

Voltage Regulator Module

VRM 9.1SS

Model: VR091B080TU

VR091B080TU

Features

- Meets VRM9.1 Requirements
- DAC Programmable Output Voltage
- Active Current Sharing within 10%
- Power Good Output
- Remote Sense
- Remote Enable
- Supervisory Functions
 - Output Over-Current
 - Short Circuit Protection

Available



1.100V - 1.85V Output @ 80 Amps
Multi-Phase Buck Topology

Table 1:

Input Characteristics	Notes and Conditions (1)	Min	Typ	Max	Units
Input Voltage Operating Range	$I_o = 0$ to 80 Amps	11.0	12.00	12.60	Vdc
Input Undervoltage Lockout	Turn-on Threshold	8.77	9.43	10.22	Vdc
	Turn-off Threshold	7.87	8.57	9.30	Vdc
	Hysteresis Voltage	0.80	0.86	0.95	Vdc
Maximum Input Current	Steady-State			13.5	A
No-Load Input Current	Enable state, no Load		0.260	0.300	mA
Disabled Input Current	Disabled State			50	mA
Enable Characteristics	Internal pull-up voltage, ref. to $V_i(-)$			5.5	Vdc
	Input Impedance, internal pull-up		140		Kohms
Enable - Positive Logic Version	On State Range	1.8		12	Vdc
	Off State Range	0		1.2	Vdc

Table 2:

Output Characteristics	Notes and Conditions (1)	Min	Typ	Max	Units
Output Voltage Set Point	5-Bit DAC Controlled	1.100	--	1.85	Vdc
Output Line Regulation		-5		5	mV
Output Load Regulation		0.82	0.95	1.08	mOhm
Output Voltage Total Regulation	At any given load			30	mV
Output Ripple Voltage & Noise (2)	20 MHz Bandwidth		6	12	mVp-p
Output Current Operating Range		0		80	A
Efficiency	100% Load	80	84		%

Table 2:

Output Characteristics	Notes and Conditions (1)	Min	Typ	Max	Units
Turn-on Time	Vin present: Enable to 90% Vout			50	mS
Start-up Inhibit Time	Enabled: Vin applied to 90% Vout		2	3	mS
Remote Sense Compensation Range (3)		0		55	mV
Required Output Capacitance		4,000		40,000	μF

Table 3:

Protection Characteristics	Notes and Conditions (1)	Min	Typ	Max	Units
Output Overcurrent Inception Limit	Io = 80 Amps			150	%
Short Circuit Current	Peak			160	A
Overvoltage Shutdown	Non-Latching	1.9	2.1	2.3	Vout

Table 4:

General Characteristics	Notes and Conditions (1)	Min	Typ	Max	Units
Storage Temperature Range	Non-condensing	-40		70	°C
Operating Temperature Range	Io = 68 Amps	0		60	°C
Material Flammability	UL 94V-0				
MTBF	Calculated (RAC PRISM) at 50°C		1.134		x10 ⁶ Hrs
	Demonstrated		TBD		x10 ⁶ Hrs
Switching Frequency			230		KHz
Dimensions	3.8"L x 1.25"H x 0.8"W				
Weight					g

Notes:

- Vin = 12Vdc, Ta = 25°C, Airflow = 400LFM unless otherwise noted.
 - Output Ripple Voltage is specified when measured with Intel specified 9.1 output capacitance.
- If remote sense is not required or used, the Sense(+) and Sense(-) pins must be connected to Vo(+) and Vo(-) respectively.

