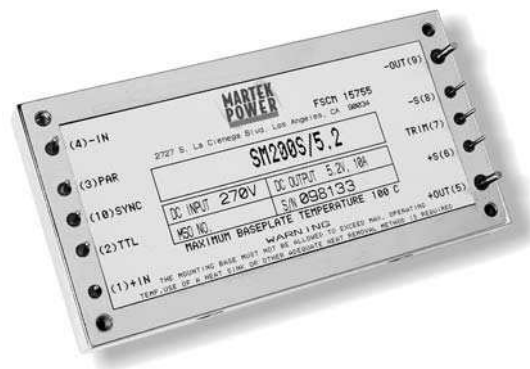


SM Series



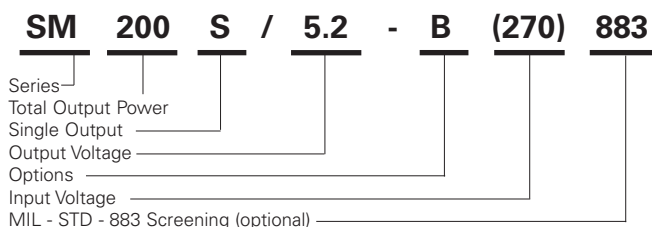
Full Featured DC / DC Converter 28 / 270 Vdc Input 200 Watt Single Output



FEATURES

- No Derating From -55 to +100°C
- Parallelable Operation
- Synchronization
- Fixed Frequency Power Conversion
- MIL - STD - 883C Screening Available
- Meets MIL - Standards:
 - MIL - STD - 454
 - P4855 - 1A
 - MIL - STD - 704D
 - MIL - STD - 810E
 - MIL - S - 901C

HOW TO ORDER



Options: **A** - pins out baseplate of unit
B - relocating of mounting holes
C - thru hole inserts (0.140 DIA)
I - metric inserts (M3)

Standard unit is 28Vdc nominal input with pins out the top written as SM200S/5.2

ACCESSORY PRODUCTS

- SM1275: Input Transient Suppression Module (for 28 Vdc input only) for conformance to MIL - STD - 704A & MIL - STD - 1275.
- SMF200: EMI Filter to meet MIL - STD - 461C.
- SMR: AC Front End Rectifier (for 270 Vdc input).
- SMRA: Ripple Attenuator Module to reduce ripple to < 20 mV P-P.

SELECTION CHART

Nominal Output(Vdc)	Output Current(Amps)	Model Number
2.0	40	SM200S/2.0
3.3	40	SM200S/3.3
5.0	40	SM200S/5.0
5.2	38	SM200S/5.2
12	20	SM200S/12
15	16	SM200S/15
24	11	SM200S/24
28	10	SM200S/28
48	5.0	SM200S/48



Specifications

SM200S

INPUT CHARACTERISTICS 28 VDC INPUT

	Min	Typ	Max	Units
Input Voltage	18	28	36	Vdc
Brown Out (75%) Full Load	17			Vdc
No Load Power Dissipation		3	6	Watt
Inrush Charge [fig VII]		2		mc
Reflected Ripple Current Logic [fig VIII]		15		%
Disable Current (Sink)		1.0	1.5	mA
Logic Disable Power In		0.35	0.75	W
Input Ripple Rejection (120Hz)		60		dB
Input Overvoltage (No Damage)	37		50	Vdc
Efficiency up to		83		%
EMI	Units conform to MIL-STD-461C (on the input leads) with companion filter			
Input Transient	Units conform to MIL-STD-704D (50 Vdc for 0.1 second)			

INPUT CHARACTERISTICS 270 VDC INPUT

	Min	Typ	Max	Units
Input Voltage	200	270	400	Vdc
Brown Out (75%) Full Load	175			Vdc
No Load Power Dissipation		10	15	Watt
Inrush Charge [fig VII]		1.5		mc
Reflected Ripple Current [fig VIII]		15		%
Logic Disable Current (Sink)		0.8		mA
Logic Disable Power In		3.0		W
Input Ripple Rejection (120Hz)		60		dB
Input Overvoltage (No Damage)	400		500	Vdc
Efficiency up to		87		%
EMI	Units conform to MIL-STD-461C (on the input leads) with companion filter			
Input Transient	Units conform to MIL-STD-704D (500 Vdc for 0.1 second)			

