APPLICATIONS

- Battery-powered devices
- Portable devices
- Embedded computing
- High-current SMPS
- High-frequency SMPS
- POL converters
- FPGA

FEATURES

- Size 3.5mmx3.2mmx1.8mm
- Molded Construction
- Low Audible Noise
- Soft Saturation
- Stable Over High Temperatures
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

Parameter			Value	Unit
Inductance [1]	L	±20%	3.3	µH
Resistance	R_{DC}	typ	121	mΩ
Resistance MAX	$R_{DC\ MAX}$	max	146	mΩ
Rated Current [2]	I_R	typ	2.5	A
Saturation Current 25°C [3]	$I_{SAT\ 25°C}$	typ	3.7	A
Saturation Current 100°C [4]	$I_{SAT\ 100°C}$	typ	3.7	A
Resonance Frequency	f_r	typ	40	MHz

GENERAL SPECIFICATIONS

|	
[1] Inductance	Measured at 100kHz, 100mA
[2] Rated Current	Rated current will cause the coil temperature rise ΔT of 40K I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35µm Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.
[3] Saturation Current 25°C	Saturation current will cause L to drop from 30% at 25°C ambient temperature
[4] Saturation Current 100°C	Saturation current will cause L to drop from 30% at 100°C ambient temperature
Temperature Test Condition	Electrical specifications measured at 25°C, 35% 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

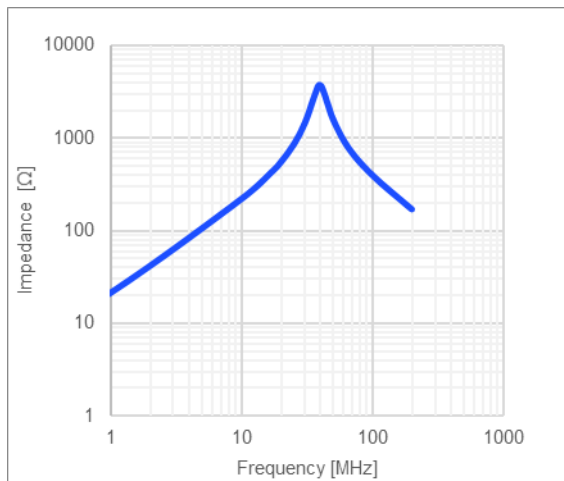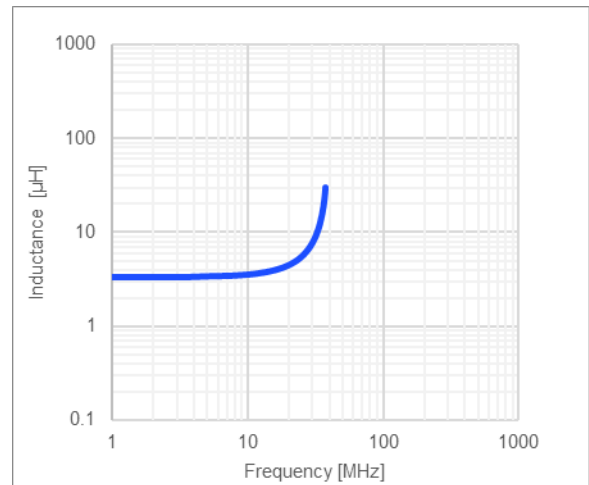## TYPICAL PERFORMANCE CURVES

