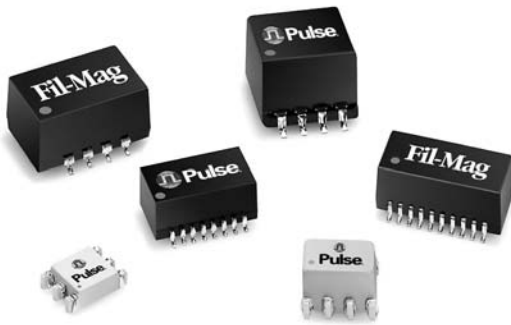






# SURFACE MOUNT COMMON MODE CHOKES

## Suited for LAN and Telecom Applications



-  Reduces radiated EMI emissions
-  Filters common mode noise for EMI reduction
-  Common mode attenuation from 100 kHz to 1 GHz
-  Tape & Reel packaging available for surface mount parts\*

### Electrical Specifications @ 25°C

Part Number	No. of Lines	Primary Inductance OCL (μH MIN)	Common Mode Attenuation (dB TYP)										DCR (Ω MAX)	Page Number of Mech. & Schem.
			100 KHz	1 MHz	10 MHz	30 MHz	50 MHz	100 MHz	300 MHz	500 MHz	1 GHz			
PE-68624	2	47	11	27	40	44	42	36	26	17	—	0.40	2	
PE-65855	2	4700	41	43	49	39	34	26	20	20	12	1.0	4	
B2013	2	6300	46	47	43	32	25	29	21	14	16	1.0	3	
B4003	2	4700	42	41	48	38	33	21	22	23	17	1.0	6	
R0003	3	20	6	14	27	30	30	30	30	28	25	0.40	2	
23Z87SM	3	69	9	24	31	30	29	27	21	16	—	0.20	4	
PE-65857	4	22.5	7	20	30	37	38	34	24	13	—	0.22	4	
PE-68627	4	24	8	21	32	36	37	36	30	20	—	0.25	4	
T8003	4	33	9	13	32	32	30	27	16	17	13	0.20	6	
23Z4000SMD	4	36	7	23	35	38	38	36	29	24	—	0.50	5	
PE-65738	4	37	8	21	28	28	28	27	25	22	—	0.30	3	
PE-65854	4	47	3	19	32	36	35	29	12	6	—	0.40	3	
23Z104SM	4	68	8	22	28	28	27	25	20	15	—	0.20	5	
PE-67540	4	100	14	33	44	48	49	44	34	29	20	0.60	4	
PE-65853	4	4700	40	51	38	30	25	20	14	13	—	1.20	3	
PE-68602	6	21	6	19	28	34	35	36	34	29	1	0.35	3	
23Z106SM	6	68	8	22	29	30	30	29	24	19	—	0.20	5	
PE-69011	8	36	8	24	36	39	35	29	18	11	—	0.35	3	
23Z105SM	8	68	8	24	30	29	27	24	16	11	—	0.20	5	
23Z109SM	10	7.5	4	9	20	25	26	24	16	11	—	0.20	5	
T8008	16	47	7	27	40	44	42	36	26	—	—	0.40	6	

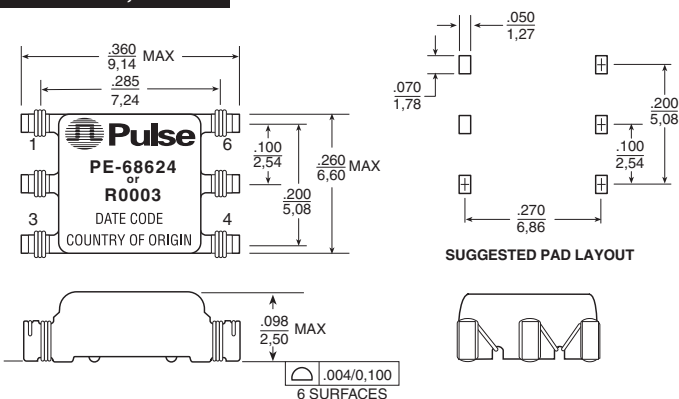
\* When ordering Tape & Reel packaging, add a "T" at the end of the part number (i.e. PE-65738T or 23Z106SMT).

**NOTE:** Additional common mode chokes are available. Please contact Applications Engineering.

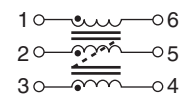
## Mechanicals

## Schematics

### PE-68624, R0003



### R0003



Connect unused pin to logic ground for optimum performance.

