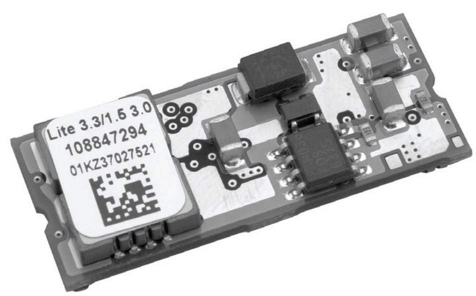
Austin Lite Non-Isolated SMT DC - DC Power Modules:
3.3 Vdc and 5.0 Vdc Input, 1.5 Vdc - 3.3 Vdc Output, 5A

RoHS Compliant



Applications

- Workstations,Servers and Desktop computers
- Distributed Power Architectures
- Telecommunications Equipment
- DSP applications
- LANs/WANs
- Adapter cards
- Data processing Equipment

Features

- Compatible with RoHS EU Directive 2002/95/EC (-Z Versions)
- Compatible in RoHS EU Directive 2002/95/EC with lead solder exemption (non -Z versions)
- Small size and very low profile
- Minimal space on printed circuit board
- High efficiency:

5.0 VIN
87% typical @ 3.3V,5A

3.3 VIN
86% typical @ 2.5V,5A

- High reliability: 200 FITs/5 million hour MTBF
- Surface mountable
- Single output maximum dimensions:
  33 mm x 12.95 mm x 5.46 mm
  (1.3 in x 0.530 in x 0.215 in.), tolerance of +/- 0.01
- Single control pin for margining and on/off control
- Instantaneous auto-reset overcurrent protection(non-latching)
- Overtemperature protection
- No External Bias required
- Low Inductance surface mount connections
- *UL** 60950 Recognized, *CSA*† C22.2 No. 60950-00 Certified, and VDE‡ 0805 (IEC60950, 3rd edition) Licensed

Description

The Austin Lite Power Module is designed to meet the precise voltage requirements of today's high performance DSP and microprocessor circuits and system board level applications. Advanced circuit techniques, high frequency switching, custom components, and very high density, surface mountable packaging technology deliver high quality, ultra compact, DC-DC conversion.

* *UL* is a registered trademark of Underwriters Laboratories, Inc.
† *CSA* is a registered trademark of Canadian Standards Association.
‡ *VDE* is a trademark of Verband Deutscher Elektrotechniker e.V.
§ This product is intended for integration into end-use equipment. All the required procedures for CE marking of end-use equipment should be followed. (The CE mark is placed on selected products.)
** ISO is a registered trademark of the Internation Organization of Standards

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute maximum stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operations sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability. Input voltage range of VIN = 3.0V is listed as 3.3 VIN and input voltage range of VIN = 4.5V - 5.5V is listed as 5.0 VIN.

Parameter	Device	Symbol	Min	Max	Unit
Input Voltage:Continuous	3.3 VIN 5.0 VIN	VIN VIN	-0.3 -0.3	3.6 5.5	Vdc Vdc
Forced Output Voltage	All	VOIF	-0.3	5.5	Vdc
CTRL Terminal Voltage	All	CTRL	– 0.3	2.0	Vdc
Storage Temperature	All	TA/Tstg	–40	125	°C

Electrical Specifications

Unless otherwise indicated, specifications apply over all operating input voltage, resistive load, and temperature conditions.

Parameter	Device	Symbol	Min	Typ	Max	Unit
Operating Input Voltage	3.3 VIN 5.0 VIN	V_{IN} V_{IN}	3.0 4.5	3.3 5.0	3.6 5.5	Vdc Vdc
Input Ripple Rejection (120 Hz)				50		dB
Operating Input Current (0A ≤ IOUT < 5A) (3.0 V < VIN < 3.6V) (4.5V < VIN < 5.5V)	3.3 VIN 5.0 VIN	I_{IN} I_{IN}	— —	— —	6 5.5	A A
Quiescent Input Current (IOUT = 0) (3.0V < VIN < 5.5V)	All	I_Q	—		—	mA
Input Ripple Current: 20 MHz BW, 250 nH Input Inductance (see figure)	3.3 VIN 5.0 VIN	$I_{INripple}$ $I_{INripple}$		35		mAp-p mAp-p

CAUTION: This power module is not internally fused. An input line fuse must always be used.

This power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of a sophisticated power architecture. To preserve maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse. The safety agencies require a normal blow fuse with a maximum rating of 10A (see Safety and Reliability Specifications).

Electrical Specifications (continued)

Parameter	Device	Symbol	Min	Typ	Max	Unit
Output Voltage These specifications are under all specified input voltage, load current, and temperature conditions. They do not include ripple or transient.	3.3V 2.5V 2.0V 1.8V 1.5V	V_{OUT} V_{OUT} V_{OUT} V_{OUT} V_{OUT}	3.20 2.42 1.94 1.74 1.45	3.3 2.5 2.0 1.8 1.5	3.400 2.58 2.06 1.86 1.55	V V V V V
Output Current	—	IOUT	0	—	5	A
Output Ripple	3.3 VIN 5.0 VIN	V_{RIPPLE} V_{RIPPLE}	— —	— —	80 100	mVpp mVpp
External Load Capacitance*	All	—	—	5000*	—	µF
Output Current Limit Inception	All	I_{OUT}		7		A
Efficiency VIN = Nominal, IOUT = Maximum	5.0 – 3.3 5.0 – 2.5 3.3 – 2.5 3.3 – 2.0 3.3 – 1.8 3.3 – 1.5	η η η η η η	— — — — — —	87 82 86 82 80 75	— — — — — —	% % % % % %
Switching Frequency	All	FOP	—	900	—	kHz
VOUT Dynamic Response to Transient Load ($T_{TRANSITION}$ = 50 ms)	All					
Nominal Load 50% to 100% Peak Deviation measured as a maximum percentage deviation from nominal VO at full load		—	—	< 10	—	%
Nominal Load 50% to 100% Settling Time to VOUT < 10% of VOUT STEADY STATE		—	—	< 25	—	µS

* units will start into 5000 µF, 5A load at nominal line; units will start into 10,000 mF with no load

Characteristic Curves

The following figures provide typical characteristics curves at room temperature (TA = 25 °C).

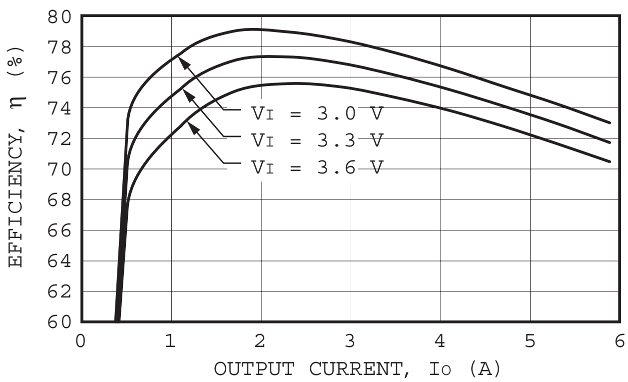


Figure 1. Converter Efficiency vs output current at 3.3VIN ,1.5VOUT.

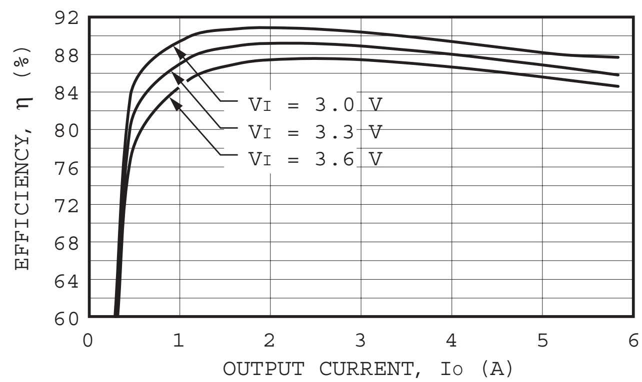


Figure 4. Converter Efficiency vs output current at 3.3VIN ,2.5VOUT.

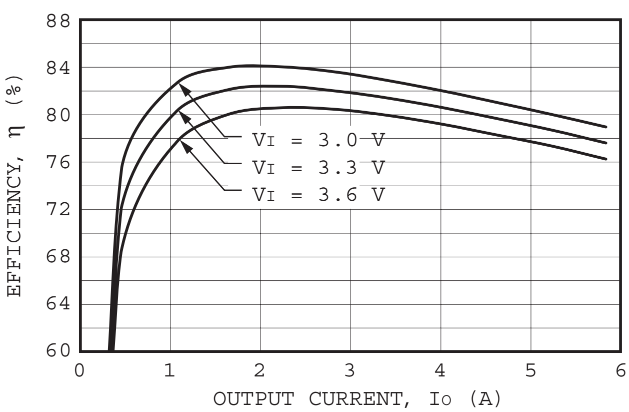


Figure 2. Converter Efficiency vs output current at 3.3VIN ,1.8VOUT.

