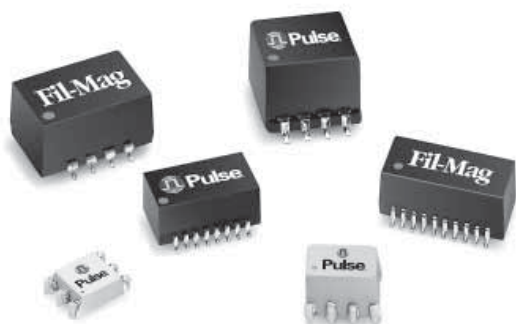


SURFACE MOUNT COMMON MODE CHOKES

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 Ports	Primary Inductance OCL (μH MIN)	Common Mode Attenuation (db TYP)									DCR (Ω MAX)	Page Number 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
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-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
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

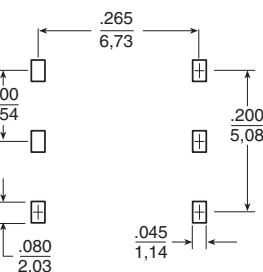
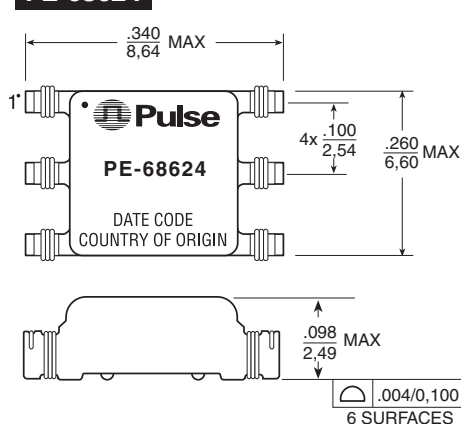
* When ordering Tape & Reel packaging, add a "T" at the end of the part number (i.e. PE-65738T or 23Z106SMT).

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

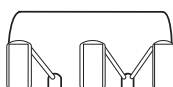
Mechanical

Schematic

PE-68624



SUGGESTED PAD LAYOUT



PE-68624



Weight 0.17 grams
Tape & Reel 1500/reel
Tube 85/tube

SURFACE MOUNT COMMON MODE CHOKES

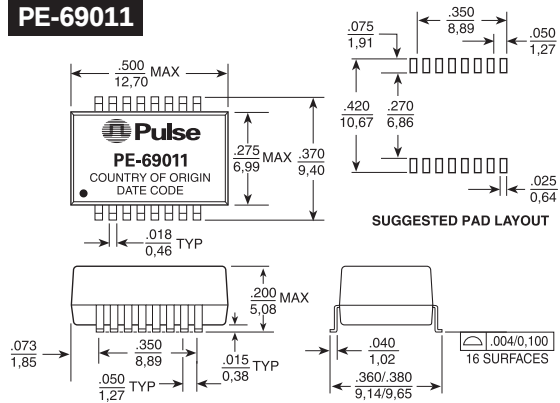
Suited for LAN and Telecom Applications



Mechanical

Schematic

PE-69011



Dimensions: Inches
mm

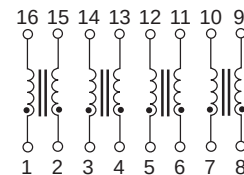
Unless otherwise specified,
all tolerances are $\pm .010$
0,25

Weight 0.83 grams

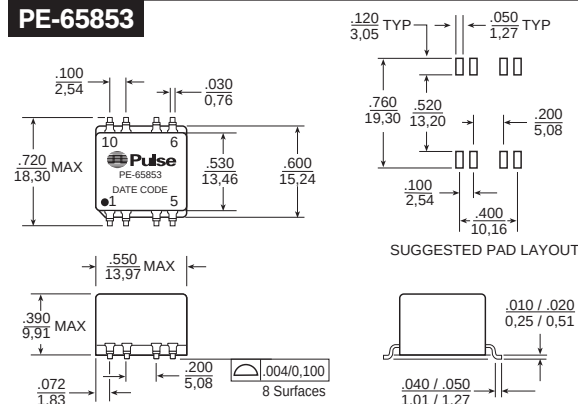
Tape & Reel 900/reel

Tube 40/tube

PE-69011



PE-65853



Dimensions: Inches
mm

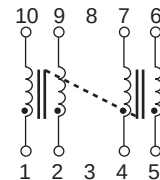
Unless otherwise specified,
all tolerances are $\pm .010$
0,25

