MPL-AT2512-4R7

Low-Profile Molded Inductor 4.7µH

APPLICATIONS

- Battery-Powered Devices
- High Switching Frequency SMPS
- IoT
- Wearables
- Portable Devices
- Input Filters

FEATURES

- Size 2.5mmx2mmx1.2mm
- Low Profile
- Low Audible Noise
- Molded Construction
- Soft Saturation
- Stable across High Temperatures
- Low DCR
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

Parameter			Value	Unit
Inductance (1)	L	±20%	4.7	µH
Resistance	R_{DC}	Typ	170	mΩ
Resistance MAX	$R_{DC\ MAX}$	Max	205	mΩ
Rated Current (2)	I_R	Typ	1.8	A
Saturation Current 25°C (3)	$I_{SAT\ 25°C}$	Typ	2.4	A
Saturation Current 100°C (4)	$I_{SAT\ 100°C}$	Typ	2.4	A
Resonance Frequency	f_r	Typ	28	MHz

GENERAL SPECIFICATIONS

(1) Inductance	Measured at 100kHz, 100mA
(2) Rated Current	The rated current causes a coil temperature rise ΔT of 40K I_R is measured with the inductor soldered in a 1-layer PCB, with a copper layer thickness of 35µm Cu, and a PCB size of 30mmx50mm. The temperature behavior is dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.
(3) Saturation Current 25°C	The saturation current causes L to drop 30% at a 25°C ambient temperature
(4) Saturation Current 100°C	The saturation current causes L to drop 30% at a 100°C ambient temperature
Temperature Test Condition	Electrical specifications measured at 25°C, 35% relative humidity (RH) if not given differently
Operating Condition	Operating temperature: -40°C to +125°C (including temp rise) Should not exceed +125°C under worst-case operation conditions
Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

All MPS parts are lead-free, halogen-free, and adhere to the RoHS directive. For MPS green status, please visit the MPS website under Quality Assurance. “MPS”, the MPS logo, and “Simple, Easy Solutions” are registered trademarks of Monolithic Power Systems, Inc. or its subsidiaries.

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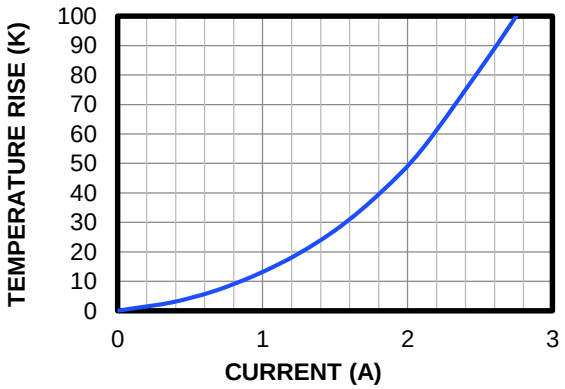
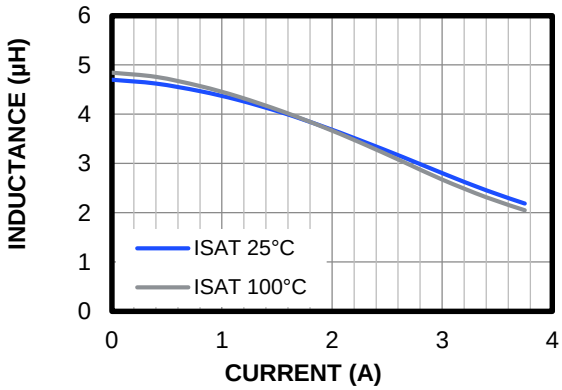
TYPICAL PERFORMANCE CURVES