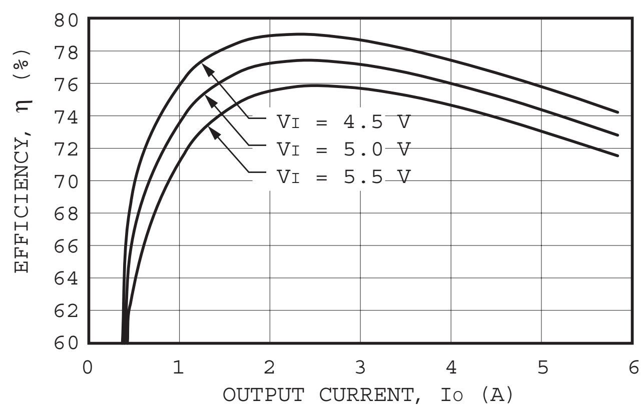


Figure 5. Converter Efficiency vs output current at 5.0VIN ,1.8VOUT.

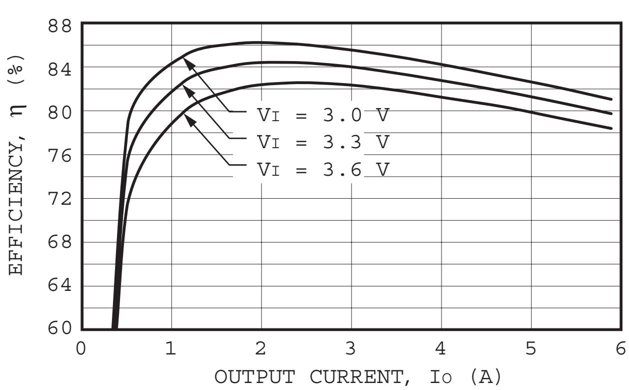


Figure 3. Converter Efficiency vs output current at 3.3VIN ,2.0VOUT.

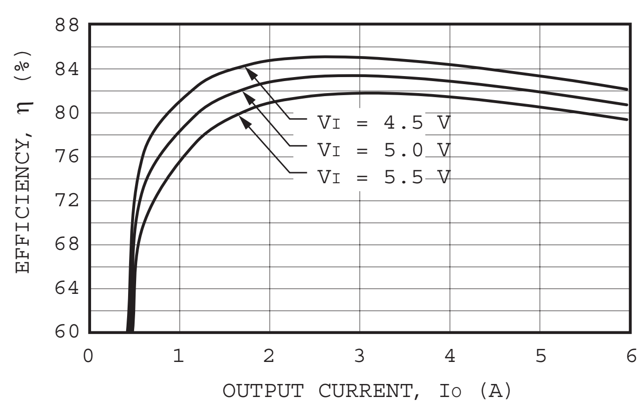


Figure 6. Converter Efficiency vs output current at 5.0VIN ,2.5VOUT.

Characteristic Curves

The following figures provide typical characteristics curves at room temperature (TA = 25 °C)

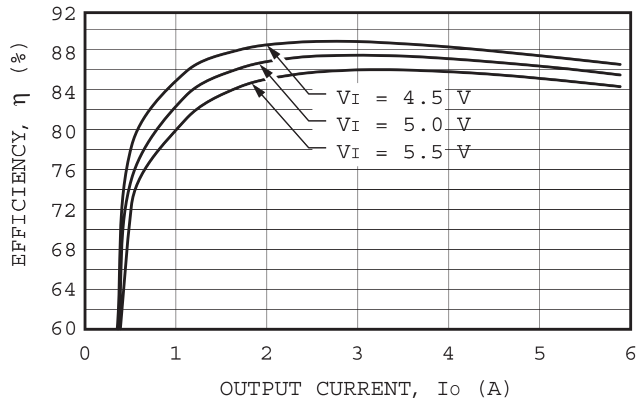


Figure 7. **Converter Efficiency vs output current at 5.0VIN ,3.3VOUT.**

Characteristic Curves

The following figures provide typical Input/Output Ripple characteristics curves at room temperature (TA = 25 °C)

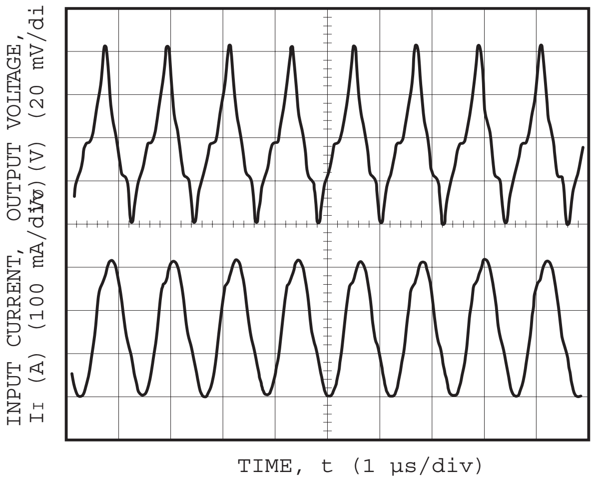


Figure 8. Typical Ripple Performance with 6.2A resistive load at 3.3VIN,1.5VOUT.

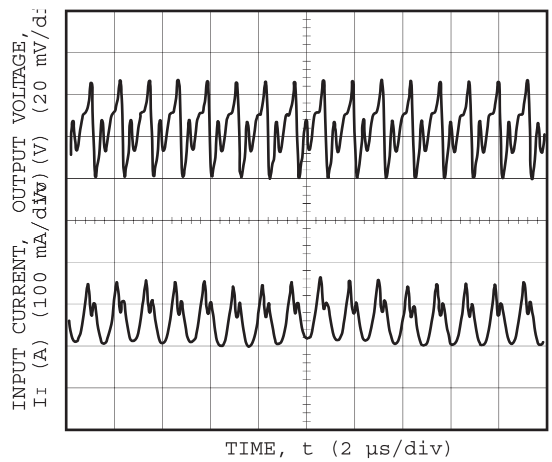


Figure 11. Typical Ripple Performance with 6.2A resistive load 3.3VIN,2.5VOUT.

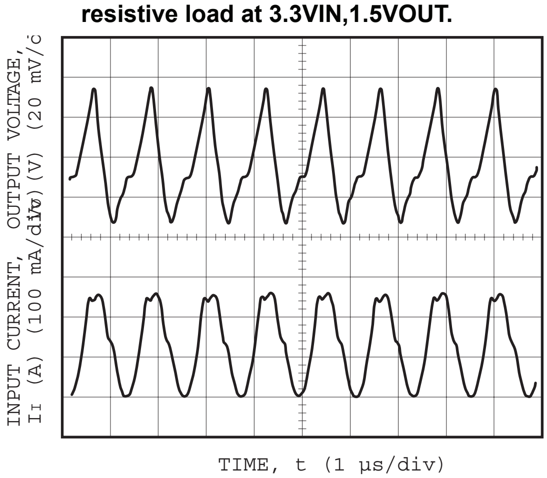


Figure 9. Typical Ripple Performance with 6.2A resistive load 3.3VIN,1.8VOUT.

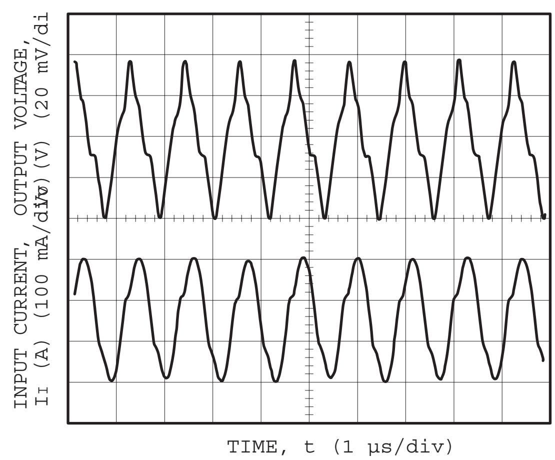


Figure 12. Typical Ripple Performance with 5.8A resistive load 5.0VIN,1.8VOUT.

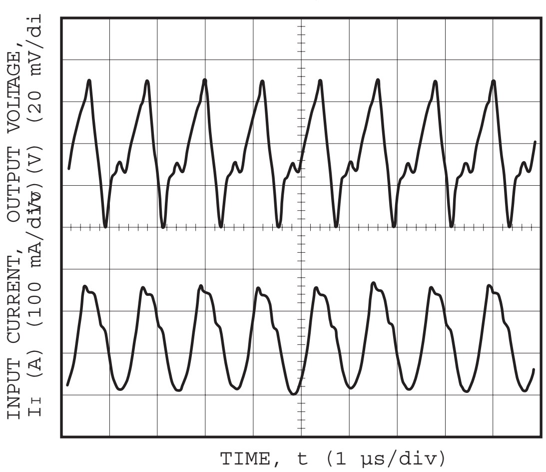


Figure 10. Typical Ripple Performance with 6.2 A resistive load 3.3VIN,2.0VOUT.