Weight 4.0 grams

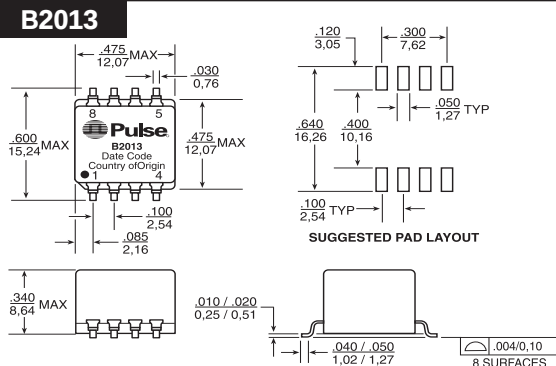
Tape & Reel 150/reel

Tube 35/tube

PE-65853



B2013



Dimensions: Inches
mm

Unless otherwise specified,
all tolerances are $\pm .010$
0,25

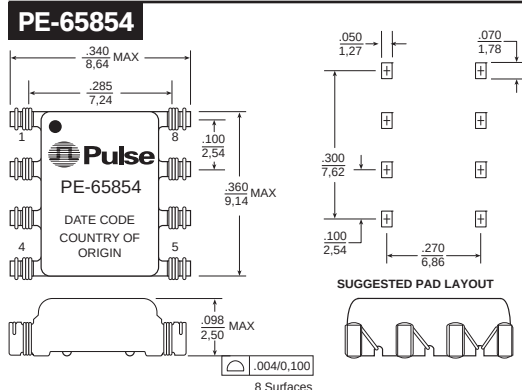
Weight 9.5 grams

Tray 30/tray

B2013



PE-65854



Dimensions: Inches
mm

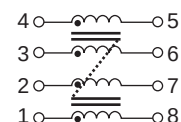
Unless otherwise specified,
all tolerances are $\pm .010$
0,25

Weight 0.3 grams

Tape & Reel 1500/reel

Tube 60/tube

PE-65854



Schematic

4XØ .046 $\begin{smallmatrix} +.002/-0.000 \\ 1,17 \pm 0,05/-0,00 \end{smallmatrix}$

CONTACT SURFACE

3

2

r

MAX

4 SURFACES

Technical drawing of a contact surface. The drawing shows a square component with four circular contact points. Dimensions and tolerances are provided for various features:

- Overall width: $.300 \pm 0,05$
- Overall height: $.345 \pm 0,010$
- Distance between contact points (center-to-center): $.300 \pm 0,05$
- Distance from edge to contact point center: $.150 \pm 0,025$
- Distance from edge to contact point center (alternative dimension): $.10,16 \pm 0,00/-0,25$
- Distance from edge to contact point center (alternative dimension): $.250 \pm 0,025$
- Distance from edge to contact point center (alternative dimension): $.10,16 \pm 0,00/-0,25$
- Surface finish: $.004/0,10$ 4 SURFACES

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

PE-65857, PE-67540

Top view dimensions: .030 / 0,76 (pin pitch), .600 / 15,30 MAX (overall width), .475 / 12,10 MAX (overall height), .400 / 10,20 (body width), .120 / 3,05 (top pad width), .050 / 1,27 TYP (top pad spacing), .100 / 2,54 TYP (bottom pad width), .300 / 7,62 (bottom pad spacing).

Side view dimensions: .475 / 12,1 MAX (overall height), .340 / 8,64 MAX (body height), .100 / 2,54 (pin height), .085 / 2,16 (pin spacing), .010 / .020 / 0,25 / 0,51 (lead thickness).

Markings on package: 8, Pulse, PE-6XXXX, DATA CODE, COUNTRY OF ORIGIN, 1, 4.

SUGGESTED PAD LAYOUT

Pad dimensions: .040 / .050 / 1,01 / 1,27 (pad width), .004/0,100 / 8 Surfaces (lead thickness).

