



PRODUCT SPECIFICATION

LOW PROFILE VOLTAGE REGULATOR MODULE (VRM) SOCKET

1.0 SCOPE

This Product Specification covers the performance requirements of the Low Profile Voltage Regulator Module socket connector.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

PRODUCT NAME

PART NUMBER

LOW PROFILE VOLTAGE REGULATOR MODULE
SOCKET, SMT, WITH LATCH.

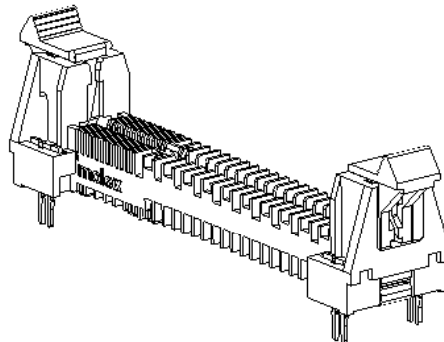
78086-****

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See appropriate Sales Drawing for information on dimensions, material, plating and marking.

SAFETY AGENCY APPROVALS

UL FILE : E29179
CSA : 1162328



78086 SMT VERSION

**TENTATIVE RELEASE: THIS SPECIFICATION IS BASED ON DESIGN OBJECTIVES AND IS STRICTLY TENTATIVE.
PRELIMINARY TEST DATA MAY EXIST, BUT THIS SPECIFICATION IS SUBJECTED TO CHANGE BASED ON THE RESULTS OF ADDITIONAL TESTING AND EVALUATION.**

REVISION: 3	ECR/ECN INFORMATION: EC No: S2008-0675 DATE: 2008/02/01	TITLE: LOW PROFILE VOLTAGE REGULATOR MODULE (VRM) SOCKET	SHEET No. 1 of 6
DOCUMENT NUMBER: PS-78086-008	CREATED / REVISED BY: KW LOKE 2008/02/01	CHECKED BY: JESSIECHUA 2008/02/05	APPROVED BY: NAGESH 2008/02/05



PRODUCT SPECIFICATION

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence.

4.0 RATINGS

4.1 VOLTAGE

Power: 48 Volts
Signal: 48 Volts

4.2 CURRENT

Power: 6 Amp per contact pair (See section 5.1.2)
5 Amp per contact pair under CSA test without air flow condition.
Signal: 1 Amp per contact (See section 5.1.2)

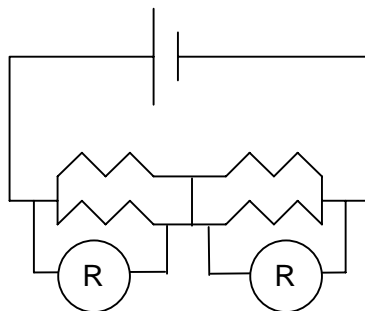
4.3 TEMPERATURE

Operating: -10°C to + 105°C
Non-operating: -55°C to + 115°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.1.1	Low Level Contact Resistance	Subject mated connector with DC current of 100 milli-amperes per EIA-364-23. (Measurement to be taken on one pair of power contacts as shown below) Per recommended PCB layout on sales drawing 1 Circuit = 2 Contact pairs = 4 contacts.	5 mΩ MAXIMUM PER CONTACT PAIR [initial]
	Power		
	Signal	Subject mated connector with DC current of 100 milli-amperes per EIA-364-23. (Measurement to be taken on per contact basis)	10 mΩ MAXIMUM PER CONTACT [Initial]



REVISION: 3	ECR/ECN INFORMATION: EC No: S2008-0675 DATE: 2008/02/01	TITLE: LOW PROFILE VOLTAGE REGULATOR MODULE (VRM) SOCKET	SHEET No. 2 of 6
DOCUMENT NUMBER: PS-78086-008	CREATED / REVISED BY: KW LOKE 2008/02/01	CHECKED BY: JESSIECHUA 2008/02/05	APPROVED BY: NAGESH 2008/02/05