OUTPUT CHARACTERISTICS

	Min	Typ	Max	Units
Set Point Accuracy			1*	%V _{out}
Load Regulation		0.02	0.2	%V _{out}
Line Regulation		0.02	0.1	%V _{out}
Ripple P-P (25MHz) [fig IV]		1.0	3.0	%V _{out}
Trim Range (5V, 5.2V min=85%)	60		115	%V _{out}
Trim Range (2V, 3.3V)	100		115	%V _{out}
Remote Sense Compensation		0.5		Vdc
Overvoltage Protection		115	125	%V _{out}
Current Sharing		± 10		%I _{out}
Transient Response (V _{out} 1%)	Time / Overshoot [fig V & VI]			
20 - 80% Load		400/400		µS/mV
Low Line - High Line		400/400		µS/mV
50 - 100%		400/400		µS/mV
Temperature Drift		0.01	0.02	%/°C
Long Term Drift		0.01	0.02	%/1KHrs
Current Limit	105		150	%I _{out}
Short Circuit Current		150		%I _{out}
Turn On Time [fig X]		100		mS
Logic Turn On Time [fig IX]		100		mS
Tracking Accuracy		N / A		

* 1% or 50mV, whichever is greater

ISOLATION CHARACTERISTICS

	Min	Typ	Max	Units
Isolation: Input to Output (28 Vdc in)	500			Vdc
Input to Output (270 Vdc in)	1000			Vdc
Output to Base/Case	500			Vdc
Input to Base/Case (28 Vdc in)	500			Vdc
Input to Base/Case (270 Vdc in)	1000			Vdc
Input to Output Capacitance	0.01		0.03	µF
Insulation Resistance (@ 50 Vdc)	50			MOhm

MECHANICAL CHARACTERISTICS

Weight	9.75	oz
	276.4	grams
Size	2.4 x 4.6 x 0.5	inch
	61 x 117 x 13	mm
Volume	5.5	inch ³
	93	cm ³

TEMPERATURE CHARACTERISTICS

	Min	Typ	Max	Units
Operating (Baseplate)	-55		+100	°C
Storage (Ambient)	-55		+125	°C
Over Temperature Shutdown		+105		°C
Thermal Resistance Case(Ambient)		5		°C/W

MIL - STD - 883 SCREENING (OPTIONAL)

Stabilization Bake:	+125°C for 24 hours per M1008.2, Condition B
Temperature Cycling:	10 cycles at -55°C to +125°C (transition period 36 minutes) per M1010, Condition B
Burn-in:	160 hours at +100°C
Final Testing	

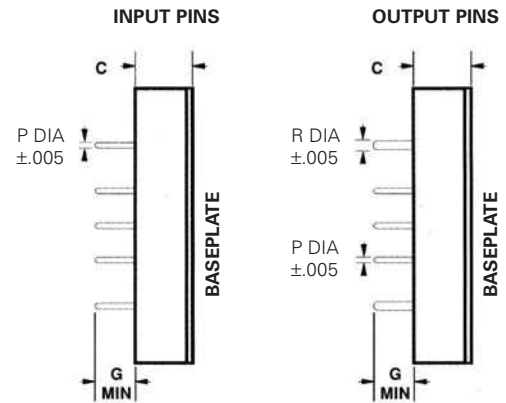
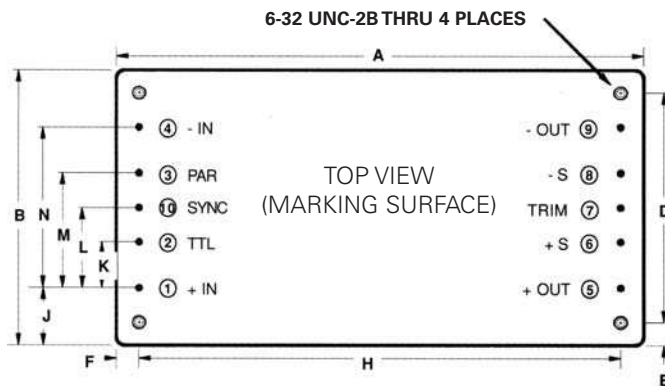