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

PE-68627

DATE CODE
COUNTRY OF
ORIGIN

SUGGESTED PAD LAYOUT

Dimensions (inches / millimeters):

- Top View: .345 MAX / 8.76, .285 / 7.24, .355 MAX / 9.02, .100 / 2.54
- Side View: .207 MAX / 5.26
- Suggested Pad Layout: .050 / 1.27, .070 / 1.78, .300 / 7.62, .100 / 2.54, .270 / 6.86

8 Surfaces

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

23Z87SM

Fil-Mag
23Z87SM
 Date Code
 Country of Origin

SUGGESTED PAD LAYOUT

Dimensions (inches / millimeters):

- Top View:
 - Overall Width: .230 (5.84)
 - Overall Height: .215 (5.46)
 - Pin Spacing: .100 (2.54)
 - Pin Width: .050 (1.27)
 - Pin Pitch: .050 (1.27) TYP
 - Pin Thickness: .005/.010 (0.13/0.25)
- Side View:
 - Overall Width: .265 (6.73)
 - Overall Height: .400 (10.16)
 - Pin Spacing: .100 (2.54)
 - Pin Width: .050 (1.27)
 - Pin Pitch: .050 (1.27) TYP
 - Pin Thickness: .005/.010 (0.13/0.25)
 - Pin Height: .080 (2.03)
 - Pin Angle: 0°-8°

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

SURFACE MOUNT COMMON MODE CHOKES

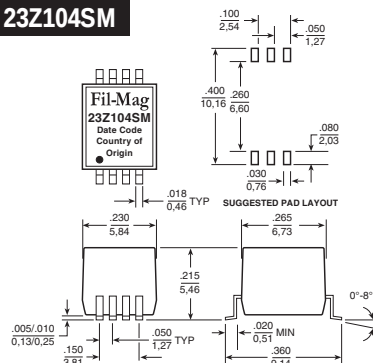
Suited for LAN and Telecom Applications



Mechanical

Schematic

23Z104SM



Dimensions: Inches
mm

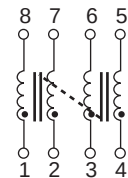
Unless otherwise specified,
all tolerances are $\pm .005$
0,13

Weight 0.5 grams

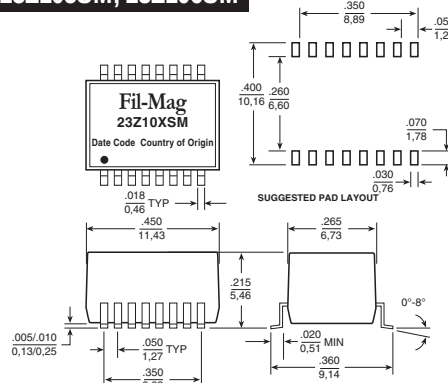
Tape & Reel 750/reel

Tube 100/tube

23Z104SM



23Z105SM, 23Z106SM



Dimensions: Inches
mm

Unless otherwise specified,
all tolerances are $\pm .005$
0,13

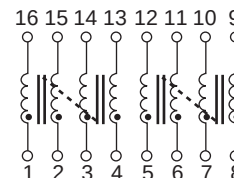
23Z105SM 23Z106SM

Weight 0.8 grams . . . 1.0 grams

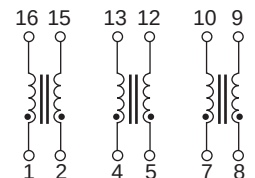
Tape & Reel 750/reel . . . 750/reel

Tube 50/tube . . . 50/tube

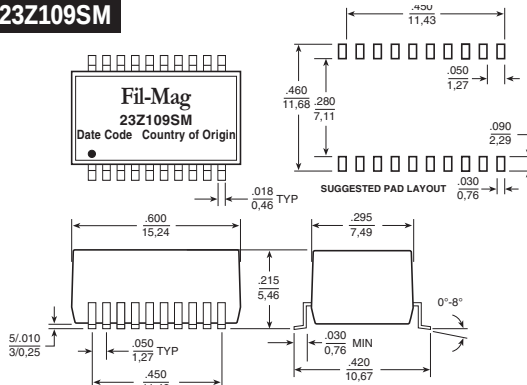
23Z105SM



23Z106SM



23Z109SM



Dimensions: Inches
mm

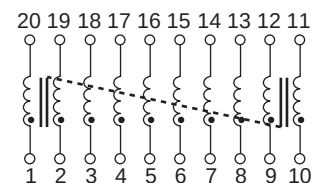
Unless otherwise specified,
all tolerances are $\pm .005$
0,13

