/OFF (Note 6) (Positive logic)(Standard)	DC-DC ON DC-DC OFF	Open or $3V < V_r < 12V$ Short or $0V < V_r < 1.2V$
(Negative logic)(Option)	DC-DC ON DC-DC OFF	Short or $0V < V_r < 1.2V$ Open or $3V < V_r < 12V$
Input current of remote control pin	Nominal Vin	-0.5mA ~ +0.5mA
Remote off state input current	Nominal Vin	2.5mA

ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature	-40°C ~ +66°C (without derating) +66°C ~ +105°C (with derating)
Maximum case temperature	105°C
Storage temperature range	-55°C ~ +125°C
Thermal impedance (Note 7)	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

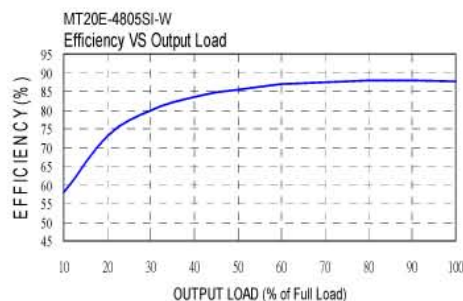
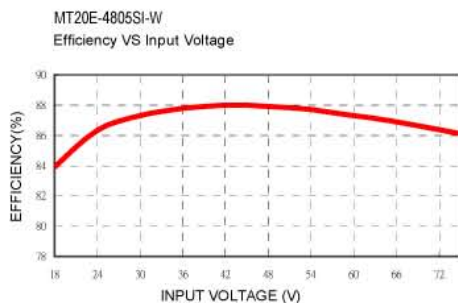
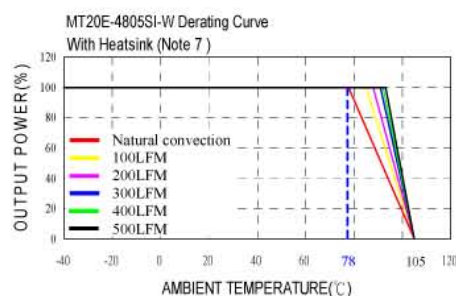
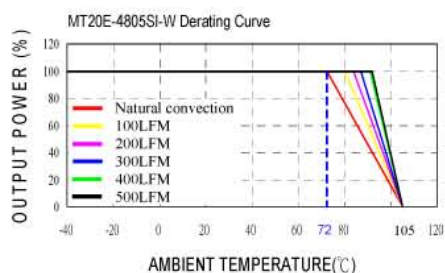
EMC CHARACTERISTICS

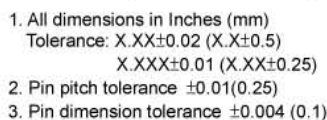
EMI (Note 8)	EN55022			Class A
ESD	EN61000-4-2	Air Contact	± 8KV ± 6KV	Perf. Criteria B
Radiated immunity	EN61000-4-3		10 V/m	Perf. Criteria A
Fast transient (Note 9)	EN61000-4-4		± 2KV	Perf. Criteria B
Surge (Note 9)	EN61000-4-5		± 1KV	Perf. Criteria A
Conducted immunity	EN61000-4-6		10 Vr.m.s	Perf.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

Model Number	Input Range	Output Voltage	Output Current		Output ⁽⁴⁾ Ripple & Noise	Input Current		Eff ⁽⁴⁾ (%)	Capacitor ⁽⁵⁾ Load max
			Min. load	Full load		No Load ⁽³⁾	Full Load ⁽²⁾		
MT20E-2433SI-W	9 – 36 VDC	3.3 VDC	0mA	5500mA	60mVp-p	50mA	934mA	85	18000 μ F
MT20E-2405SI-W	9 – 36 VDC	5 VDC	0mA	4000mA	75mVp-p	65mA	992mA	88	9600 μ F
MT20E-2412SI-W	9 – 36 VDC	12 VDC	0mA	1670mA	75mVp-p	22mA	1018mA	86	1650 μ F
MT20E-2415SI-W	9 – 36 VDC	15 VDC	0mA	1330mA	75mVp-p	22mA	1014mA	86	1050 μ F
MT20E-2405WI-W	9 – 36 VDC	$\pm$ 5 VDC	0mA	$\pm$ 2000mA	100mVp-p	55mA	992mA	88	$\pm$ 4800 μ F
MT20E-2412WI-W	9 – 36 VDC	$\pm$ 12 VDC	0mA	$\pm$ 833mA	100mVp-p	30mA	1004mA	87	$\pm$ 825 μ F
MT20E-2415WI-W	9 – 36 VDC	$\pm$ 15 VDC	0mA	$\pm$ 667mA	100mVp-p	30mA	1005mA	87	$\pm$ 525 μ F
MT20E-4833SI-W	18 – 75 VDC	3.3 VDC	0mA	5500mA	60mVp-p	35mA	467mA	85	18000 μ F
MT20E-4805SI-W	18 – 75 VDC	5 VDC	0mA	4000mA	75mVp-p	35mA	496mA	88	9600 μ F
MT20E-4812SI-W	18 – 75 VDC	12 VDC	0mA	1670mA	75mVp-p	15mA	503mA	87	1650 μ F
MT20E-4815SI-W	18 – 75 VDC	15 VDC	0mA	1330mA	75mVp-p	15mA	501mA	87	1050 μ F
MT20E-4805WI-W	18 – 75 VDC	$\pm$ 5 VDC	0mA	$\pm$ 2000mA	100mVp-p	35mA	490mA	89	$\pm$ 4800 μ F
MT20E-4812WI-W	18 – 75 VDC	$\pm$ 12 VDC	0mA	$\pm$ 833mA	100mVp-p	17mA	496mA	88	$\pm$ 825 μ F
MT20E-4815WI-W	18 – 75 VDC	$\pm$ 15 VDC	0mA	$\pm$ 667mA	100mVp-p	17mA	496mA	88	$\pm$ 525 μ F

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.
- 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 negative logic ON/OFF control add the suffix-N (Ex: MT20E-4805SI-W-N)
- Heat sink is optional and P/N: 7G-0020C-F.
- The MT20E-W series can meet EN55022 Class A with parallel an external capacitor to the input pins.
Recommend : 24Vin : NA.
48Vin : 1 μ F/100V 1210 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 suggest: Nippon chemi-con KY series, 220 μ F/100V, ESR 48m Ω .





	C1	C2	C3	C4	L1
MT20E-24xxx-W	4.7 μ F/50V 1812 MLCC	N/A	1000pF/2KV MLCC	1000pF/2KV MLCC	450 μ H Common Choke PMT-048
MT20E-48xxx-W	2.2 μ F/100V 1812 MLCC	2.2 μ F/100V 1812 MLCC	1000pF/2KV MLCC	1000pF/2KV MLCC	325 μ H Common Choke PMT-050

PIN CONNECTION		
PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
3	+ OUTPUT	+ OUTPUT
4	TRIM	COMMON
5	- OUTPUT	- OUTPUT
6	CTRL	CTRL

Output can be externally trimmed by using the method shown below.