Case Drawings

SM200S

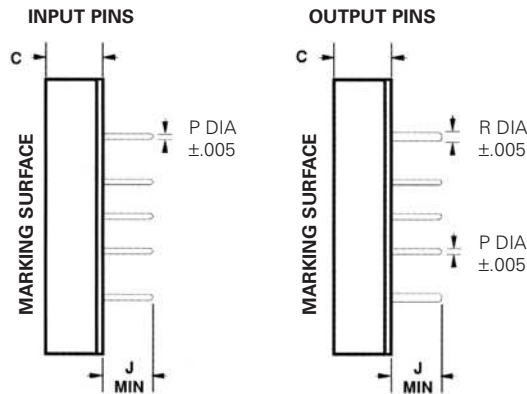
Standard Model

Pin placement on top of unit.
Model number written as SM200S/5.2



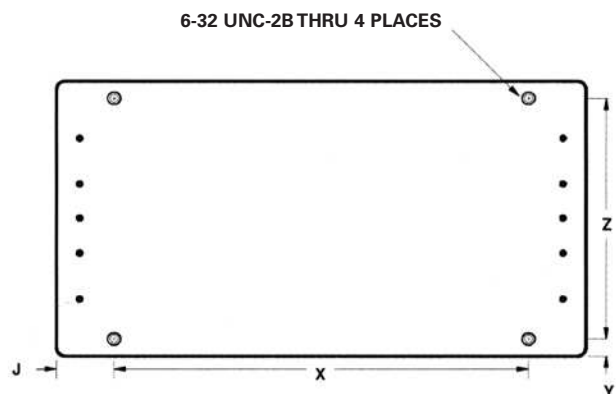
A Option

Pin placement on baseplate of unit.
Model number written as SM200S/5.2-A



B Option

Relocating of mounting holes.
Model number written as SM200S/5.2-B



C Option

Thru hole inserts (0.140 DIA).
Model number written as SM200S/5.2-C

Tolerances: Inches x.xx = ±0.03
x.xxx = ±0.015
mm x.xx = ±0.4
x.x = ±0.8

Material: Pin - Brass (Solder Plating), Baseplate - Aluminum 5052-H32,
Case - Steel.
Finish: Nickel Plating.
Mounting: 6-32 THD inserts are provided in baseplate.
Metric: M3 inserts.

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	X	Y	Z
inch	4.60	2.40	.50	2.000	.20	.20	.30	4.200	.50	.400	.700	1.000	1.400	.040	.080	3.600	.15	2.100
mm	116.9	61.0	12.7	50.80	5.1	5.1	7.6	106.68	12.7	10.20	17.8	25.40	35.60	1.02	2.03	91.44	3.8	53.34