Weight 1.3 grams

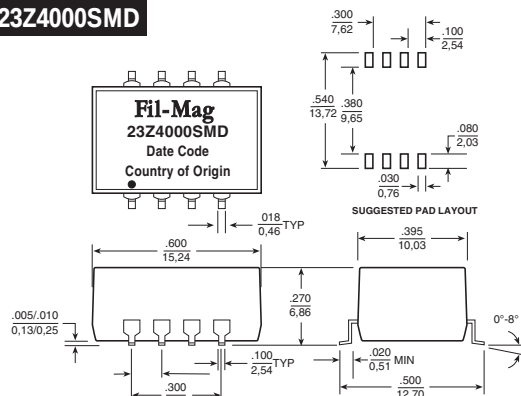
Tape & Reel 500/reel

Tube 38/tube

23Z109SM



23Z4000SMD



Dimensions: Inches
mm

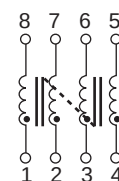
Unless otherwise specified,
all tolerances are $\pm .005$
0,13

Weight 2.1 grams

Tape & Reel 350/reel

Tube 38/tube

23Z4000SMD



SURFACE MOUNT COMMON MODE CHOKES

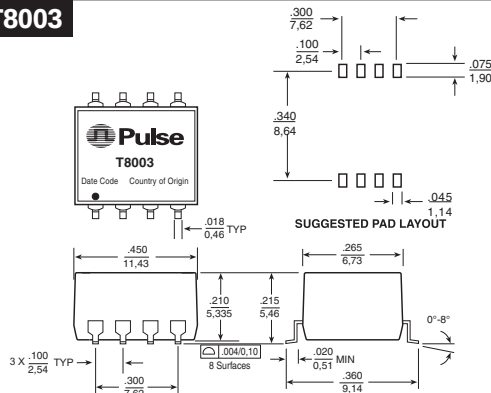
Suited for LAN and Telecom Applications



Mechanical

Schematic

T8003

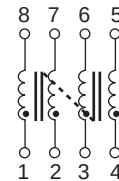


Dimensions: Inches
mm

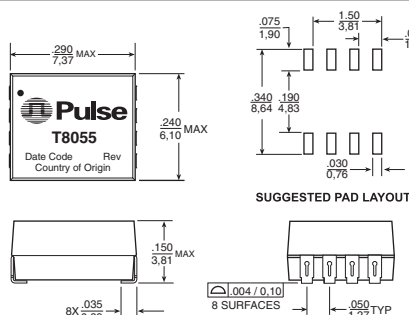
Unless otherwise specified,
all tolerances are $\pm .005$ -
0,13

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

T8003



T8055

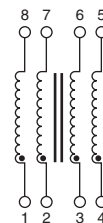


Dimensions: Inches
mm

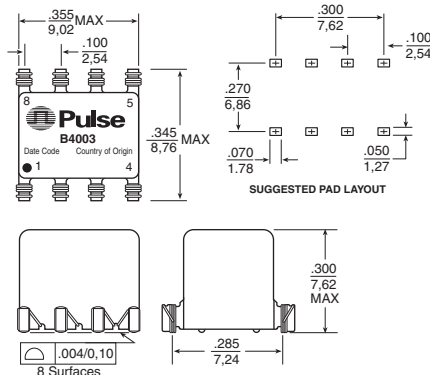
Unless otherwise specified,
all tolerances are $\pm .010$ -
0,25

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

T8055



B4003

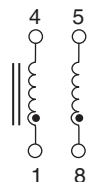


Dimensions: Inches
mm

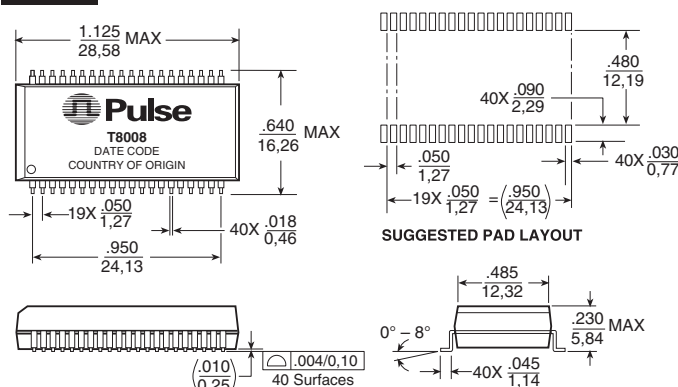
Unless otherwise specified,
all tolerances are $\pm .010$ -
0,25