### PE-68624



# SURFACE MOUNT COMMON MODE CHOKES

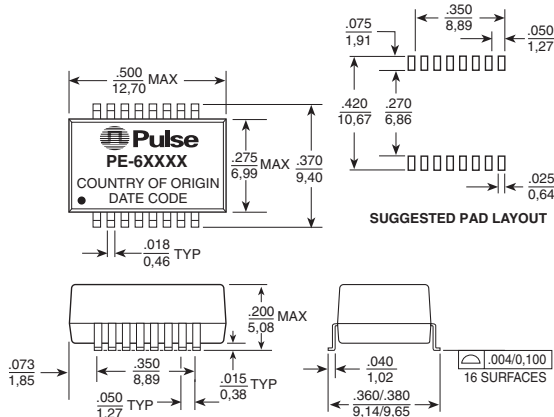
Suited for LAN and Telecom Applications



## Mechanicals

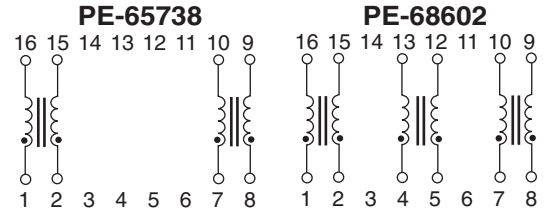
## Schematics

### PE-65738, PE-68602, PE-69011

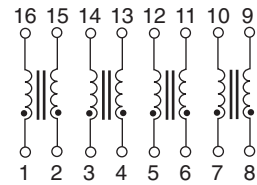


Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

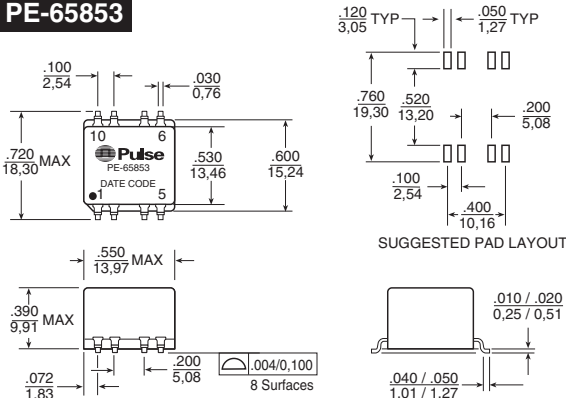
Weight . . . . .0.83 grams  
Tape & Reel . . . . .900/reel  
Tube . . . . .40/tube



### PE-69011



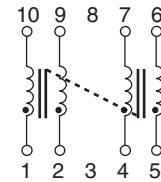
### PE-65853



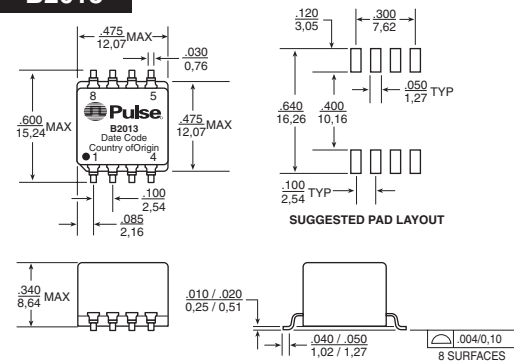
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

Weight . . . . .4.0 grams  
Tape & Reel . . . . .150/reel  
Tube . . . . .35/tube

### PE-65853



### B2013



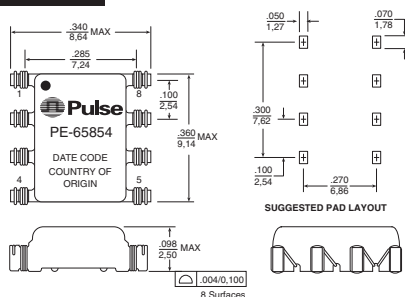
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

Weight . . . . .9.5 grams  
Tray . . . . .30/tray

### B2013



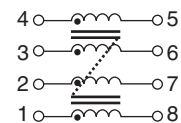
### PE-65854



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

Weight . . . . .0.3 grams  
Tape & Reel . . . . .1500/reel  
Tube . . . . .60/tube

### PE-65854



# SURFACE MOUNT COMMON MODE CHOKES

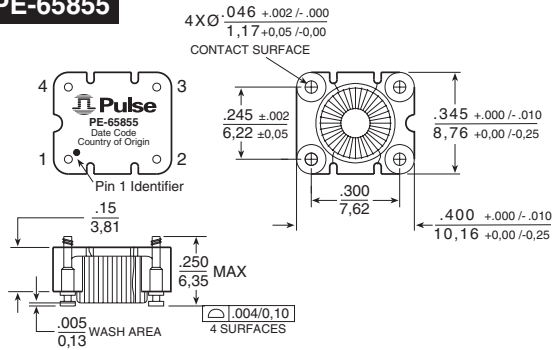
Suited for LAN and Telecom Applications



## Mechanicals

## Schematics

### PE-65855



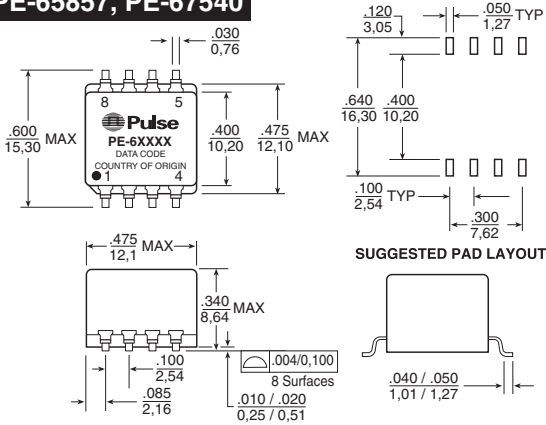
**Dimensions:** Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .010$   
 $0,25$