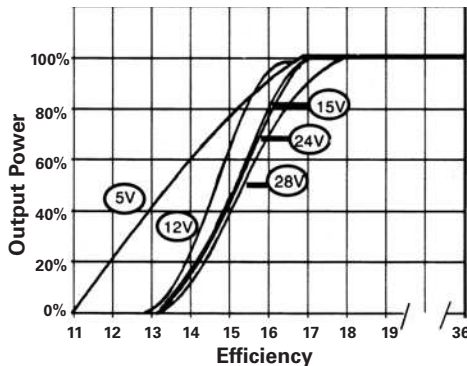


Characteristics

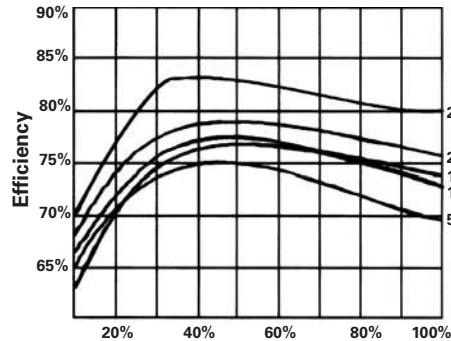
SM200S

28 Vdc Input

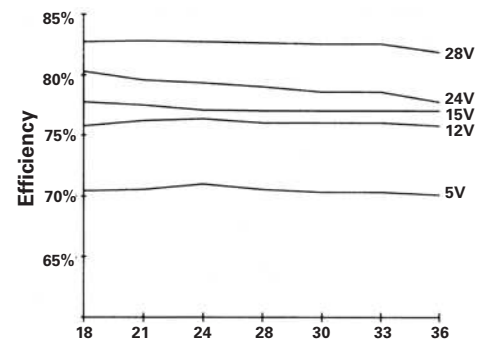
I. Input Voltage vs. Output Power



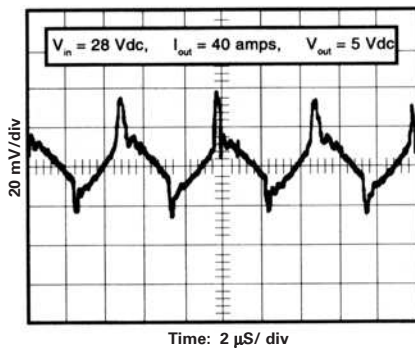
II. Efficiency vs. Output Power



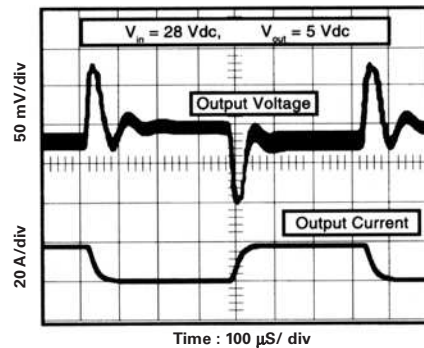
III. Efficiency vs. Input Voltage



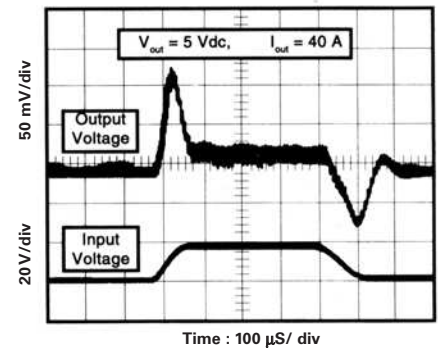
IV. Output Voltage Ripple



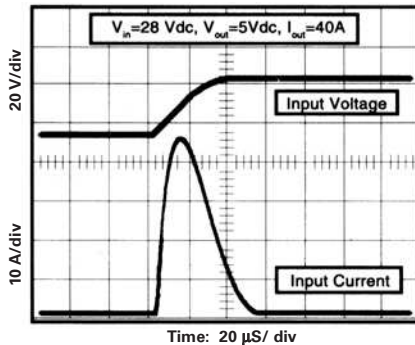
V. Load Transient Response



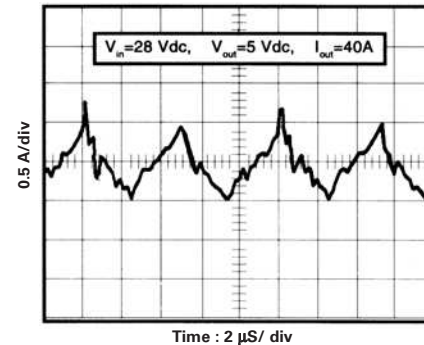