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

B4003



T8008

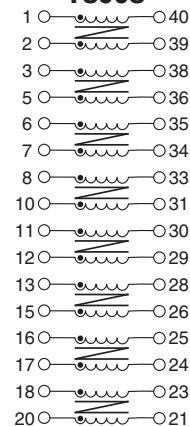


Dimensions: Inches
mm

Unless otherwise specified,
all tolerances are $\pm .010$ -
0,25

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

T8008



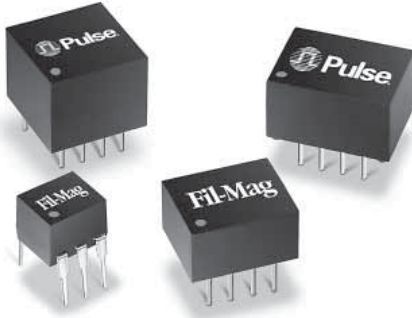
NOTE: The common mode test circuit for surface mount is the same as for through hole and is on the back page.

USA 858 674 8100 • Germany 49 7032 7806 0 • Singapore 65 6287 8998 • Shanghai 86 21 32181071 • China 86 755 33966678 • Taiwan 886 3 4643715

www.pulseeng.com

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

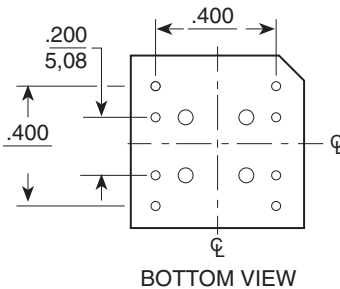
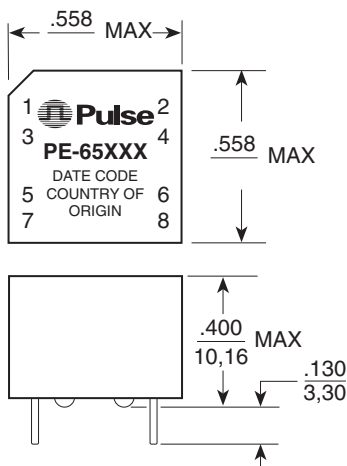
Electrical Specifications @ 25°C

Part Number	No. of Lines	Primary Inductance OCL (μH MIN)	Common Mode Attenuation (dB TYP)									DCR (Ω MAX)	Page Number 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	8
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
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	10
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	10