**Weight** . . . . . 0.69 grams  
**Tape & Reel** . . . . . 800/reel  
**Tube** . . . . . 40 /tube

### PE-65855



### PE-65857, PE-67540

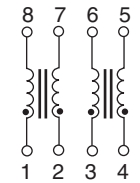
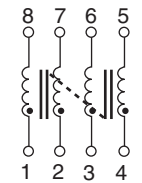


**Dimensions:** Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .010$   
 $0,25$

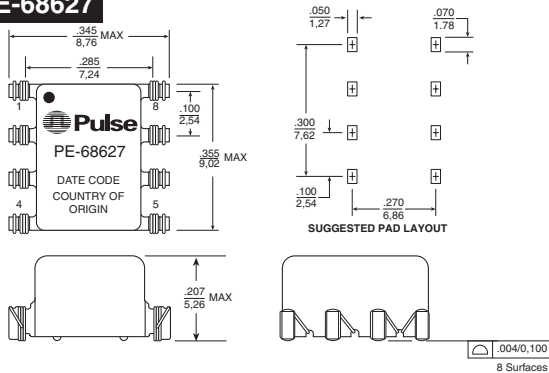
**Weight** . . . . . 2.0 grams  
**Tape & Reel** . . . . . 250/reel  
**Tube** . . . . . 40/tube

### PE-65857

### PE-67540



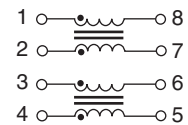
### PE-68627



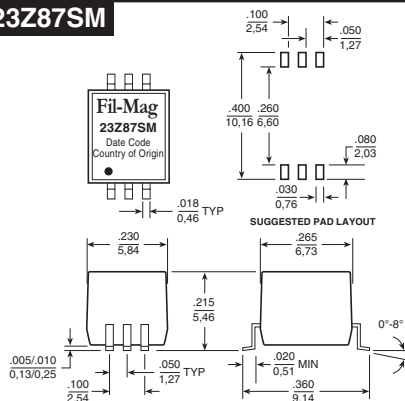
**Dimensions:** Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .010$   
 $0,25$

**Weight** . . . . . 0.3 grams  
**Tape & Reel** . . . . . 1500/reel  
**Tube** . . . . . 55/tube

### PE-68627



### 23Z87SM



**Dimensions:** Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .005$   
 $0,13$

**Weight** . . . . . 0.5 grams  
**Tape & Reel** . . . . . 750/reel  
**Tube** . . . . . 100/tube

### 23Z87SM



# SURFACE MOUNT COMMON MODE CHOKES

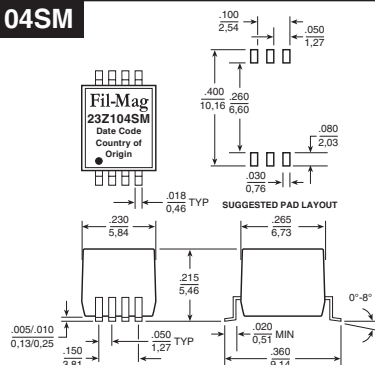
Suited for LAN and Telecom Applications



## Mechanicals

## Schematics

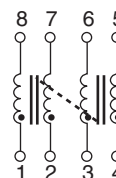
### 23Z104SM



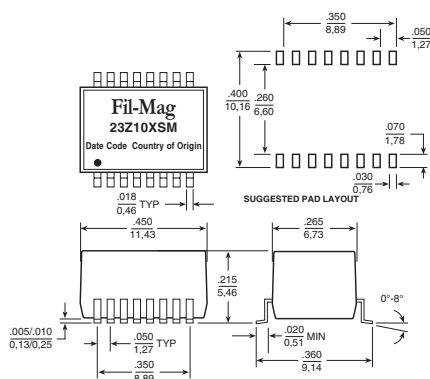
Dimensions: Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .005$   
 $0,13$

Weight ..... .0.5 grams  
Tape & Reel ..... .750/reel  
Tube ..... .100/tube

### 23Z104SM



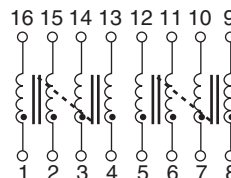
### 23Z105SM, 23Z106SM



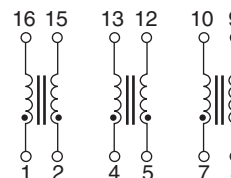
Dimensions: Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .005$   
 $0,13$

23Z105SM 23Z106SM  
Weight ..... .0.8 grams ..... .1.0 grams  
Tape & Reel ..... .750/reel ..... .750/reel  
Tube ..... .50/tube ..... .50/tube