VI. Input Transient Response



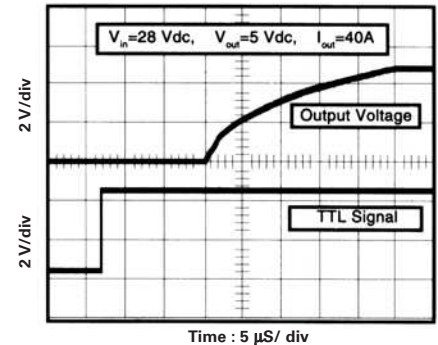
VII. Input Inrush Current



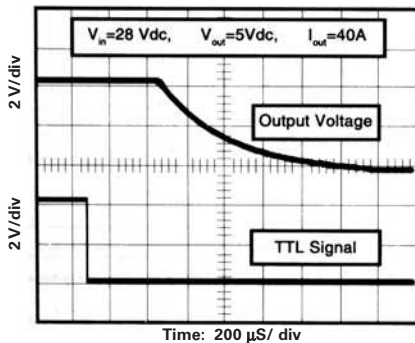
VIII. Input Current Ripple



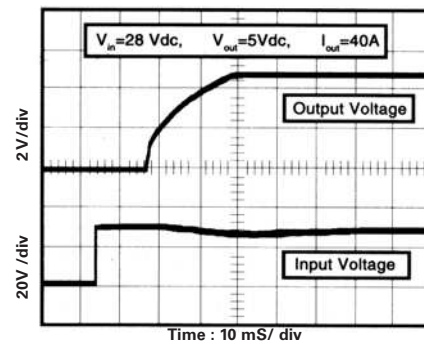
IX. TTL Turn On



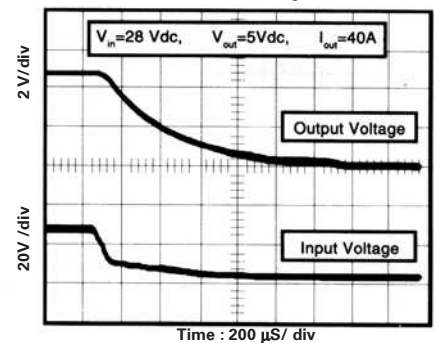
X. TTL Turn-off



XI. Turn On



XII. Turn Off / Hold-up Time



All specifications are typical @+25°C with nominal input voltage under full output load conditions, unless otherwise noted. Specifications subject to change without notice.