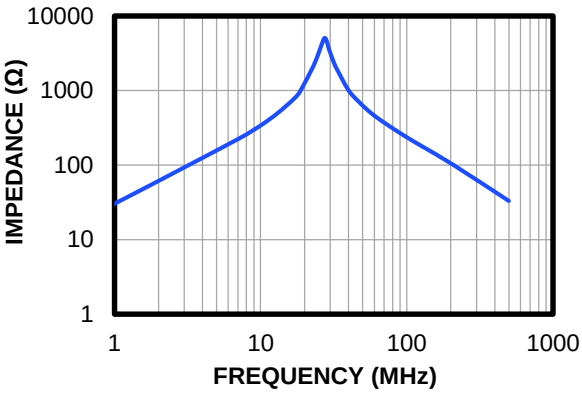
Temperature Rise vs. Current



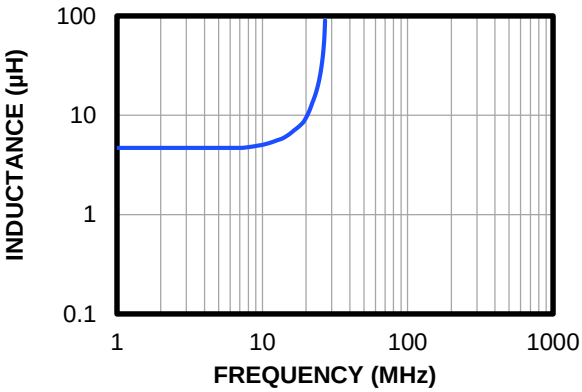
Inductance vs. Current



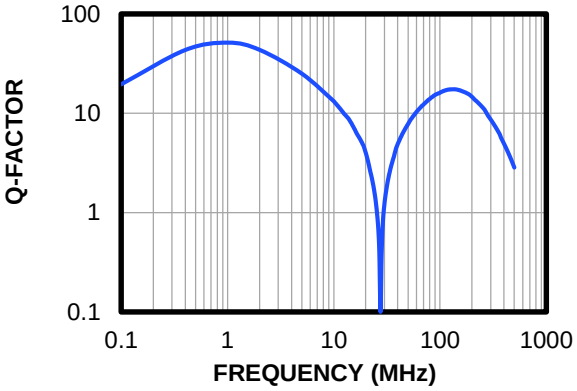
Impedance vs. Frequency



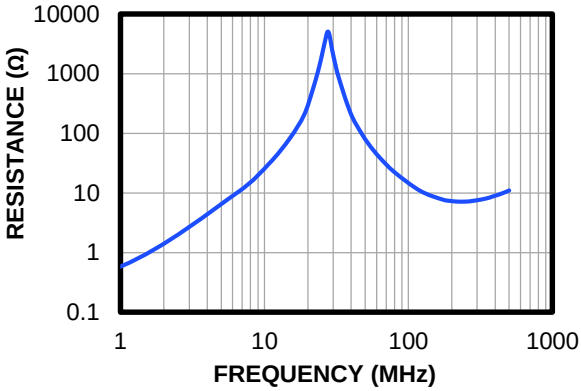
Inductance vs. Frequency



Quality Factor vs. Frequency



AC Resistance vs. Frequency



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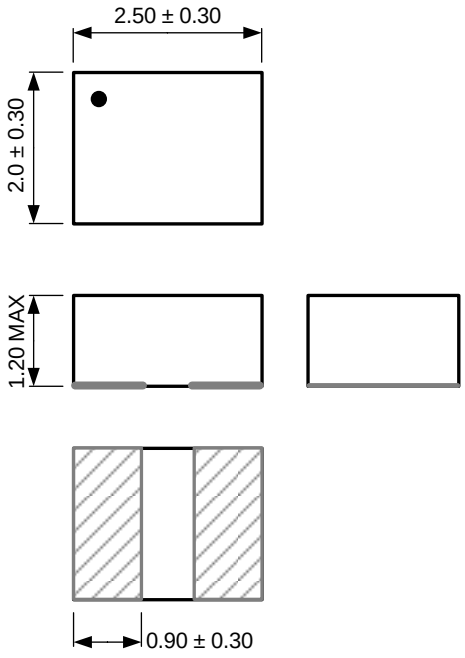
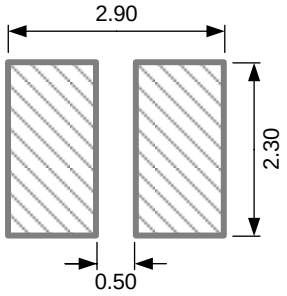
DIMENSIONS

PRODUCT PACKAGE



(units in mm)

RECOMMENDED LAND PATTERN



(units in mm)

TOP MARKING

Marking	
Start of Winding	. (dot)

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ORDERING INFORMATION

Part Number	L (1) ±20% (µH)	R_{DC} Typ (mΩ)	I_R (2) Typ (A)	$I_{SAT\ 25°C}$ (3) Typ (A)	$I_{SAT\ 100°C}$ (4) Typ (A)
MPL-AT2512-R33	0.33	13	6.4	7.8	7.8
MPL-AT2512-R47	0.47	14	5.8	6.4	6.4
MPL-AT2512-R68	0.68	23	4.8	6.0	6.0
MPL-AT2512-1R0	1.0	33	4.1	5.2	5.2
MPL-AT2512-1R5	1.5	43	3.4	4.2	4.2
MPL-AT2512-2R2	2.2	68	2.8	3.4	3.4
MPL-AT2512-3R3	3.3	116	2.2	3.0	3.0
MPL-AT2512-4R7	4.7	170	1.8	2.4	2.4
MPL-AT2512-6R8	6.8	280	1.4	2.2	2.2
MPL-AT2512-100	10	355	1.2	1.7	1.7

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REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	9/22/2023	Initial Release	-

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