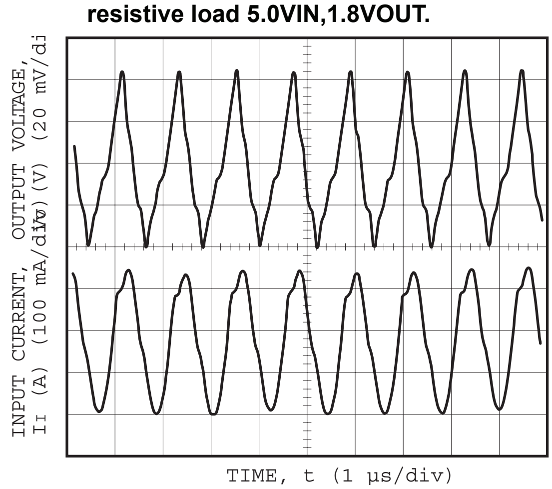


Figure 13. Typical Ripple Performance with 6.3A resistive load 5.0VIN,2.5VOUT.

Characteristic Curves

The following figures provide typical Input/Output Ripple characteristics curves at room temperature (TA = 25 °C)

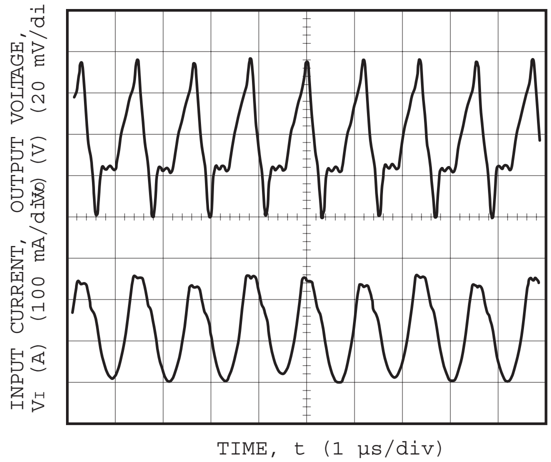


Figure 14. **Typical Ripple Performance with 6.3A resistive load 5.0VIN,3.3VOUT.**

Characteristic Curves

The following figures provide typical Static regulation curves at room temperature (TA = 25 °C)

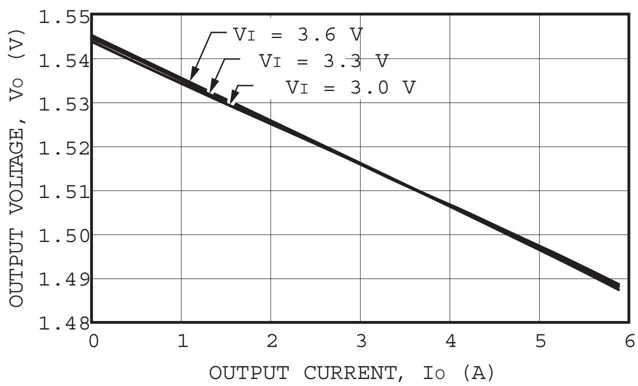


Figure 15. **Static Regulation: 3.3VIN,1.5VOUT.**

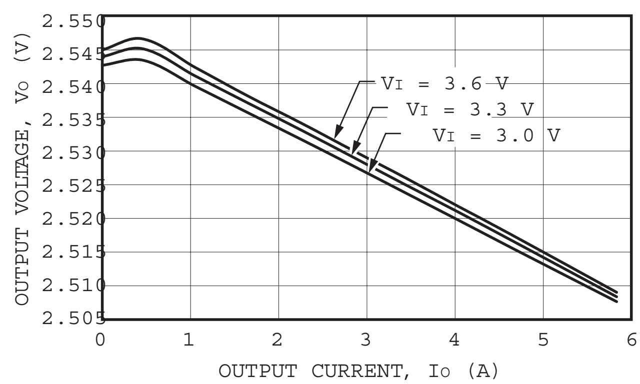


Figure 18. Stactic Regulation: 3.3VIN,2.5VOUT.

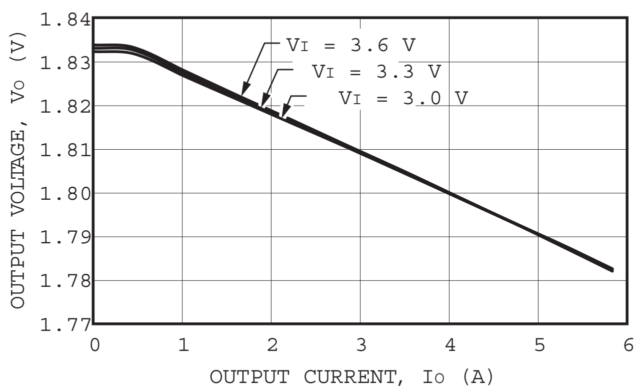


Figure 16. **Static Regulation 3.3VIN.1.8VOUT.**

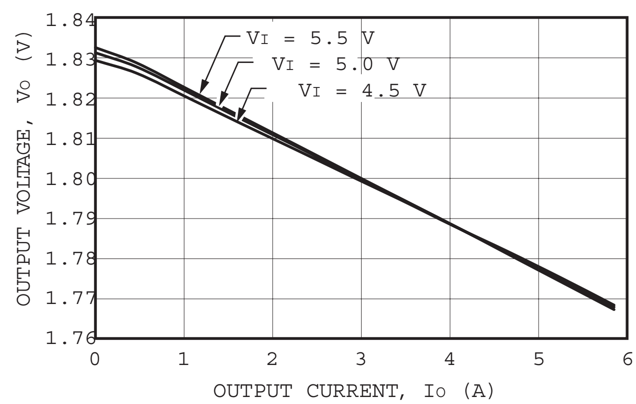


Figure 19. Stactic Regulation: 5.0VIN,1.8VOUT.

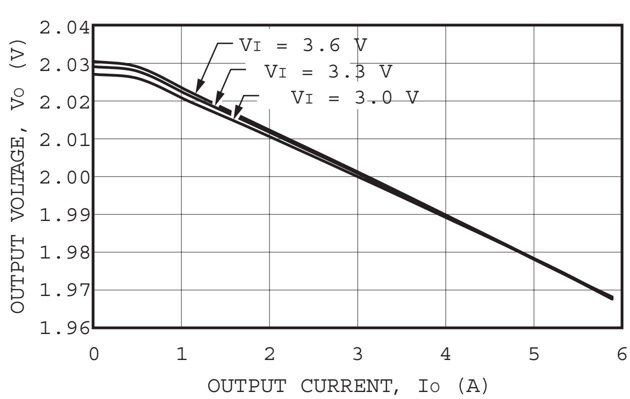


Figure 17. Static Regulation: 3.3VIN,2.0VOUT.

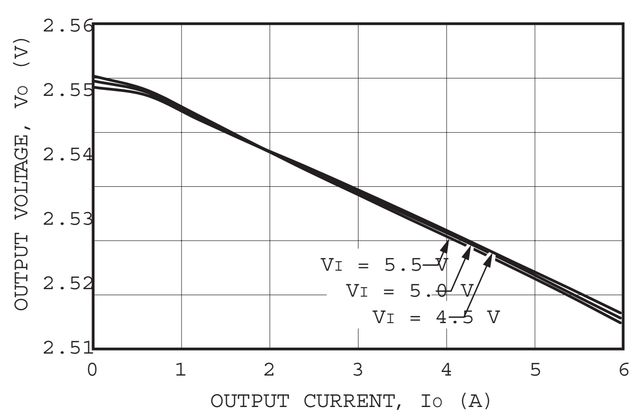


Figure 20. Stactic Regulation: 5.0VIN,2.5VOUT.

Characteristic Curves

The following figures provide typical Static regulation characteristics curves at room temperature (TA = 25 °C)

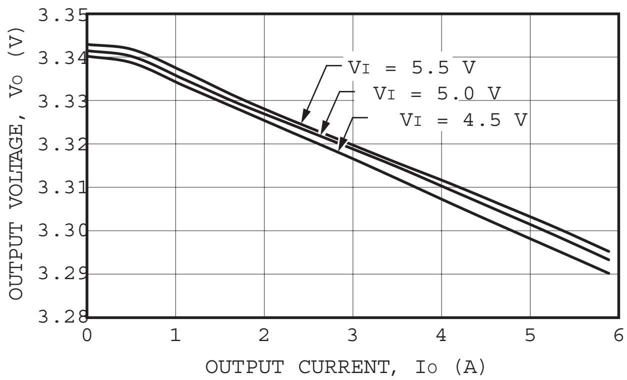


Figure 21. **Stactic Regulation: 5.0VIN,3.3VOUT.**

Characteristic Curves

The following figures provide typical Transient response characteristics curves with Δt=50µs, VOUT=20mV/DIVat room temperature (TA = 25 °C)

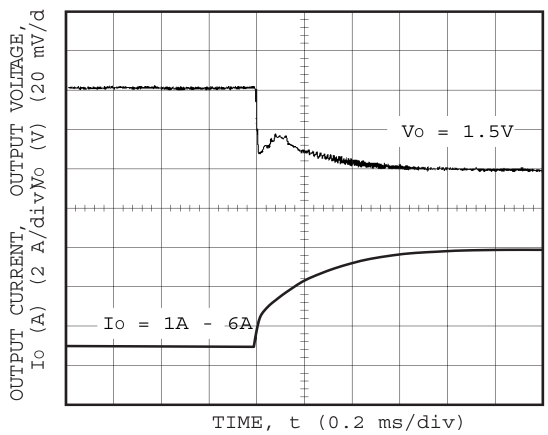


Figure 22. Transient Response Characteristic of 3.3VIN/1.5VOUT with IOUT step up 1A-6A Static load.

