

# Low profile BMS Transformers

HM1236/38NL, HM2146/47 and HM2113ZNL



- ④ Fully qualified with leading BMS Silicon ICs
- ④ Designed to meet IEC/UL62368-1
- ④ Low profile height 3.45 or 4.06mm max
- ④ High temperature performance up to 125/150°C
- ④ Ideal for electric vehicles (EV), Energy Storage (ESS) and marine or aviation transportation.

## Electrical Specifications @ 25°C - Operating Temperature -40°C to +85°C

Part Number	Inductance (100kHz, 100mVrms)	Turns Ratio	Choke fitted	Isolation breakdown (Pri:Sec)	Working Voltage	Insulation & Creepage (mm)	Operating Temperature	Qualified BMS Silicon
HM1236NL	500 uH min	1.00 +/- 2%	YES	3200Vrms / 60sec	600VDC	Functional >3mm	-40 to +125°C	MAXIM ; MAX17841B
HM1238NL	300 uH min	1.00 +/- 2%	YES	4300Vrms / 60sec	1000VDC	Functional >5mm	-40 to +150°C	MAXIM ; MAX17841B
HM2113ZNL	150 uH min	1.00 +/- 2%	YES	4300Vrms / 60sec	1000VDC	Functional >5mm	-40 to +125°C	NXP , ADI, Infineon
HM2146NL	150 uH min	1.00 +/- 1%	NO	3000Vrms / 60sec	1000VDC	Functional >3mm	-40 to +125°C	Texas Instr./ NXP, ADI
HM2147NL	500 uH min	1.00 +/- 2%	NO	4300Vrms / 60sec	1500VDC	Functional >3mm	-40 to +125°C	Texas Instr.; BQ7961x-Q1

## Additional Electrical performance

### RJ45 Material Specification

Part Number	Leakage Inductance (Max)	Winding DCR ( $\Omega$ )		Insertion Loss	Return Loss	CMRR	
		Finish	Material			Plating Area	$ Z _{out} = 100 \text{ Ohm}$
HM2113ZNL	0.50 uH @ 100kHz	0.45 max	0.85 max	-0.25dB max @ 4MHz	-20dB min @ 4MHz	-35dB	-20dB
HM2146NL	0.50 uH @ 2000kHz	0.50 max	0.50 max	-0.25dB max @ 2MHz	-20dB min @ 2MHz	N/A	N/A
HM2147NL	0.50 uH @ 2000kHz	0.50 max	0.50 max	-0.25dB max @ 2MHz	-20dB min @ 2MHz	N/A	N/A

#### Notes:

1. Storage Temperature: -50°C to +125°C
2. Compliance to J-STD:
  - A. J-STD-002: Solderability at 245oC Reflow Profile
  - B. J-STD-020: Moisture Sensitive Level 1
  - C. J-STD-075: R7, 245oC Maximum Through Reflow Solder
3. The NL suffix part comes in Tubes with 55pcs per tube. To order tape and reel packaging add a 'T' suffix to the part number (ie: HM2146NL becomes H2146NLT). Quantity per reel is 900pcs/reel.
4. Header: DAP (Diallyl Phthalate) with flammability Rating UL 94V-0 or better
5. Lead Frame: Cooper Alloy
  - Under plated: Half Hard Ductile Nickel 50-100" (1.3-2.5um)
  - Over plated : 100% Tin electro-deposited per ASTM B545 300 - 50u"(8-13um)
  - Finish : Matte finish 100% Tin solder
6. AEC-Q200 Qualified, PPAP on request

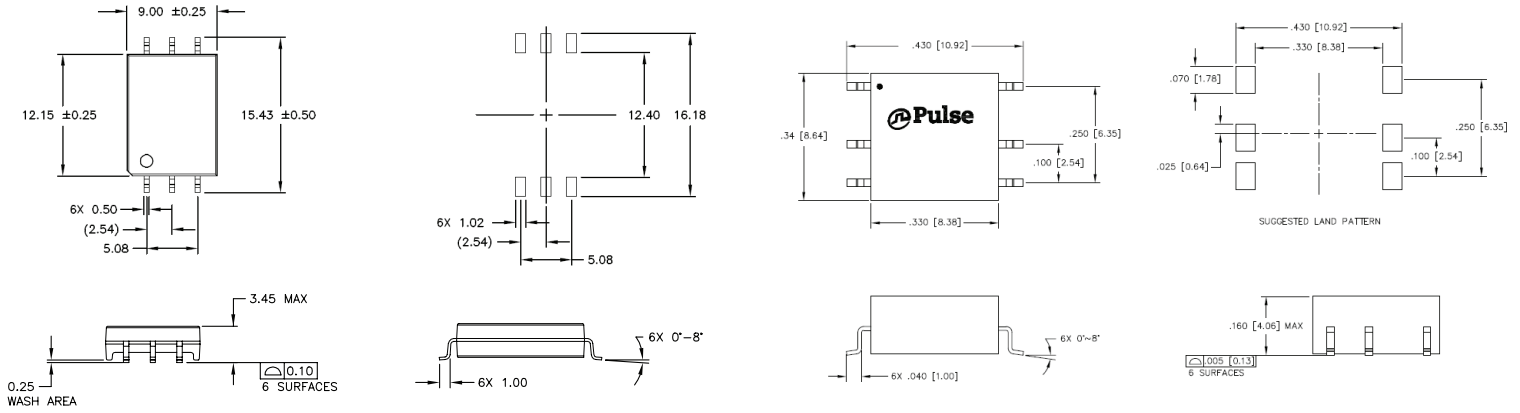
# Low profile BMS Transformers

HM1236/38NL, HM2146/47 and HM2113ZNL

## MECHANICALS

### HM2113ZNL, HM2146NL, HM2147NL

### HM1236NL, HM1238NL



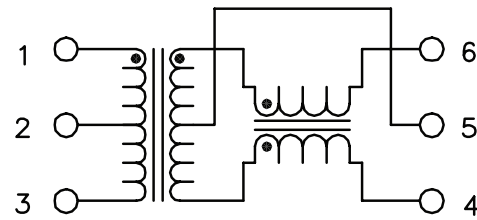
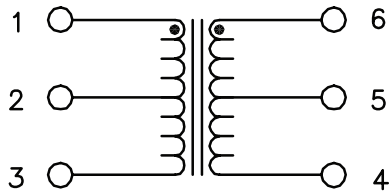
### Dimensions:

Unless otherwise specified,  
all tolerances are  $\pm 0,25$

## SCHEMATICS

### HM21464NL, HM2147NL

### HM2113NL



### HM1236NL, HM1238NL