Temperature Rise vs. Current
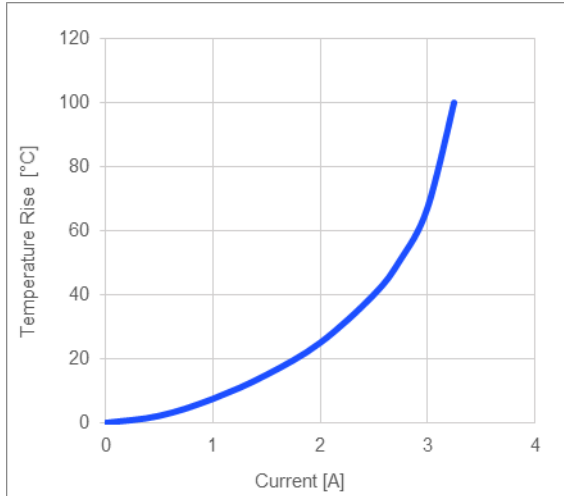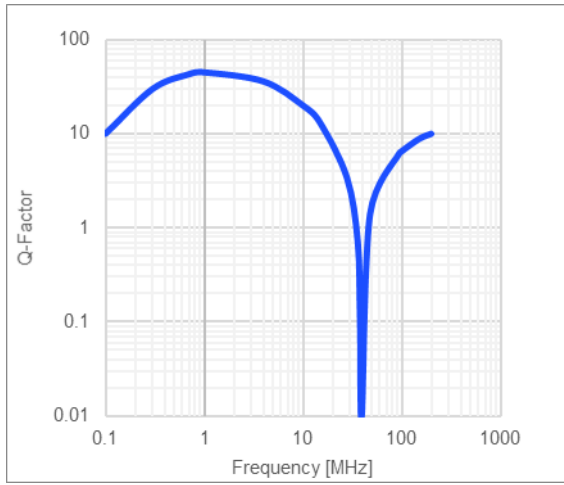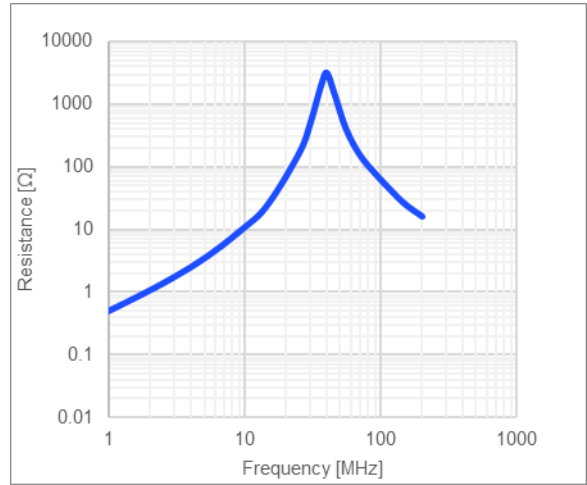

Inductance vs. Current
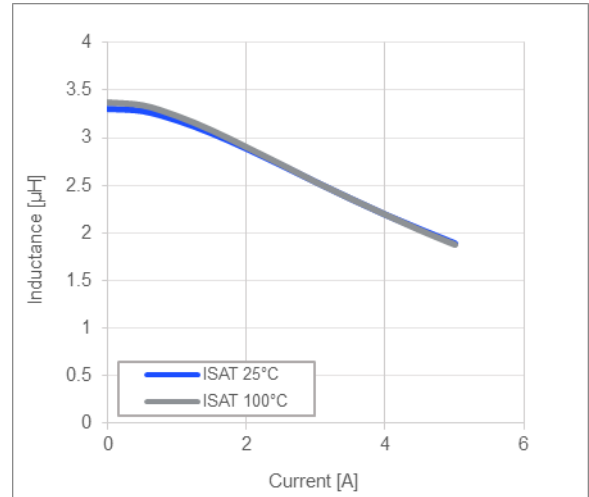
Impedance vs. Frequency

Inductance vs. Frequency

Quality Factor vs. Frequency

AC Resistance vs. Frequency

LAND PATTERN

Dimensions	
A	1.45 ref.
B	1.90 ref.
C	4.10 ref.
	(unit in mm)

PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)
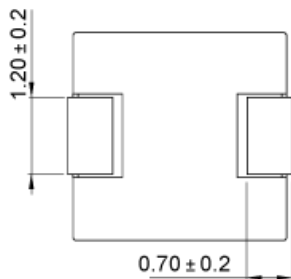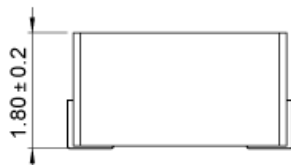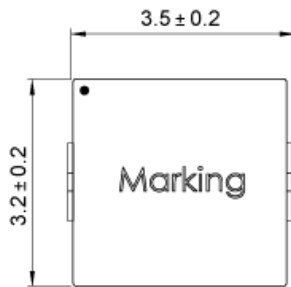
TOP MARKING

Marking	
Start of Winding	· (dot)
Inductance Code	3.3

ORDERING INFORMATION

Part Number	L [1] typ (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-AY3020-R47	0.47	19.5	6.3	9	9
MPL-AY3020-R68	0.68	26	5.15	8.6	8.6
MPL-AY3020-R82	0.82	28	4.7	8	8
MPL-AY3020-1R0	1.0	30	4.3	6.2	6.2
MPL-AY3020-1R5	1.5	35	3.4	5.9	5.9
MPL-AY3020-2R2	2.2	64	3.0	5.3	5.3
MPL-AY3020-3R3	3.3	121	2.5	3.7	3.7
MPL-AY3020-4R7	4.7	173	2.0	3.1	3.1
MPL-AY3020-5R6	5.6	209	1.8	2.8	2.8
MPL-AY3020-6R8	6.8	250	1.65	2.6	2.6
MPL-AY3020-8R2	8.2	345	1.4	1.95	1.95
MPL-AY3020-100	10	370	1.3	1.75	1.75

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