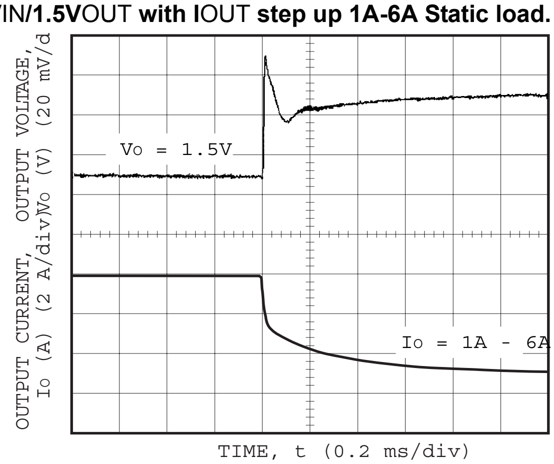


Figure 23. Transient Response Characteristic of 3.3VIN/1.5VOUT with IOUT step up 6A-1A Static load.

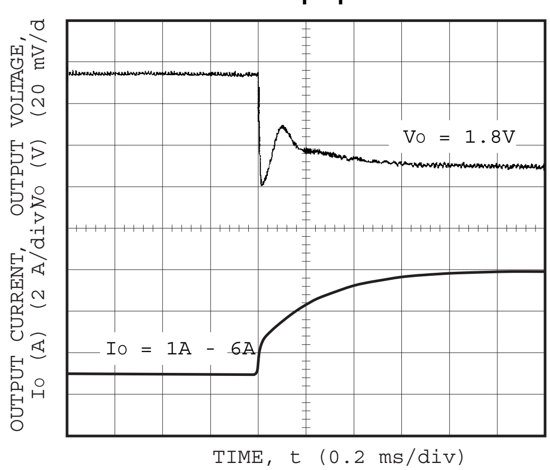


Figure 24. Transient Response Characteristic of 3.3VIN/1.8VOUT with IOUT step up 1A-6A Static load.

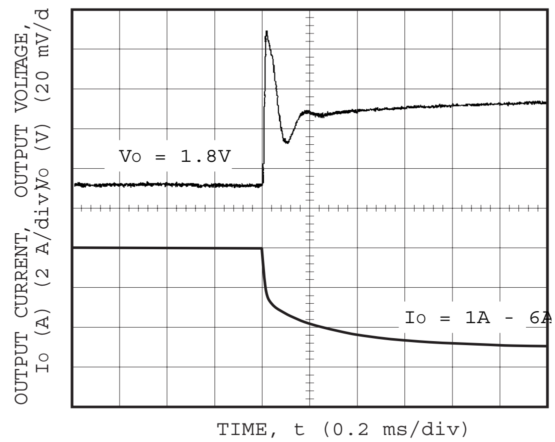


Figure 25. Transient Response Characteristic of 3.3VIN/1.8VOUT with IOUT step up 6A-1A Static load.

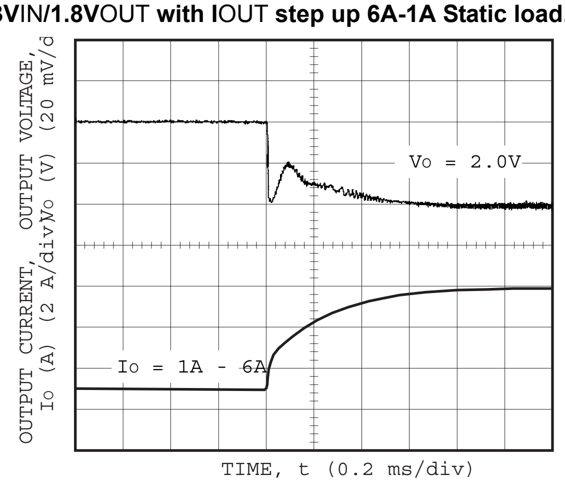


Figure 26. Transient Response Characteristic of 3.3VIN/2.0VOUT with IOUT step up 1A-6A Static load.

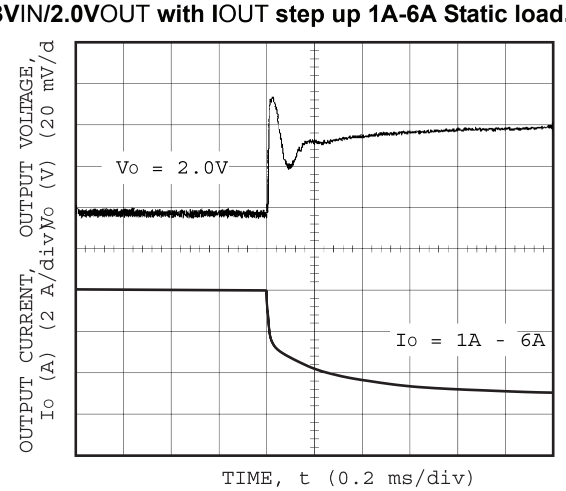


Figure 27. Transient Response Characteristic of 3.3VIN/2.0VOUT with IOUT step up 6A-1A Static load.

Characteristic Curves

The following figures provide typical Transient response characteristics curves with Δt=50µs, VOUT=20mV/DIVat room temperature (TA = 25 °C)

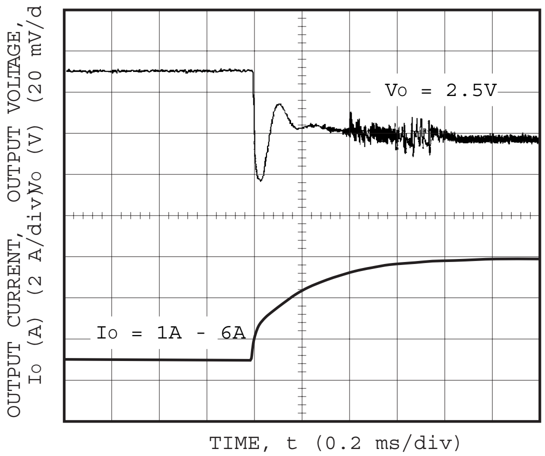


Figure 28. Transient Response Characteristic of 3.3VIN/ 2.5VOUT with IOUT step up 1A-6A Static load.

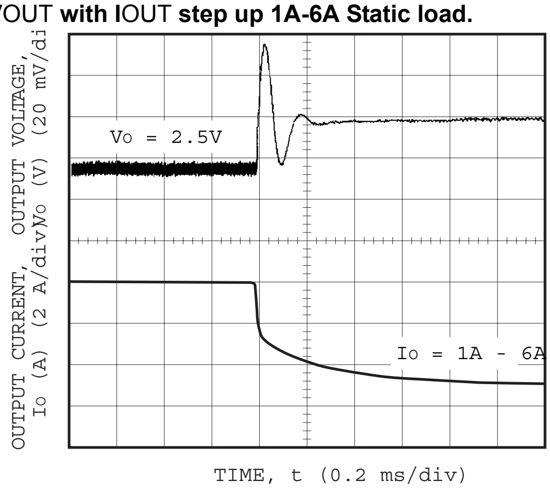


Figure 29. Transient Response Characteristic of 3.3VIN/ 2.5VOUT with IOUT step up 6A-1A Static load.

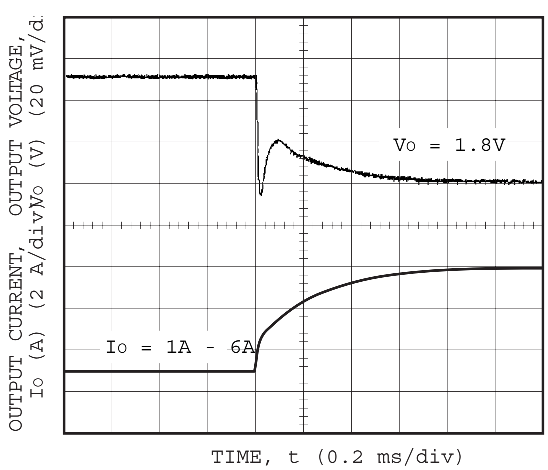


Figure 30. Transient Response Characteristic of 5.0VIN/ 1.8VOUT with IOUT step up 1A-6A Static load.