PRODUCT SPECIFICATION

5.1.2	Temperature rise for		
	Power	All contact pairs of power connected in series carrying a current of 6 Amp under 60 degree ambient condition and 200LFM.	30 degree C (max)
	Signal	All contacts of signal connected in series carrying a current on 1 Amp under 60 degree C ambient condition and 200LFM. All tests shall be carried out per EIA 364-70. Conditions applied :- VRM Module card – 4 ounces copper traces per power or signal contact. i.e. 4 ounces per side for double sided VRM card. Through-hole PCB – 2 ounces of copper trace on double sided PCB. SMT PCB – 4 ounces of copper trace on single sided PCB. Force convection shall be applied parallel to the VRM module from one end to another. Connector configuration used is 38 Power – 24 Signal.	30 degree C (max)
5.1.3	Dielectric Strength		
	Power & Signal	Test between adjacent contacts of 1100 Vac rms and 1 minutes hold time per EIA-364-20.	No evidence of arc-over, insulation breakdown, or excessive leakage current (> 1mA).
5.1.4	Insulation resistance		
	Power & Signal	Unmate connector with a voltage of 100VDC between adjacent contacts at 2 minutes hold time per EIA-364-21	5,000 mega-ohm minimum.
5.1.5	Loop Inductance (AC Power connector only)	Terminals Configurations of GGSS, with frequency at 100MHz, with di/dt at 100A/μsec	105pH (max)

REVISION: 3	ECR/ECN INFORMATION: EC No: S2008-0675 DATE: 2008/02/01	TITLE: LOW PROFILE VOLTAGE REGULATOR MODULE (VRM) SOCKET	SHEET No. 3 of 6
DOCUMENT NUMBER: PS-78086-008		CREATED / REVISED BY: KW LOKE 2008/02/01	CHECKED BY: JESSIECHUA 2008/02/05
		APPROVED BY: NAGESH 2008/02/05	



PRODUCT SPECIFICATION

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.2.1	Connector Engagement Force onto PCB	Engage connector onto PCB at a rate of 12.7 mm rate per minute.	2.3 kgf max. per forklock
5.2.2	VRM Card Insertions Force (w/Latches)	Insert recommended VRM card into connector at a rate of 12.7 mm (0.5 in/min) per minute. Latches shall be included in the test. See sales drawings for PCB/modules details.	19 kgf max.
5.2.3	VRM Card Rip Out Force	Pull up from the centre of the module with latches closed at a rate of 12.7mm/min (0.5in/min).	3.5 kgf min. with no damage & Latch not Open
5.2.4	Latch Actuation Force	Apply an actuation force on each latch at a rate of 12.7mm/min (0.5in/min) with recommended test module inserted into connector.	4.5 kgf max. per latch
5.2.5	Durability	Mate connectors up to 25 cycles at a maximum rate of 12.7mm per minute prior to Environmental Tests.	Contact resistance shall not exceed : Power: Max 5 milliohms change from initial Signal: Max 10 milliohms change from initial
5.2.6	Mechanical Shock	<u>For module weight 40grams (1U)</u> Condition 1: 50G, 11 millisecond half sine wave. Shocks: 3 shocks in both directions along each of three orthogonal axes (18 total) Mounting: rigidly mount (EIA-364-27). EIA-364-28A <u>For module weight 125grams (2U)</u> Condition 1: 35G, 11 millisecond half sine wave. Shocks: 3 shocks in both directions along each of three orthogonal axes (18 total) Mounting: rigidly mount (EIA-364-27). EIA-364-28A	Non-operating VRM module shall not be damaged, dislodged or loosened. Contact Resistance: Power: Max 5 milliohms change from initial Signal: Max 10 milliohms change from initial

