



PRELIMINARY DATASHEET

High Efficiency Converter

Features

- ZVS / ZCS resonant Sine Amplitude Converter topology
- Up to 55 Volts DC input
- K of 1/32 provides up to 50 Amps DC
- Built-in protection against over-voltage, over-current, and over-temp conditions.
- Enable/disable and monitoring
- High efficiency (>94% peak)
- High density (233 A/in²)
- SMT & through-hole 0623 ChiP format, low impedance interconnect to system board

Typical Applications

- Computing and Telecom Systems (ASICs, DDR3, DDR4 memory)
- Automated Test Equipment
- High Density Power Supplies
- Communications Systems

Pin Descriptions

+IN to -IN	Input Power
+OUT to -OUT	Output Power
EN	Enable/Disable, Array Sync
TM	Temp Monitor & Power Good Flag
VCC	Power-Train Supply
CM	Current Monitor

Ordering Information

VTM48KP015T050AB0	Through hole, T-grade (-40°C to +125°C T _{CASE})
VTM48KR015T050AB0	Surface Mount, T-grade (-40°C to +125°C T _{CASE})
VTM48KP015M050AB0	Through hole, M-grade (-55°C to +125°C T _{CASE})
VTM48KR015M050AB0	Surface Mount, M-grade (-55°C to +125°C T _{CASE})

Product Ratings

Input Voltage (V _{IN})	48V nom (0 to 55 V range)
Output Voltage (V _{OUT})	1.5 V nom (from 48V) (0 to 1.7 V range)
Transformer Ratio K-factor	1/32
Output Current (I _{OUT})	50A (to 100°C T _{CASE}) 65 A (to 85°C T _{CASE})
Output Current Peak (I _{OUT_PEAK})	100A (I _{OUT_AVE} < 50A, 25°C T _{CASE})

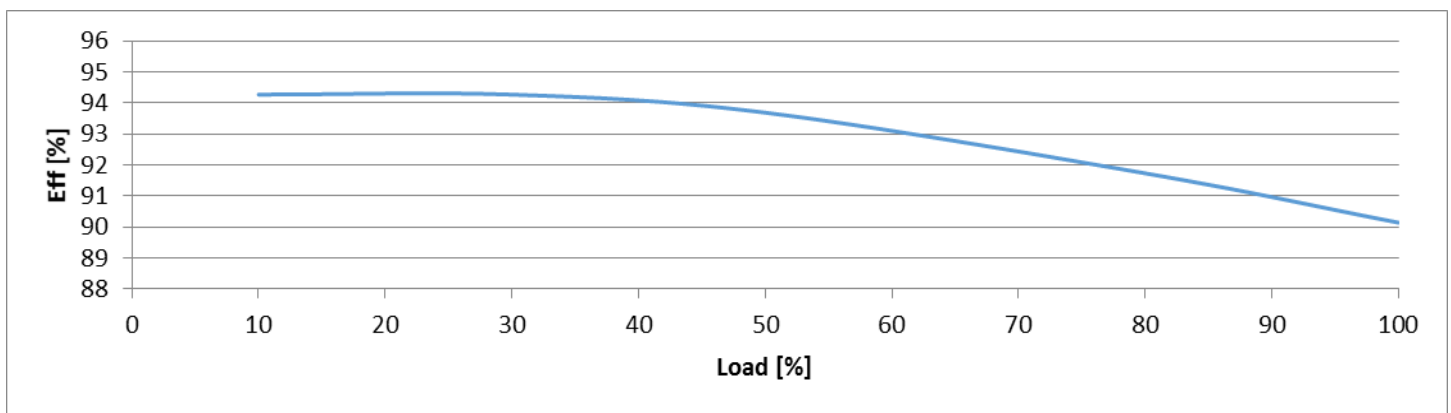
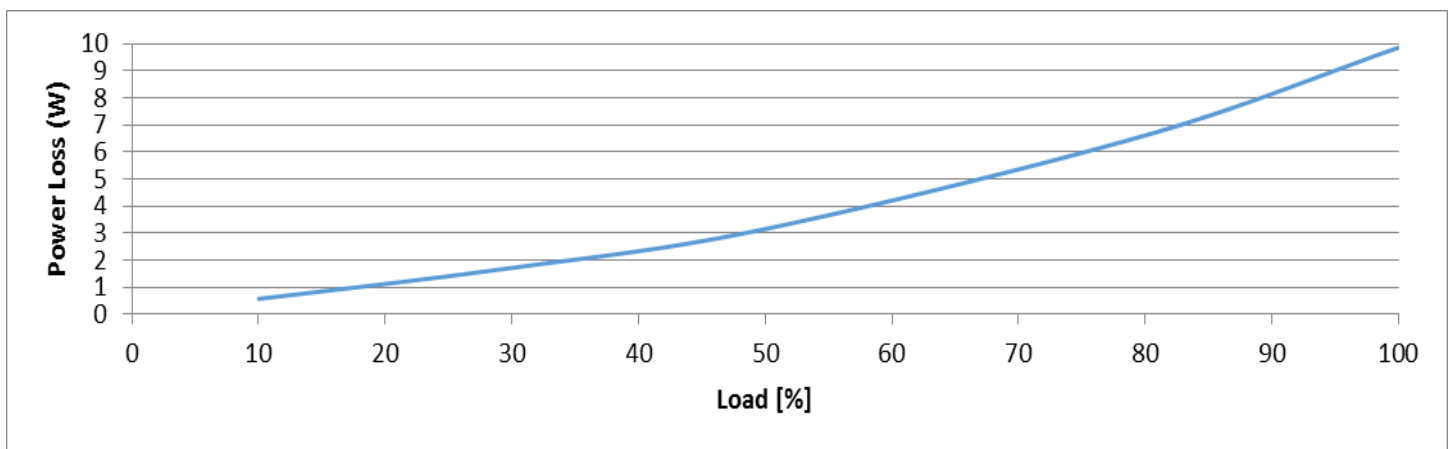
Product Description