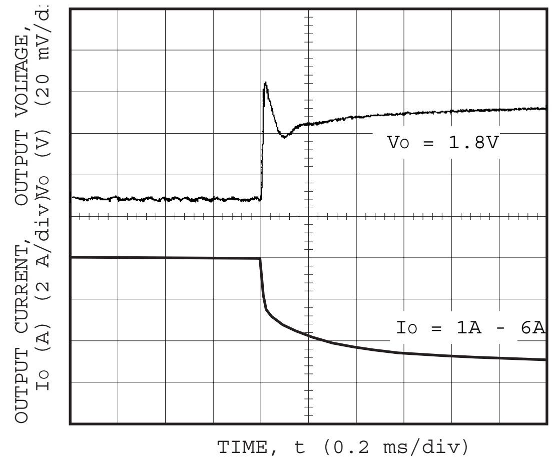


Figure 31. Transient Response Characteristic of 5.0VIN/ 1.8VOUT with IOUT step up 6A-1A Static load.

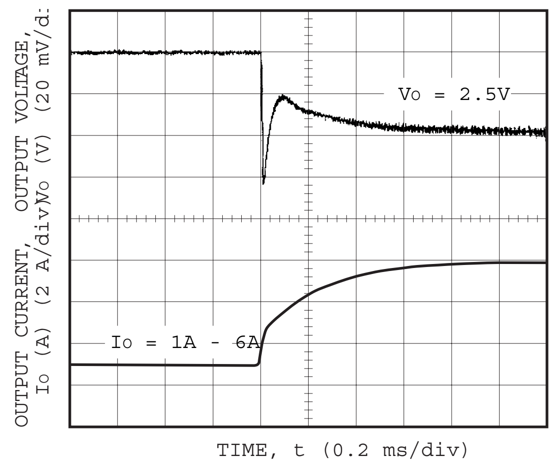


Figure 32. Transient Response Characteristic of 5.0VIN/ 2.5VOUT with IOUT step up 1A-6A Static load.

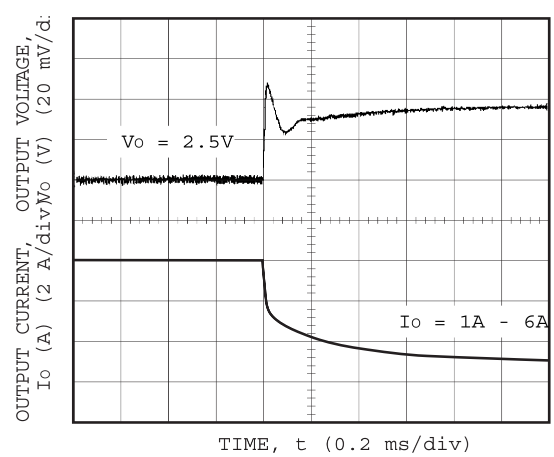


Figure 33. Transient Response Characteristic of 5.0VIN/ 2.5VOUT with IOUT step up 6A-1A Static load.

Characteristic Curves

The following figures provide typical Transient response characteristics curves with Δt=50µs, VOUT=20mV/DIVat room temperature (TA = 25 °C)

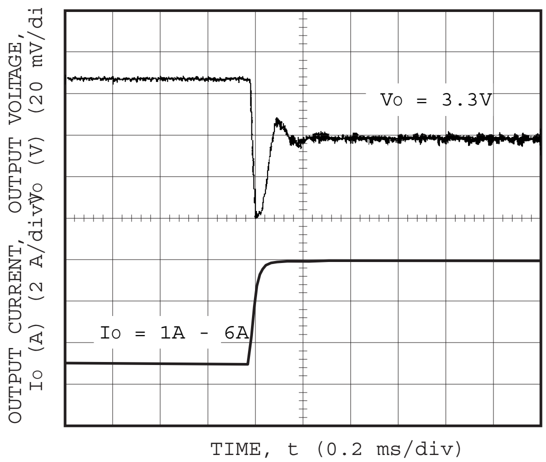


Figure 34. Transient Response Characteristic of 5.0VIN/ 3.3VOUT with IOUT step up 1A-6A Static load.

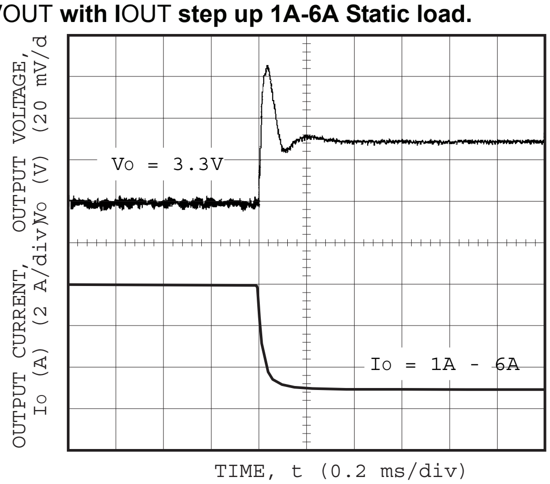


Figure 35. Transient Response Characteristic of 5.0VIN/ 3.3VOUT with IOUT step up 6A-1A Static load.

Characteristic Curves

The following figures provide typical derating characteristics curves .

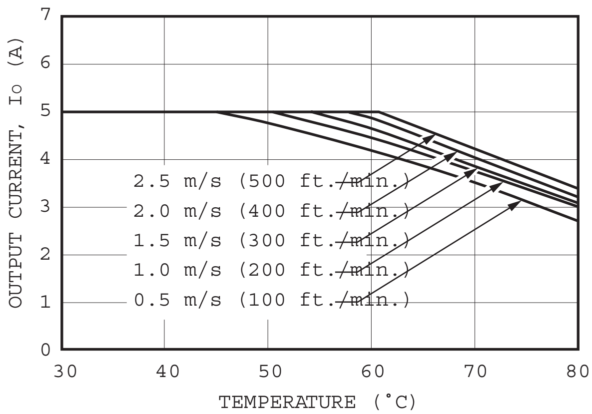


Figure 36. Thermal Derating for 3.3VIN ,1.5VOUT.

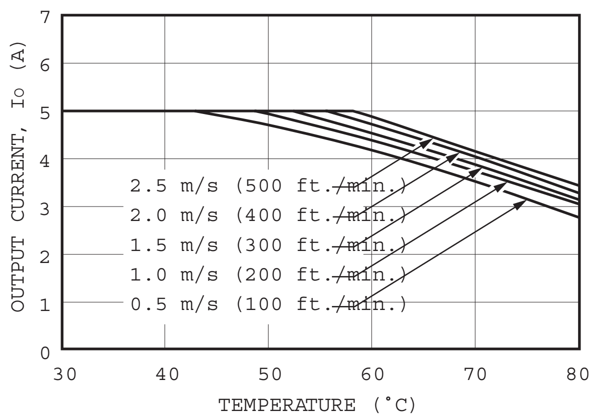


Figure 37. Thermal Derating for 3.3VIN ,1.8VOUT.

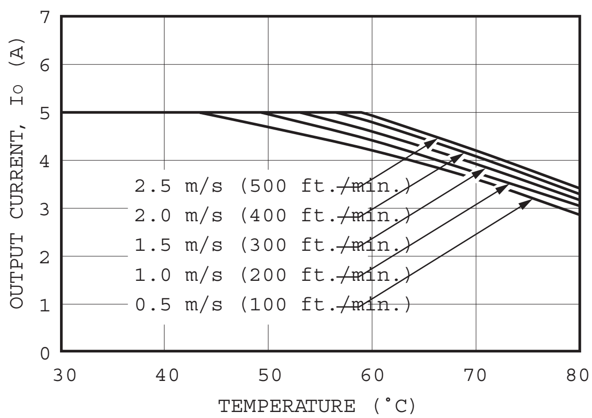


Figure 38. Thermal Derating for 3.3VIN ,2.0VOUT.

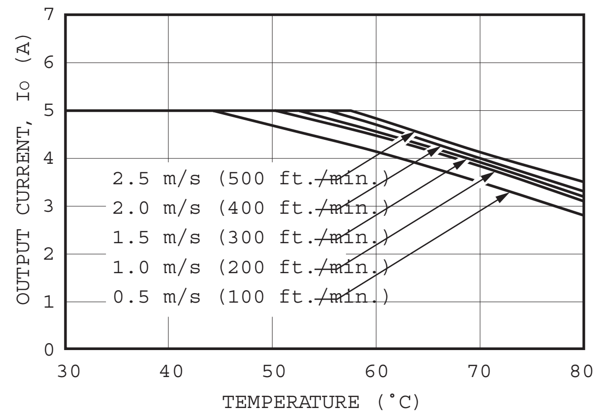


Figure 39. Thermal Derating for 3.3VIN ,2.5VOUT.