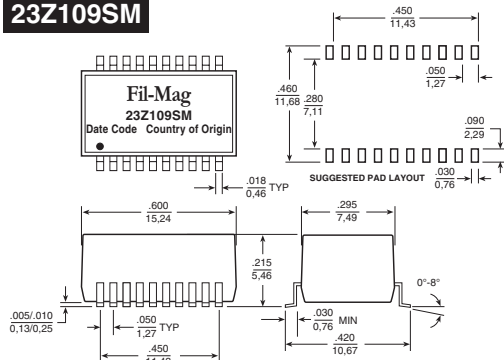
### 23Z105SM



### 23Z106SM



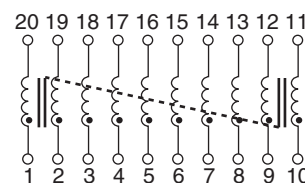
### 23Z109SM



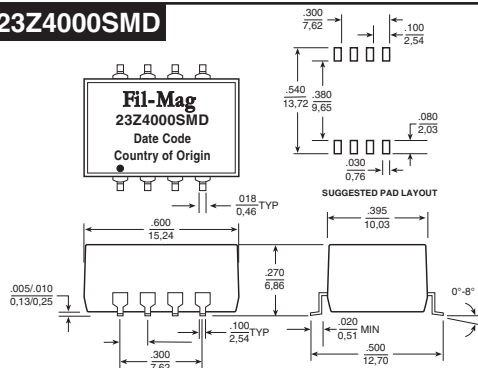
Dimensions: Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .005$   
 $0,13$

Weight ..... .1.3 grams  
Tape & Reel ..... .500/reel  
Tube ..... .38/tube

### 23Z109SM



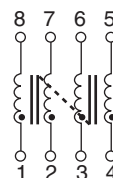
### 23Z4000SMD



Dimensions: Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .005$   
 $0,13$

Weight ..... .2.1 grams  
Tape & Reel ..... .350/reel  
Tube ..... .38/tube

### 23Z4000SMD



# SURFACE MOUNT COMMON MODE CHOKES

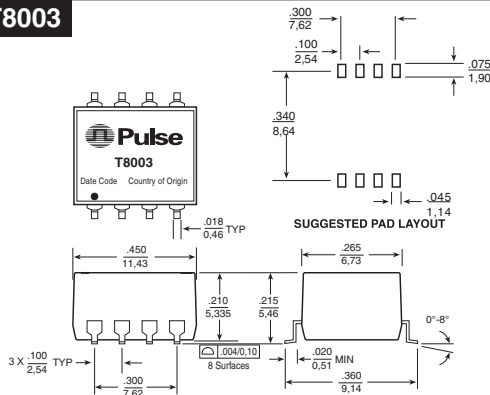
Suited for LAN and Telecom Applications



## Mechanicals

## Schematics

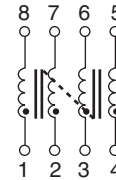
### T8003



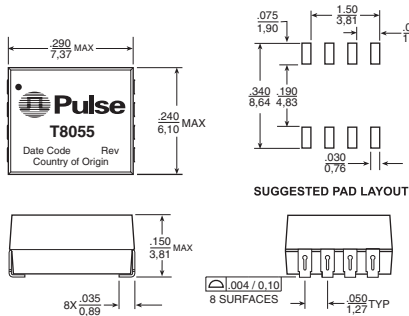
**Dimensions:**  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.005}{0,13}$

**Weight** ..... 0.84 grams  
**Tape & Reel** ..... .750/reel  
**Tube** ..... 100/tube

### T8003



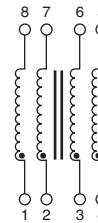
### T8055



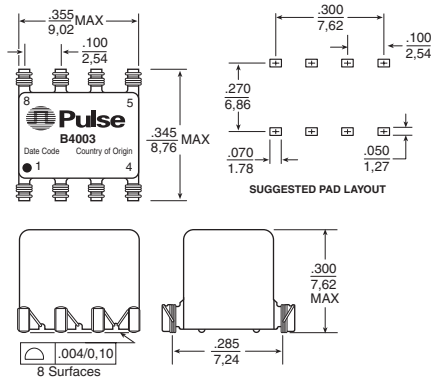
**Dimensions:**  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

**Weight** ..... 0.2 grams  
**Tape & Reel** ..... .1750/reel  
**Tube** ..... .80/tube

### T8055



### B4003



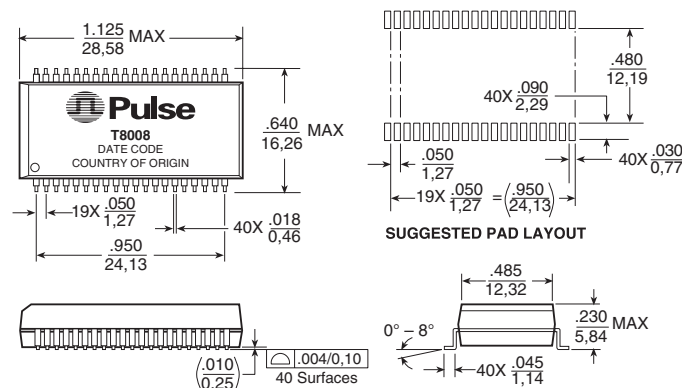
**Dimensions:**  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