Mechanical Information

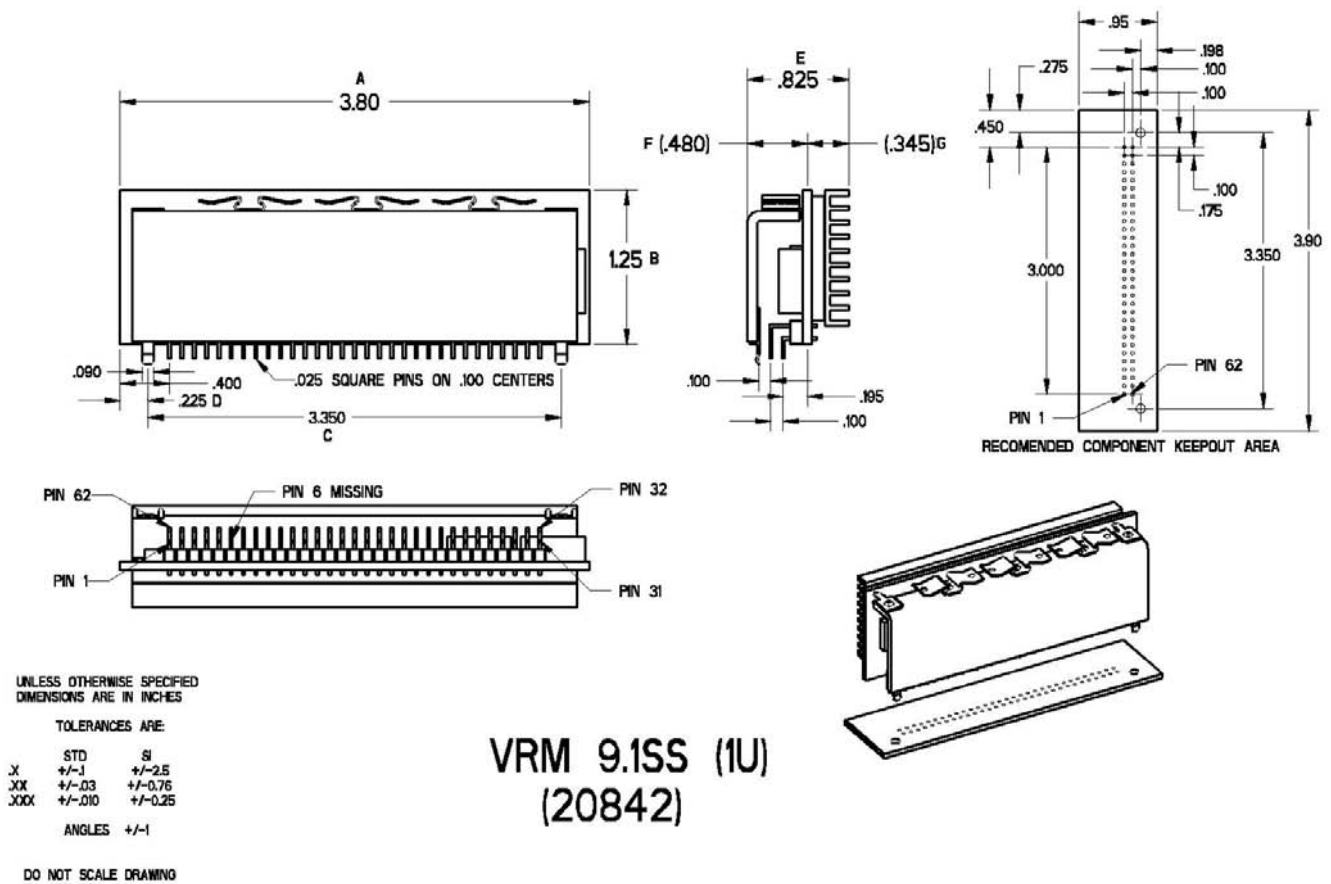


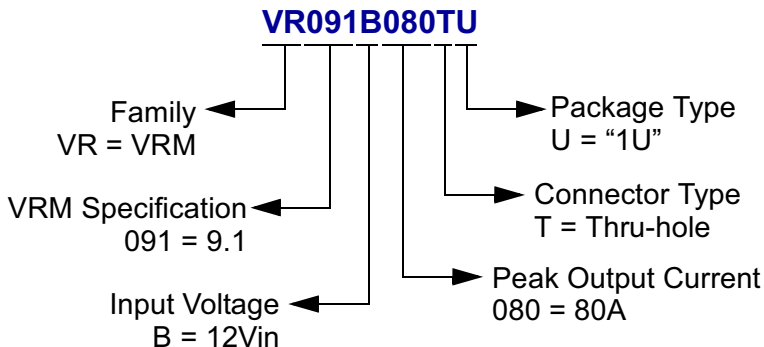
Figure 1

Pinout Information

Table 5:

Pin	Function	Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	VIN+	14	VO+	27	VO-	40	VO-	53	OUTEN
2	VIN+	15	VO-	28	VO+	41	VO+	54	Ishare
3	VIN+	16	VO+	29	VO-	42	VO-	55	VID0
4	VIN+	17	VO-	30	VO+	43	VO+	56	VID2
5	Reserved	18	VO+	31	VO-	44	VO-	57	VID4
6	Key	19	VO-	32	VO-	45	VO+	58	VRM-pres
7	VID3	20	VO+	33	VO+	46	VO-	59	VIN-
8	VID1	21	VO-	34	VO-	47	VO+	60	VIN-
9	Reserved	22	VO+	35	VO+	48	VO-	61	VIN-
10	PWRGD	23	VO-	36	VO-	49	VO+	62	VIN-
11	VO-sen-	24	VO+	37	VO+	50	VO+		
12	Reserved	25	VO-	38	VO-	51	Reserved		
13	VO-	26	VO+	39	VO+	52	VO-sen+		

Ordering Information



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