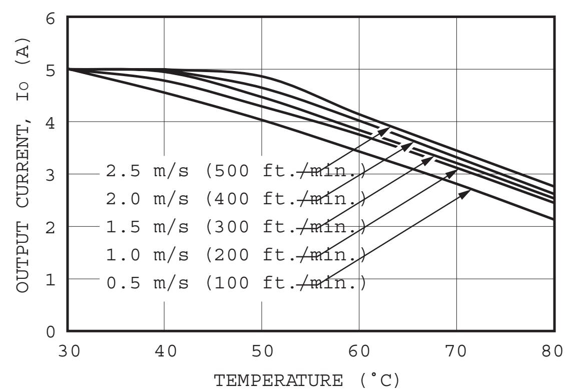


Figure 40. Thermal Derating for 5.0VIN ,1.8VOUT.

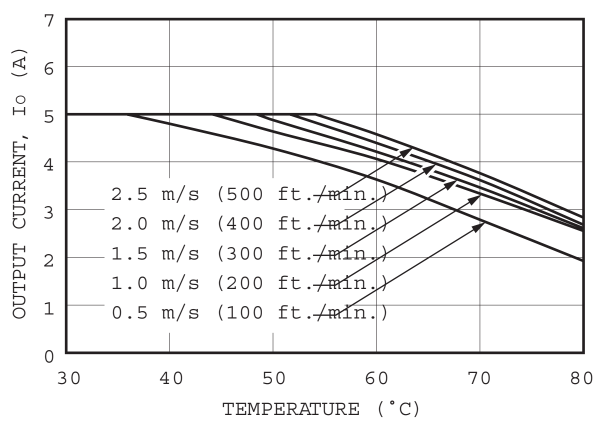


Figure 41. Thermal Derating for 5.0VIN ,2.0VOUT.

Characteristic Curves

The following figures provide typical Thermal Derating curves at room temperature (TA = 25 °C)

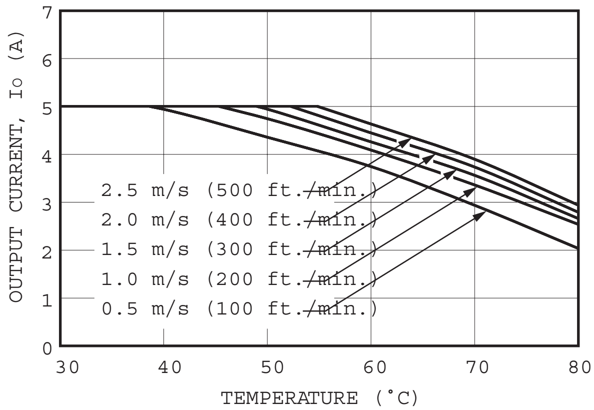


Figure 42. Thermal Derating for 5.0VIN ,3.3VOUT.

Test Configurations

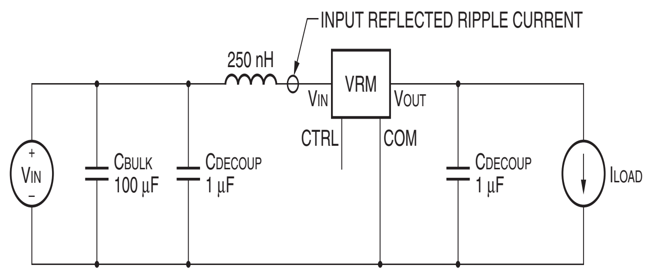


Figure 43. Input Reflected Ripple Current Test Setup.

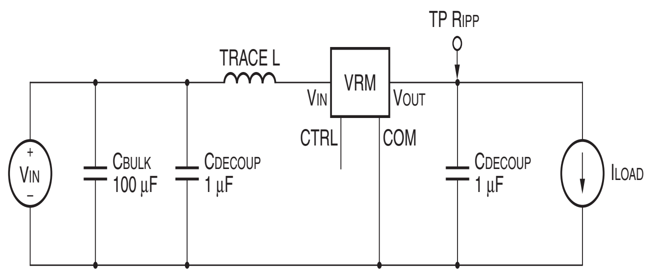


Figure 44. Input /Output Decoupling Circuit.

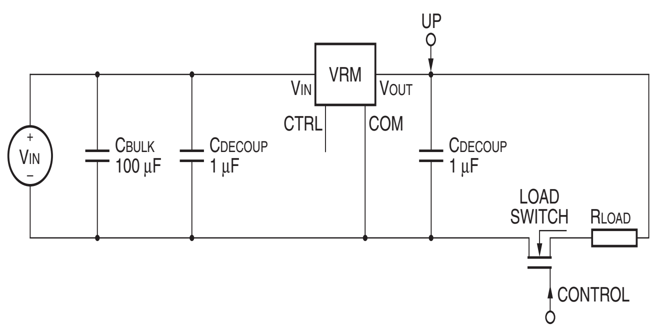


Figure 45. Load Transient Circuit.

Design Considerations

Input Output Decoupling

An input capacitance of 100 µF with an ESR of less than 100 milliohms and at least 1 µF ceramic or equivalent is recommended for the input to the modules. This 100 µF capacitor should always be used unless the buss bulk capacitors are located close to the module. This capacitor provides decoupling in the event of a fault to the module output. Input voltage should never go below 2.5V or internal protection circuitry may fail to act. To achieve noise levels shown in Figures , one 100 µF tantalum capacitor and one 1 µF ceramic capacitor are used. 0.75 inches of 0.14 inch wide track (with no ground beneath) is used as an inductor between the input pin of the module and the decoupling capacitors.

Output decoupling used to achieve noise levels shown in Figures is 1 µF. Care should be taken that selected output decoupling capacitors do not form troublesome L-C resonant networks with track inductance.

Safety Considerations

EMI:FCC Class B and EN55022 Class B Radiated Emissions
Safety: Designed to meet UL 60950, CSA C22.2 No. 60950-00, and VDE 0805 (IEC 60950)

For safety agency approval of the system in which the Austin Lite Power Module is used, the power module must be installed in compliance with the spacing and separation requirements of the end use safety agency standard.

For the converter output to meet the requirements of safety extra low voltage (SELV), the input must meet SELV requirements.

The Austin Lite Power Module has extra low voltage (ELV) outputs when all inputs are ELV.

The input to these units is to be provided with a maximum 10A normal blow fuse in the ungrounded lead.

Feature Descriptions

Output Regulation

These modules make use of inherent output resistance to facilitate improved transient response. This means that the output voltage will decrease with increasing output current. For this reason, the total DC regulation window at any given operating temperature is comprised of a no-load setpoint and a load dependent voltage drop due to module output resistance. Regulation data provided includes both the initial set point and this voltage drop. Production test limits are set such that no module could pass with a full-load regulation point equal to the maximum column. This means that at any operating current, the regulation will always be better than the total window specified.

Output Overcurrent Protection/Overtemperature Protection

Current limiting is provided for momentary overloads and short circuits. A sustained overload may cause the thermal shutdown circuit to activate. The current limit inception is nominally 7 amperes with the power semiconductors at rated temperature in a 25 °C ambient environment. The thermal circuitry will shut down the module at 110 °C minimum on the power semiconductors' top surfaces measured using an infrared camera as described in the Thermal Ratings Section.

Output Control

The output voltage may be margined up or down in direct proportion to the percentage deviation of the control pin from 1.5V. The control pin may be driven by an imposed voltage to margin up or down or shunted by a resistive element to ground for margin down. The preferred margin technique employs an external control voltage to margin up or down. A resistor shunt may be used to margin down but the reference will sag due to its internal impedance.

VOUT: The value of the output voltage after margining
VCONTROL: The voltage at the CTRL pin
VOUTNOM: The ouput voltage if the control pin is left open
RMARGIN: The shunt resistor to ground for margining

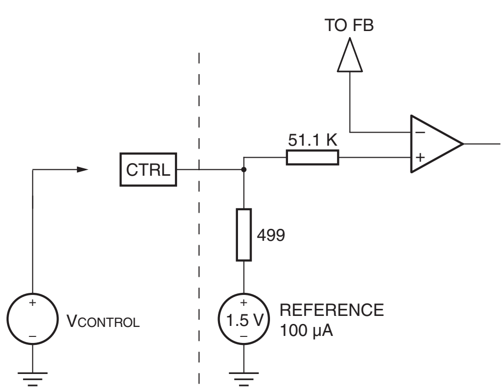


Figure 46. Circuit for increasing the output voltage.

Margin Up

To margin the converter up apply a voltage to the CTRL pin that is above 1.50 volts by the same percentage as the desired margin up percentage.

$$V_{CONTROL} = 1.5\,(1 + \text{MARGIN UP}\ \%)$$

Example:Margin up 5%: Applying 1.575 volts to the CTRL pin will increase the output voltage by 5% over its unmargined value.

$$V_{CONTROL} = 1.5\,(1 + .05)$$
$$V_{CONTROL} = 1.575$$

Margin Down

Assume a percentage to margin down. Then connect a resistor RMARGIN between CTRL and GND. Use the following relations to decide the value of RMARGIN.