**Weight** ..... 1.0 grams  
**Tape & Reel** ..... .425/reel  
**Tube** ..... .50/tube

### B4003



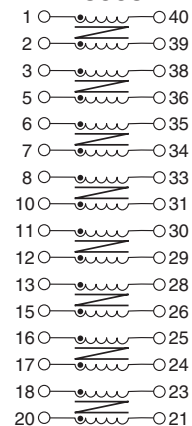
### T8008



**Dimensions:**  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

**Weight** ..... 4.0 grams  
**Tape & Reel** ..... .250/reel  
**Tube** ..... .15/tube

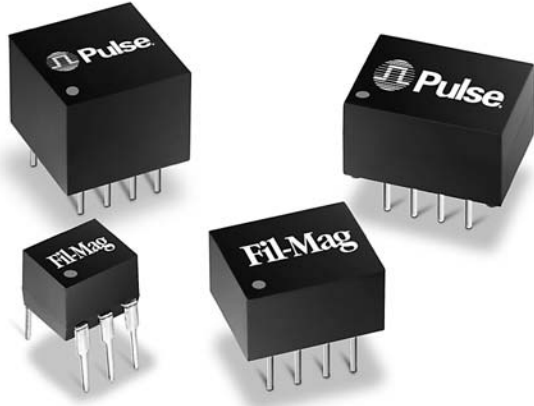
### T8008







**NOTE:** The common mode test circuit for surface mount is the same as for through hole and is on the back page.

# THROUGH HOLE COMMON MODE CHOKES

Suited for LAN and Telecom Applications



-  Reduces radiated EMI emissions
-  Filters common mode noise for EMI reduction
-  Common mode attenuation from 100 KHz to 1 GHz
-  Tube packaging available for through hole parts

## Electrical Specifications @ 25°C

Part Number	No. of Lines	Primary Inductance OCL (μH MIN)	Common Mode Attenuation (dB TYP)									DCR (Ω MAX)	Page Number of Mech. & Schem.
			100 KHz	1 MHz	10 MHz	30 MHz	50 MHz	100 MHz	300 MHz	500 MHz	1 GHz		
PE-65944	2	24	1	14	28	32	33	28	13	5	—	0.30	9
23Z107	2	68	8	25	33	32	30	27	18	12	—	0.20	10
PE-67531	2	140	14	34	45	49	50	47	38	32	25	0.60	9
B2005	2	9000	47	47	41	30	22	33	21	15	15	1.0	10
PE-65554	4	24	—	21	32	38	39	34	24	13	—	0.30	8
42Z4000	4	36	8	24	37	40	40	38	30	24	—	0.20	10
PE-67501	4	50	14	34	45	49	50	47	20	15	10	0.30	9
PE-68002	4	68	7	24	37	41	42	40	31	27	—	0.35	9
23Z104	4	85	8	23	29	29	28	25	17	11	—	0.20	10
PE-67539	4	140	14	33	44	48	48	43	33	28	19	0.60	9
PE-65542	4	1000	28	41	42	32	22	—	—	—	—	0.70	8
PT5039	4	3600	42	43	42	32	27	17	15	9	13	0.50	8
J0010D11	4	—	9	13	32	35	35	29	13	24	19	0.50	11
PE-65950	4	4700±30%	40	51	37	28	23	20	—	—	—	1.00	8
PE-65541	4	6000	44	54	33	32	29	—	—	—	—	1.40	8
PE-68613	4	3290	40	51	37	28	23	20	—	—	—	1.00	11
PE-64683	6	25	6	18	32	38	37	32	21	17	—	0.35	8