The VI Chip VTM[™] current multiplier is a high efficiency Sine Amplitude Converter[™] (SAC[™]) operating from a primary bus to deliver a low voltage output. The SAC[™] offers a low AC impedance beyond the bandwidth of most downstream regulators; therefore capacitance normally at the load can be located at the input to the SAC[™]. Since the K factor of the VTM48KP015T050AB0 is 1/32, the capacitance value can be reduced by a factor of 1024, resulting in savings of board area, materials and total system cost.

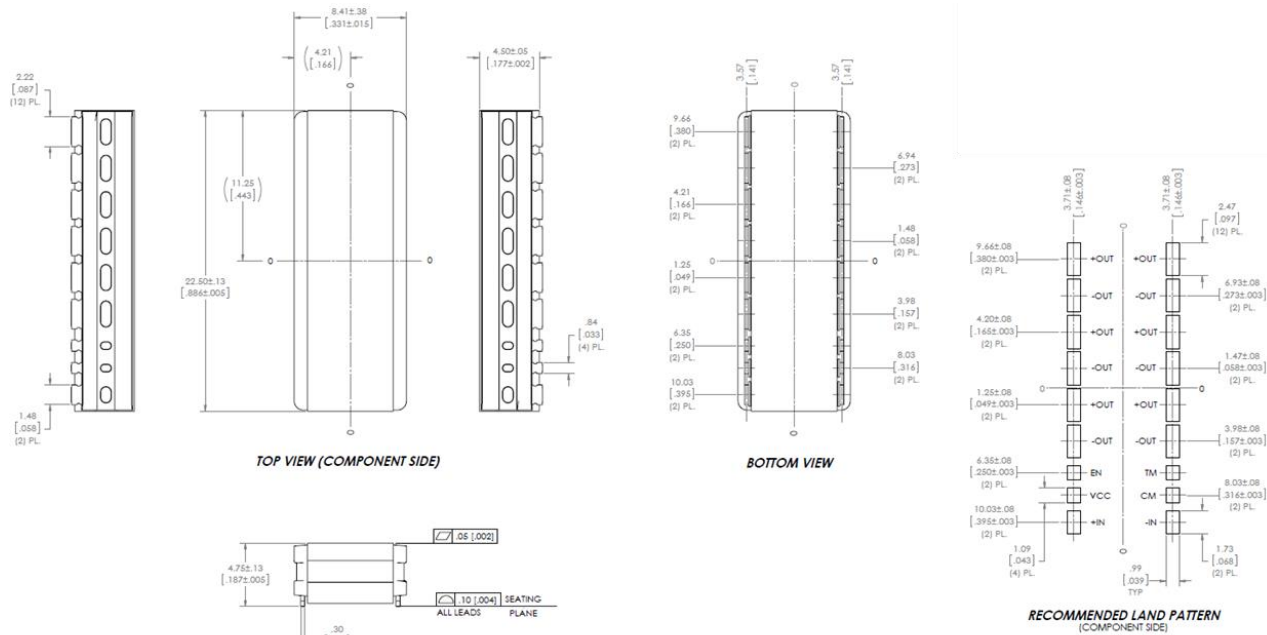
The VTM48KP015T050AB0 is provided in a 0623 ChiP format compatible with standard pick-and-place surface mount assembly processes. The higher conversion efficiency of the VTM48KP015T050AB0 increases overall system efficiency and lowers operating costs compared to conventional approaches.

The VTM48KP015T050AB0 enables the utilization of Factorized Power Architecture[™] which provides efficiency and size benefits by lowering conversion and distribution losses and promoting high density point of load conversion.

Attribute	Symbol	Conditions / Notes	Min	Typ.	Max	Unit
Input Voltage	V_{IN}		0	48	55	V
Output Current	I_{OUT}	to 100°C T_{CASE} to 85°C T_{CASE}			50 65	A
Output Current Peak	I_{OUT_PEAK}	$I_{OUT_AVE} < 50A$, 25°C T_{CASE}			100	A
Output Resistance	R_{OUT}	Nominal line		2		mOhm
No-Load Power Dissipation	NLPD	Nominal line		1		W

Efficiency (%) vs. Load (A), 25°C (1.2 V_{OUT})Power Loss (W) vs. Load (A), 25°C (1.2 V_{OUT})

Product Outline Drawing and Recommended Land Pattern – Surface Mount



Product Outline Drawing - Through Hole