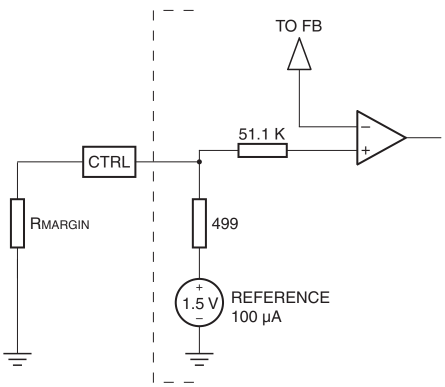


Figure 47. Circuit for decreasing the output voltage.

$$R_{MARGIN} = 499 \bullet \left(\frac{1 - \text{margin}\%}{1 - (1 - \text{margin}\%)}\right)$$

Example: To margin down 5%, then:

$$R_{MARGIN} = 499 \bullet \left(\frac{1 - .05}{1 - (1 - .05)}\right)$$

$R_{MARGIN} = 9481$

Because margining affects the system reference, margining beyond 10% is unacceptable and 0% - 5% is desirable. Margining the unit down beyond 5% requires derating the available current by 1% for every percent beyond 5 that the module is margined down. For example, if a module were margined down 7%, output current would have to be derated 2%.

Special Note: The 3.3/2.5V version must be operated at nominal line to achieve margin up.
The margin up available for this version is maximum 5%.

Thermal Considerations

Austin Lite Power Modules are rated to operate in ambient temperatures from -40 °C to 85 °C. The derating curves below are provided as design aids for proper application of the power modules. To insure adequate cooling, the module temperature should be measured in the system configuration. Ideally, temperature will be measured using an infrared temperature probe (such as the FLUKE 80T-IR) or imaging system under the maximum ambient temperature and the minimum air flow conditions. Diode and FET case temperatures measured on the top surface's hottest spot should not exceed 105 °C. An alternative method of measuring temperature is the use of thermocouples. For best results, a small thermocouple should be attached to the leads of each FET and diode using a small amount of thermal epoxy.

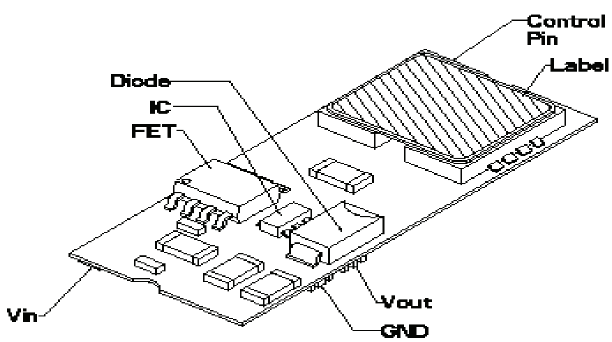


Figure 48. Temperature Measurement Location.

Surface Mount Information

Pick and Place Area

Placement of the Austin Lite can be achieved by choosing one of the below points.

Recommended Location

- Pick Point 1: The Product ID label, which is attaced over the surface mount inductors, provides the largest and most versatile pick point. This label is 0.340” x 0.440”. Up to an 8-mm outside diameter nozzle can be utilized to obtain maximum vacuum pick-up. Smaller diameter nozzles can also be utilized. For all nozzle sizes, travel and rotation speeds may need to be reduced. this off center pick point may pose some challenges for some vision recognition systems.

Alternate Locations

- Pick Points 2 and 3:These points provide a location that is closest to the center of gravity on the x-axis centerline. A nozzle size of 2.5mm to 3.7mm can be utilized in these locations. Care is needed to avoid nozzle contact with adjacent components. Placement system accuracy needs to be verified. Travel and rotations speeds will need to be reduced. It is possible that a custom nozzle can be designed to utilize both of these points simultaneously.
- Pick Point 4:This point is only available to machines that can move off of the x-axis centerline. It provides a larger surface area and is close to the center of gravity. A 4-mm outside diameter nozzle can be utilized. Travel and rotations speeds will need to be reduced.

If rotational slipping occurs, rubber tipped nozzles can be utilized to prevent slippage.

These recommendations are general and apply only to machines that use vacuum nozzles to place components. Machines with the capability of adding mechanical gripping to the sides of assembly can also be utilized.

Testing with a specific placement machine is recommended to determine optimal placement procedures.

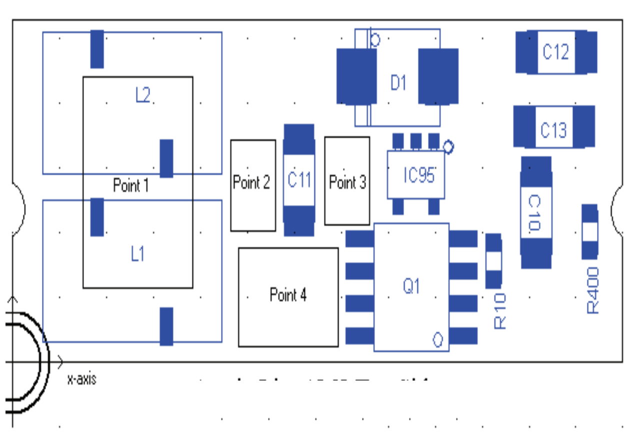


Figure 49. Austin Lite Top side view.

Tin Lead Soldering

The Austin Lite SMT power modules are lead free modules and can be soldered either in a lead-free solder process or in a conventional Tin/Lead (Sn/Pb) process. It is recommended that the customer review data sheets in order to customize the solder reflow profile for each application board assembly. The following instructions must be observed when soldering these units. Failure to observe these instructions may result in the failure of or cause damage to the modules, and can adversely affect long-term reliability.

In a conventional Tin/Lead (Sn/Pb) solder process peak reflow temperatures are limited to less than 235^{o}C. Typically, the eutectic solder melts at 183^{o}C, wets the land, and subsequently wicks the device connection. Sufficient time must be allowed to fuse the plating on the connection to ensure a reliable solder joint. There are several types of SMT reflow technologies currently used in the industry. These surface mount power modules can be reliably soldered using natural forced convection, IR (radiant infrared), or a combination of convection/IR. For reliable soldering the solder reflow profile should be established by accurately measuring the modules CP connector temperatures.

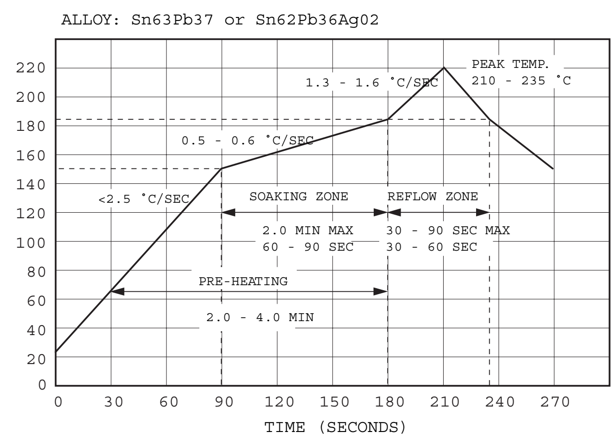


Figure 50. Reflow Profile.

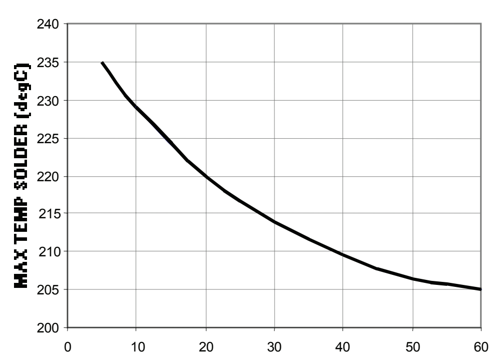


Figure 51. Time Limit curve above 205^{0}C.

Surface Mount Information (continued)

Lead Free Soldering

The –Z version Austin Lite SMT modules are lead-free (Pb-free) and RoHS compliant and are both forward and backward compatible in a Pb-free and a SnPb soldering process. Failure to observe the instructions below may result in the failure of or cause damage to the modules and can adversely affect long-term reliability.

Pb-free Reflow Profile

Power Systems will comply with J-STD-020 Rev. C (Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices) for both Pb-free solder profiles and MSL classification procedures. This standard provides a recommended forced-air-convection reflow profile based on the volume and thickness of the package (table 4-2). The suggested Pb-free solder paste is Sn/Ag/Cu (SAC). The recommended linear reflow profile using Sn/Ag/Cu solder is shown in Figure. 52.

MSL Rating

The Austin Lite SMT modules have a MSL rating of 1.

Storage and Handling

The recommended storage environment and handling procedures for moisture-sensitive surface mount packages is detailed in J-STD-033 Rev. A (Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices). Moisture barrier bags (MBB) with desiccant are required for MSL ratings of 2 or greater. These sealed packages should not be broken until time of use. Once the original package is broken, the floor life of the product at conditions of £ 30°C and 60% relative humidity varies according to the MSL rating (see J-STD-033A). The shelf life for dry packed SMT packages will be a minimum of 12 months from the bag seal date, when stored at the following conditions: < 40° C, < 90% relative humidity.