# THROUGH HOLE COMMON MODE CHOKES

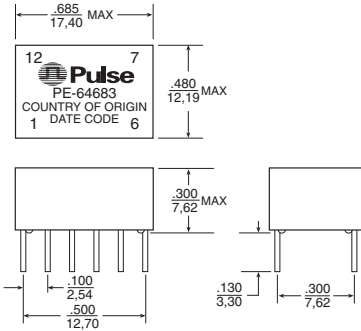
Suited for LAN and Telecom Applications



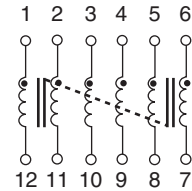
## Mechanicals

## Schematics

### PE-64683



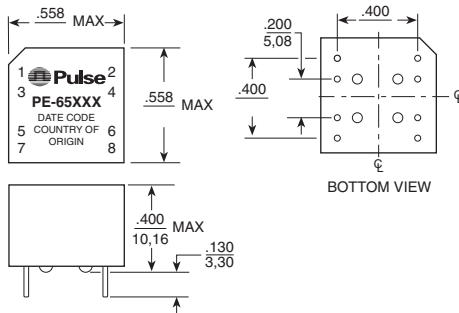
### PE-64683



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

Weight .....0.27 grams  
Tube .....30/tube

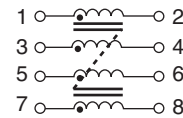
### PE-65541, PE-65542, PE-65950



### PE-65541

### PE-65542

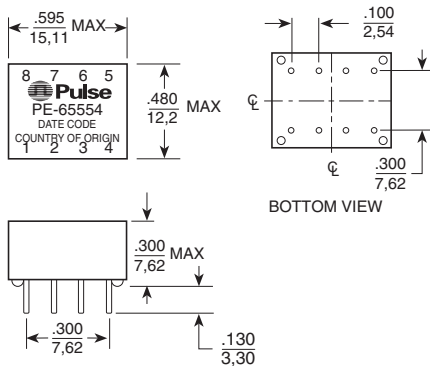
### PE-65950



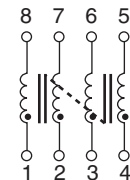
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

Weight .....0.38 grams  
Tube .....35/tube

### PE-65554



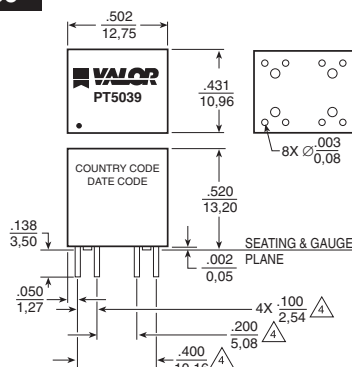
### PE-65554



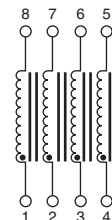
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

Weight .....2.5 grams  
Tube .....35/tube

### PT5039



### PT5039



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

Weight .....2.5 grams  
Tube .....35/tube

# THROUGH HOLE COMMON MODE CHOKES

Suited for LAN and Telecom Applications

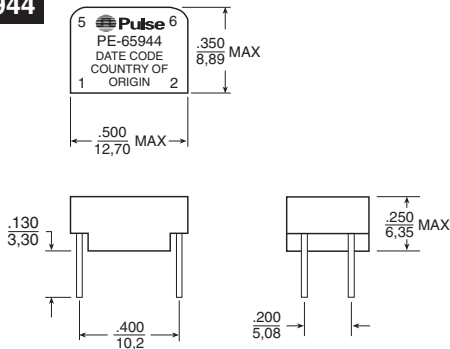


**Pulse**  
A TECHNITROL COMPANY

## Mechanicals

## Schematics

### PE-65944



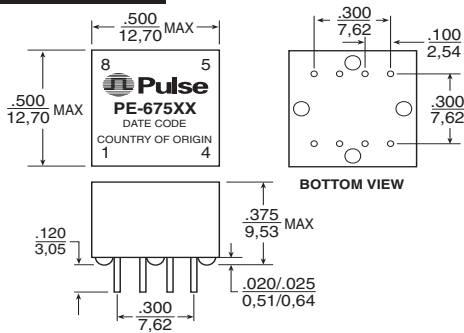
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

### PE-65944



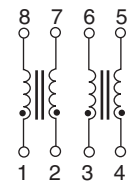
Weight .....1.07 grams  
Tube ..... .30/tube

### PE-67501, PE-67539



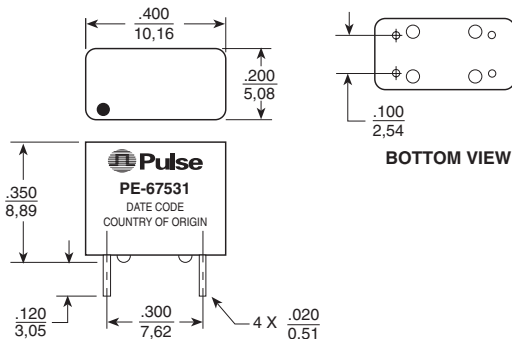
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

### PE-67501 PE-67539



Weight ..... .2.4 grams  
Tube ..... .40/tube

### PE-67531



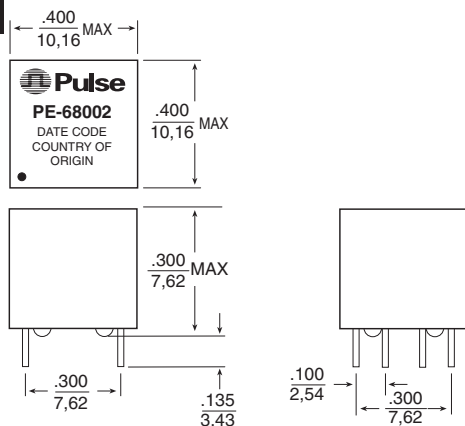
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

### PE-67531



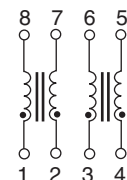
Weight ..... .0.76 grams  
Tube ..... .40/tube