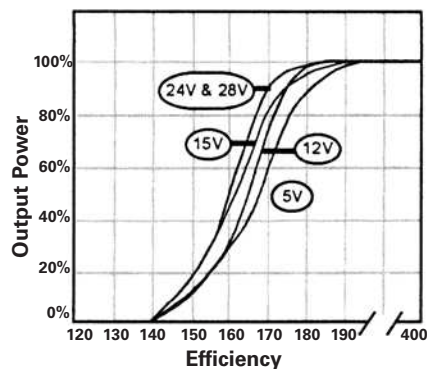


Characteristics

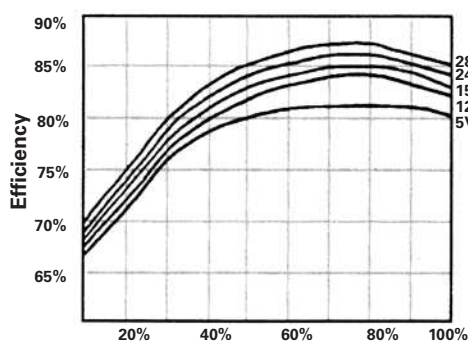
SM200S

270 Vdc Input

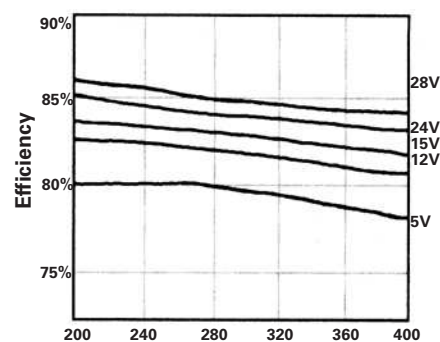
I. Input Voltage vs. Output Power



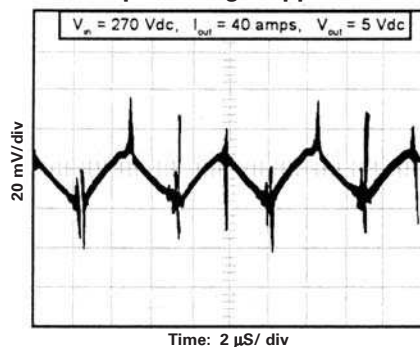
II. Efficiency vs. Output Power



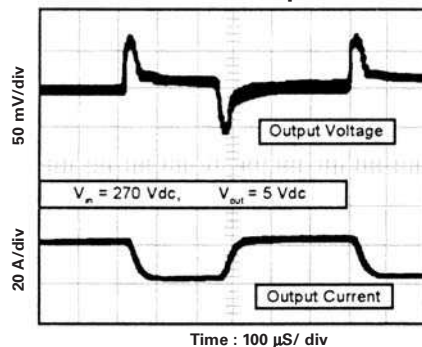
III. Efficiency vs. Input Voltage



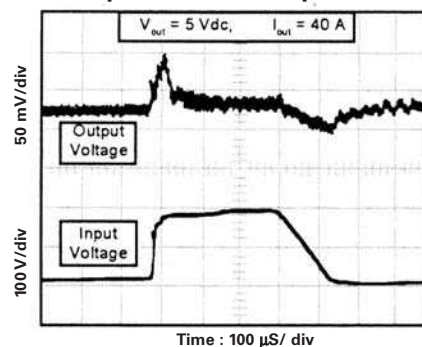
IV. Output Voltage Ripple



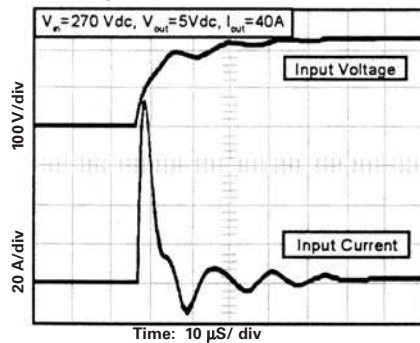
V. Load Transient Response



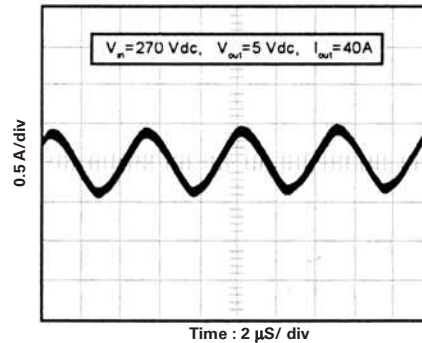
IV. Input Transient Response



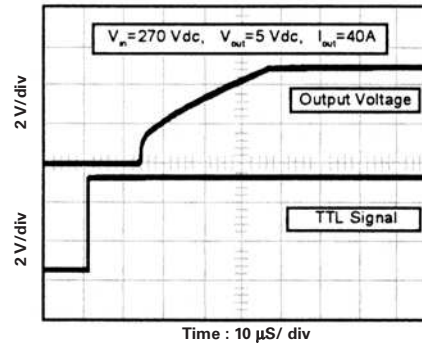
VII. Input Inrush Current



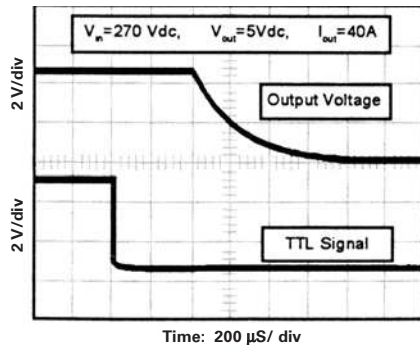
VIII. Input Current Ripple



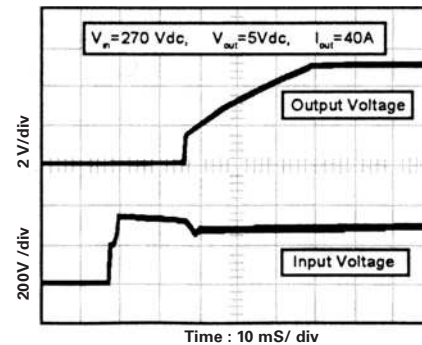
IX. TTL Turn On



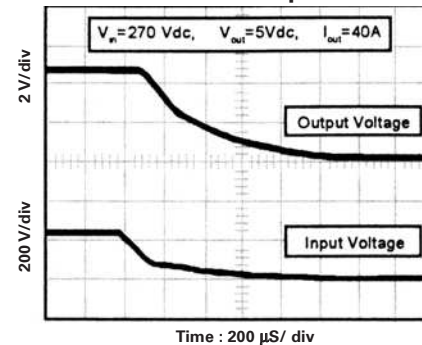
X. TTL Turn-off



XI. Turn On



XII. Turn Off / Hold-up Time



All specifications are typical @+25°C with nominal input voltage under full output load conditions, unless otherwise noted. Specifications subject to change without notice.