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
3	EC No: S2008-0675 DATE: 2008/02/01	LOW PROFILE VOLTAGE REGULATOR MODULE (VRM) SOCKET	4 of 6
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
PS-78086-008	KW LOKE 2008/02/01	JESSIECHUA 2008/02/05	NAGESH 2008/02/05



PRODUCT SPECIFICATION

5.2.7	Vibration	For module weight 40grams (1U) & 125 grams (2U) EIA-364-28, Test Condition VII Power Spectral Density: 0.02g ² / Hz Overall rms: 3.10g Min Duration: 15 mins in each X, Y, Z axis	Contact Resistance: Power: Max 5 milliohms change from initial Signal: Max 10 milliohms change from initial
5.2.8	Terminal Retention Force in Housing	Apply axial load rate 12.7 mm/min (0.50 in/min).	0.35 kgf min. per terminal
5.2.9	Forklock Retention Force in Housing	Apply axial load rate 12.7 mm/min (0.50 in/min).	2.5 kgf min. per forklock
5.2.10	Reseating	Manually mate and unmate the connector with PCB for 3 cycles.	No damage.

5.3 ENVIROMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.3.1	Thermal Shock	Subject connector to 5 cycles between -55°C to + 85°C EIA 364-32 Test Condition 1	No Physical Damage
5.3.2	Temperature Life (Preconditioning)	Mate connectors; expose to: 192 hours at 115 ± 3°C Per EIA-364-17	Contact Resistance: Power: Max 5 milliohms change from initial Signal: Max 10 milliohms change from initial Appearance: No Damage
5.3.3	Temperature Life	Mate connectors; expose to: 432 hours at 115 ± 3°C Per EIA-364-17	Contact Resistance: Power: Max 5 milliohms change from initial Signal: Max 10 milliohms change from initial. Appearance: No Damage
5.3.4	Cyclic Temperature & Humidity	Cycle the connector between 25°C, with RH of 90-98% and 65°C, with RH of 80-98%. Ramp times should be 2.5hours and dwell times should be 2.5hours. Dwell times start when the temperature and humidity have stabilized within the specified levels. Expose to 10 days. Per EIA-364-31, Method III	Contact Resistance: Power: Max 5 milliohms change from initial Signal: Max 10 milliohms change from initial Appearance: No Damage

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
3	EC No: S2008-0675 DATE: 2008/02/01	LOW PROFILE VOLTAGE REGULATOR MODULE (VRM) SOCKET	5 of 6
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
PS-78086-008	KW LOKE 2008/02/01	JESSIECHUA 2008/02/05	NAGESH 2008/02/05



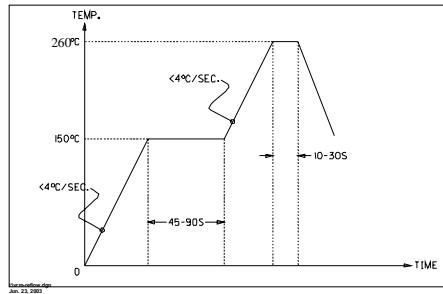
PRODUCT SPECIFICATION

5.3.5

Resistance to Soldering Heat

Subject the connector to the following temperature profile. A linear ramp from ambient to 150+/-5 deg C for 45~90 seconds then to 260+0/-5 for 10~30 seconds.

Temperature gradient over time shall not exceed 4 deg C per second in heating and cooling stages.



No Physical Damage

6.0 PACKAGING

The product shall be packed to protect against damage by handling, transit and storage. Refer to Sales Drawing for packaging details.

REVISION: 3	ECR/ECN INFORMATION: EC No: S2008-0675 DATE: 2008/02/01	TITLE: LOW PROFILE VOLTAGE REGULATOR MODULE (VRM) SOCKET	SHEET No. 6 of 6
DOCUMENT NUMBER: PS-78086-008	CREATED / REVISED BY: KW LOKE 2008/02/01	CHECKED BY: JESSIECHUA 2008/02/05	APPROVED BY: NAGESH 2008/02/05