### PE-68002



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

### PE-68002



Weight .....1.4 grams  
Tube ..... .50/tube



# THROUGH HOLE COMMON MODE CHOKES

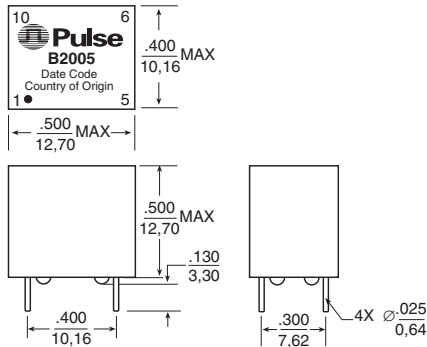
Suited for LAN and Telecom Applications



## Mechanicals

## Schematics

**B2005**

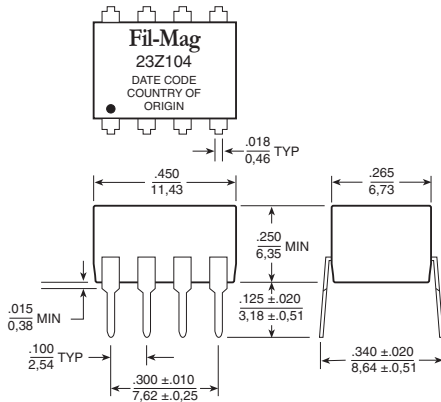


**Dimensions:** Inches  
mm  
Unless otherwise specified,  
all tolerances are ± .005  
0,13

**Weight** ..... 3.7 grams  
**Tube** ..... .40/tube

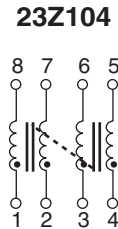


**23Z104**

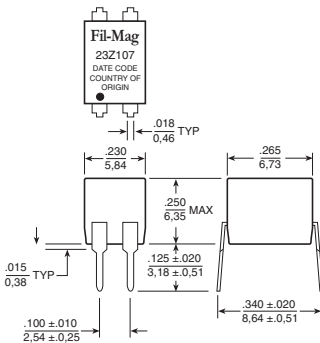


**Dimensions:** Inches  
mm  
Unless otherwise specified,  
all tolerances are ± .005  
0,13

**Weight** ..... 1.0 grams  
**Tube** ..... .50/tube

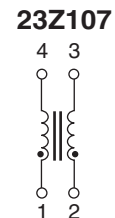


**23Z107**

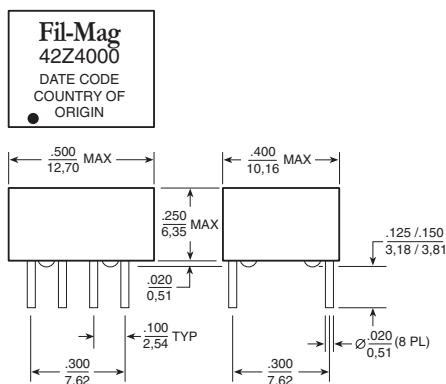


**Dimensions:** Inches  
mm  
Unless otherwise specified,  
all tolerances are ± .005  
0,13

**Weight** ..... 0.45 grams  
**Tube** ..... .100/tube

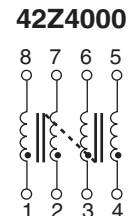


**42Z4000**



**Dimensions:** Inches  
mm  
Unless otherwise specified,  
all tolerances are ± .010  
0,25

**Weight** ..... 1.5 grams  
**Tube** ..... .47/tube



# THROUGH HOLE COMMON MODE CHOKES

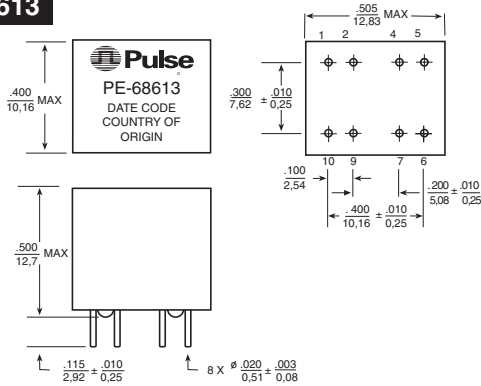
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## Mechanicals