Post Solder Cleaning and Drying Considerations

Post solder cleaning is usually the final circuit-board assembly process prior to electrical board testing. The result of inadequate cleaning and drying can affect both the reliability of a power module and the testability of the finished circuit-board assembly. For guidance on appropriate soldering, cleaning and drying procedures, refer to Lineage Power *Board Mounted Power Modules: Soldering and Cleaning* Application Note (AP01-056EPS).

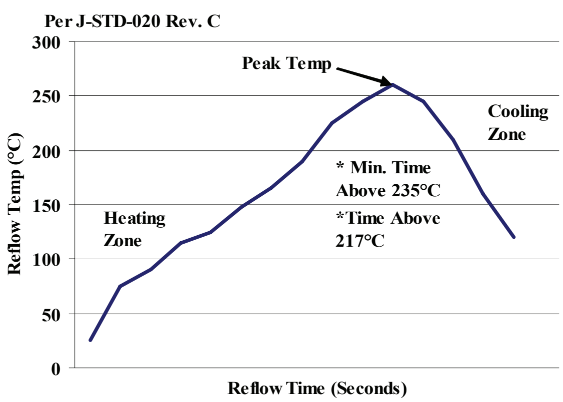


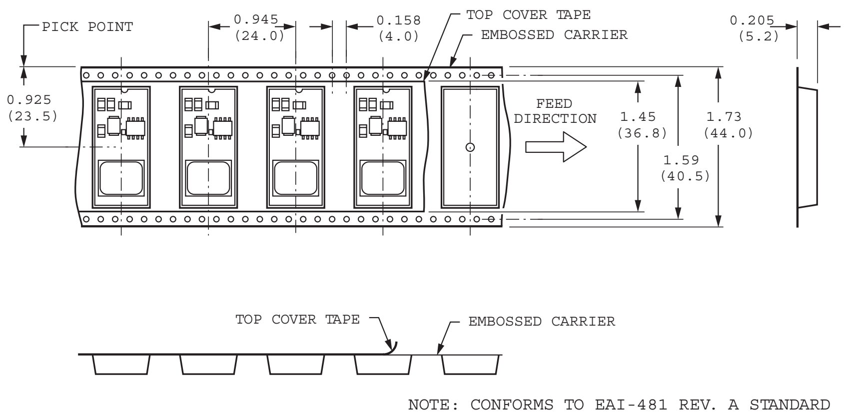
Figure 52. Recommended linear reflow profile using Sn/Ag/Cu solder.

Solder Ball and Cleanliness Requirements

The open frame (no case or potting) power module will meet the solder ball requirements per J-STD-001B. These requirements state that solder balls must neither be loose nor violate the power module minimum electrical spacing.

The cleanliness designator of the open frame power module is C00 (per J specification).

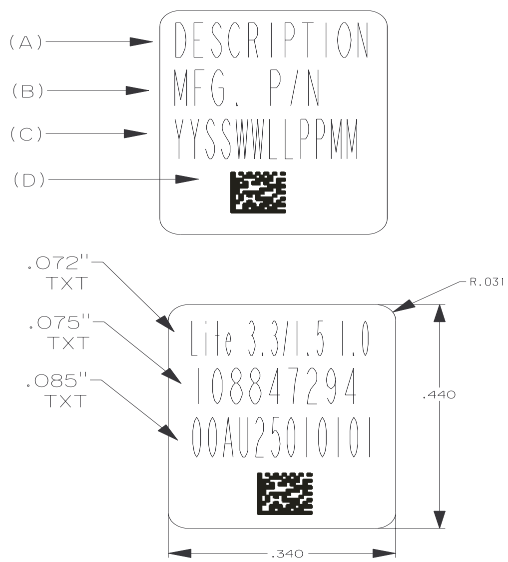
Surface-Mount Tape and Reel



Note:Austin Lite Power Modules are shipped in quantities of 250 modules per tape and reel.

Mechanical Specification

Parameter	Symbol	Min	Typical	Max	Unit
Physical Size *Dimensions listed are typical, with a tolerance of +/-0.01 inches	L W H	— — —	*33 (1.3) 13.46 (0.53) 5.46 (0.215)	— — —	mm (in.) mm (in.) mm (in.)
Weight	—	—	3.1	—	grams (oz.)
Module I/O, Connector Coplanarity	—	—	—	4 (.158)	mm (in.)
Interconnecting	Low-inductance surface-mount connector				
Labeling	The label spans the magnetic component and contains the following: ■ Line 1: VIN and VOUT, version number ■ Line 2: Lineage Power Comcode ■ Line3: Lot number (year manufactured; manufacturing site, work week built, lot number within work week, panel number; circuit serial number within panel) ■ Line 4: Barcode				



GENERAL NOTES
(A) PART DESCRIPTION: VIN/VOUT A

VIN/VOUT	MFG. P/N
3.3 VIN/1.5 VOUT	108847294
3.3 VIN/1.8 VOUT	108847237
3.3 VIN/2.0 VOUT	108847245
3.3 VIN/2.5 VOUT	108834961
5.0 VIN/1.8 VOUT	108892464
5.0 VIN/2.5 VOUT	108834979
5.0 VIN/3.3 VOUT	108847252

A = REVISION NUMBER
(B) MANUFACTURING P/N: SEE TABLE ABOVE
(C) PART S/N: YSSWWLLPPMM
Y = YEAR CODE
S = SITE (EX. DJ-MESQUITE, KZ-MATAMOROS...)
W = BUILD WEEK
L = LOT NUMBER
M = PANEL NUMBER (01-20)
M = MODULE NUMBER (01-78)
(D) CODE 128 BAR CODE => WWLLPPMM
CODE: AUTO SELECTION
NARROW BAR WIDTHS (DOTS) = 2 : 003"/27.27 CPI

A AUSTIN LITE PRODUCT LABEL ILLUSTRATING A 3.3V/1.5V AUSTIN LITE, REVISION 1, LOT #1, PANEL #1, MODULE #1, BUILT IN AUSTIN DURING THE 25TH WEEK OF 2000

Figure 53.Detailed Drawing of Product ID Label.

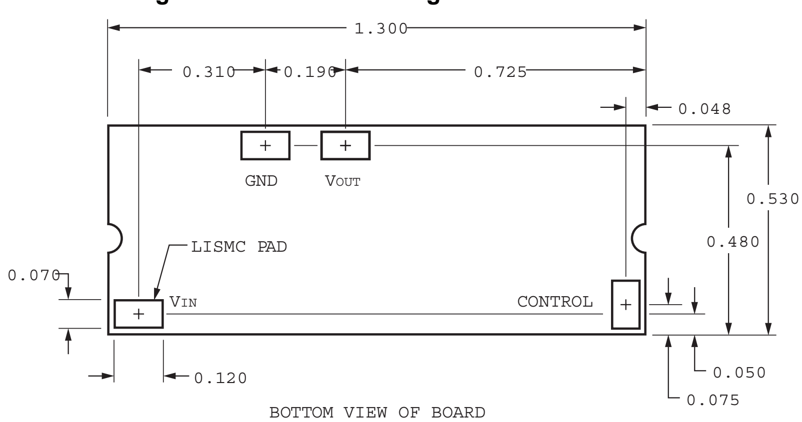


Figure 54.Bottom View of the Board.

Ordering Information

Please contact your Lineage Power Sales Representative for pricing, availability and optional features.

Product Code	Comcode		Expanded Product Description
Austin Lite 3.3V 1.5V 5A T	108847294		3.3 VIN; 1.5 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 3.3V 1.8V 5A T	108847237		3.3 VIN; 1.8 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 3.3V 2.0V 5A T	108847245		3.3 VIN; 2.0 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 3.3V 2.5V 5A T	108834961		3.3 VIN; 2.5 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 5.0V 1.8V 5A T	108892464		5 VIN; 1.8 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 5.0V 2.5V 5A T	108834979		5 VIN; 2.5 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 5.0V 3.3V 5A T	108847252		5 VIN; 3.3 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 3.3V 1.5V 5A T	108995585	ALM005A0M-SRZ	3.3 VIN; 1.5 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 3.3V 1.8V 5A T	108995164	ALM005A0Y-SRZ	3.3 VIN; 1.8 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 3.3V 2.0V 5A T	108995593	ALM005A0D-SRZ	3.3 VIN; 2.0 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 3.3V 2.5V 5A T	108995156	ALM005A0G-SRZ	3.3 VIN; 2.5 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 5.0V 1.8V 5A T	108995602	ALH005A0Y-SRZ	5 VIN; 1.8 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 5.0V 2.5V 5A T	108995610	ALH005A0G-SRZ	5 VIN; 2.5 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package
Austin Lite 5.0V 3.3V 5A T	108995627	ALH005A0F-SRZ	5 VIN; 3.3 VOUT; 4 terminal surface mount; 5A IOUT; Tape & Reel package

-Z refers to RoHS compliant versions.

LINEAGE POWER

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Document No: ADS01-026EPS
PDF Name: Austin Lite.pdf