## Schematics

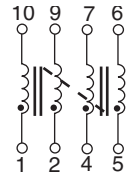
### PE-68613



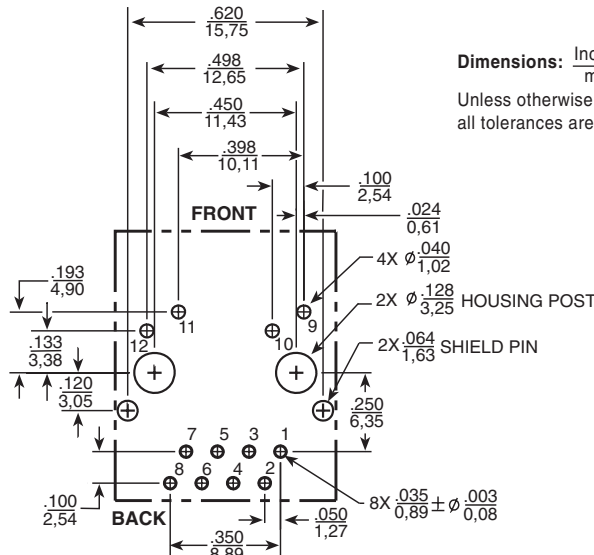
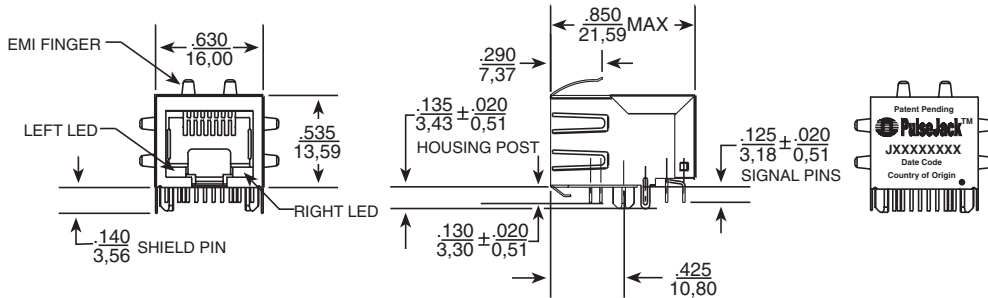
Dimensions: Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .005$   
0,127

Weight ..... 3.5 grams  
Tube ..... .40/tube

### PE-68613



### J0010D11 - Filtered Connector



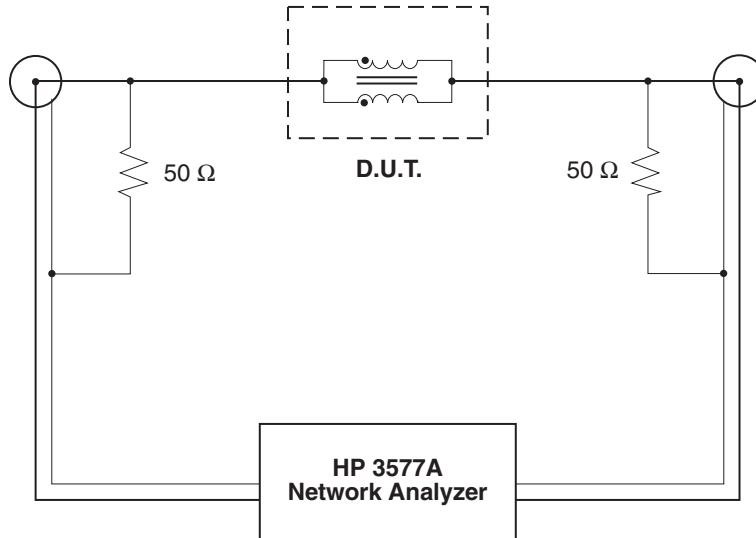
Dimensions: Inches  
mm  
Unless otherwise specified,  
all tolerances are  $\pm .010$   
0,25

# THROUGH HOLE COMMON MODE CHOKES

## Suited for LAN and Telecom Applications



### Common Mode Test Circuit for Surface Mount and Through Hole



#### Test Notes:

1. Network analyzer calibrated to compensate for 50  $\Omega$  resistors.
2. All windings on a core are connected in parallel for the test.
3. For multi-core chokes, test data is for one core only. The windings on the other core(s) are left unconnected (i.e. open).

#### For More Information:

##### Pulse Worldwide Headquarters

12220 World Trade Dr.  
San Diego, CA 92128  
U.S.A.

[www.pulseeng.com](http://www.pulseeng.com)

##### Pulse European Headquarters

Einsteinstrasse 1  
71083 Herrenberg  
Germany

##### Pulse China Headquarters

B402, Shenzhen  
Tech-Innovation International  
10th Kejinan Rd.  
High-Tech Industrial Park  
Nanshan District, Shenzhen  
China

##### Pulse North China

Room 1503  
XinYin Building  
No. 888 YiShan Road  
Shanghai 200233  
China

##### Pulse South Asia

150 Kampong Ampat  
#07-01/02  
KA Centre  
Singapore 368324

##### Pulse North Asia

No. 26  
Kao Ching Road  
Yang Mei Chen  
Taoyuan Hsien  
Taiwan, R. O. C.

TEL: 858 674 8100  
FAX: 858 674 8262

TEL: 49 7032 7806 0  
FAX: 49 7032 7806 12

TEL: 86 755 33966678  
FAX: 86 755 33966700

TEL: 86 21 54643211/2  
FAX: 86 21 54643210

TEL: 65 6287 8998  
FAX: 65 6280 0080

TEL: 886 3 4641811  
FAX: 886 3 4641911

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