Mechanical

Schematic

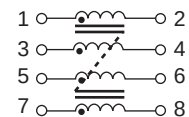
PE-65541, PE-65542, PE-65950



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

Weight 0.38 grams
Tube 35/tube

PE-65541 PE-65542 PE-65950



THROUGH HOLE COMMON MODE CHOKES

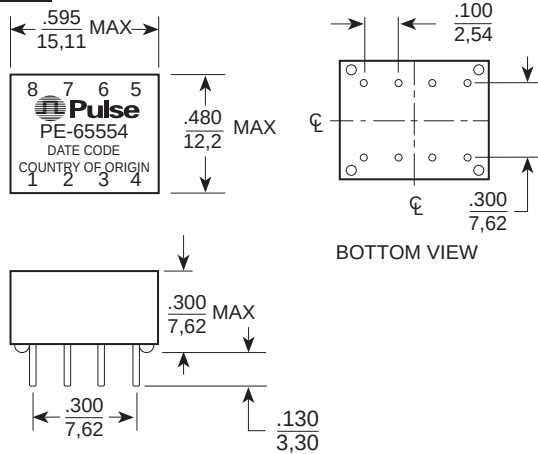
Suited for LAN and Telecom Applications



Mechanical

Schematic

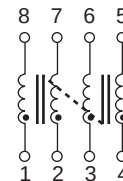
PE-65554



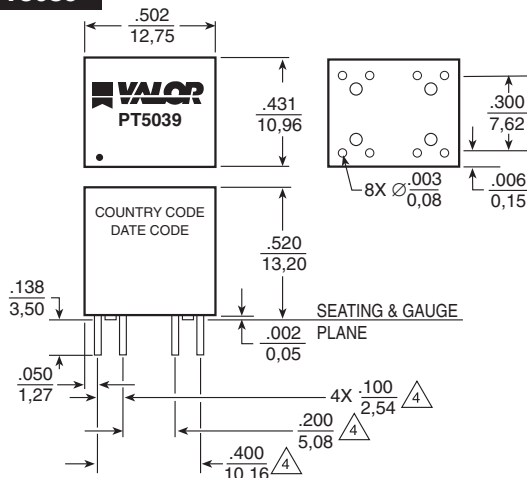
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
Unless otherwise specified,
all tolerances are $\pm \frac{.010}{0,25}$

Weight 2.5 grams
Tube 35/tube

PE-65554



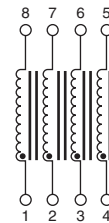
PT5039



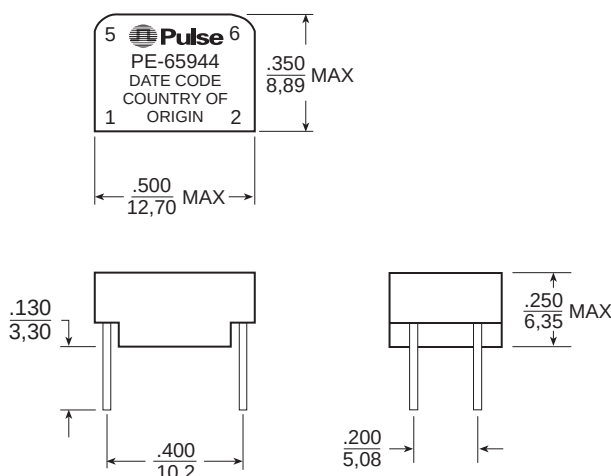
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
Unless otherwise specified,
all tolerances are $\pm \frac{.010}{0,25}$

Weight 2.5 grams
Tube 35/tube

PT5039



PE-65944



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

Weight 1.07 grams
Tube 30/tube

PE-65944



THROUGH HOLE COMMON MODE CHOKES

Suited for LAN and Telecom Applications

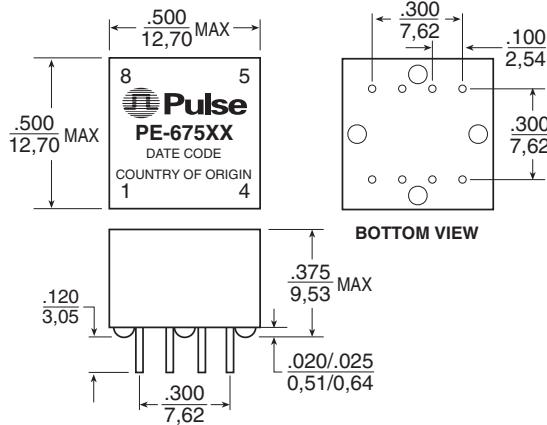


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Mechanical

Schematic

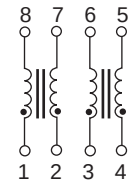
PE-67539



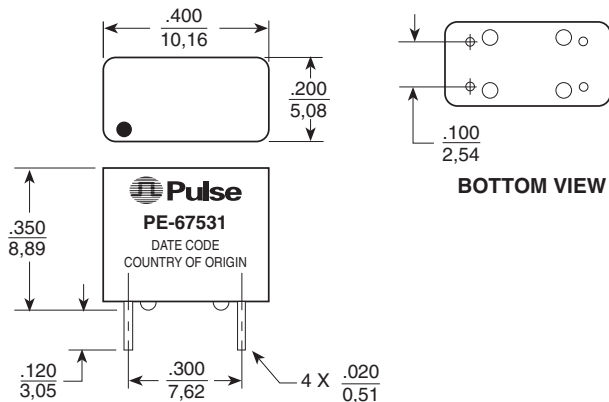
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
Unless otherwise specified,
all tolerances are $\pm \frac{.010}{0,25}$

Weight 2.4 grams
Tube 40/tube

PE-67539



PE-67531



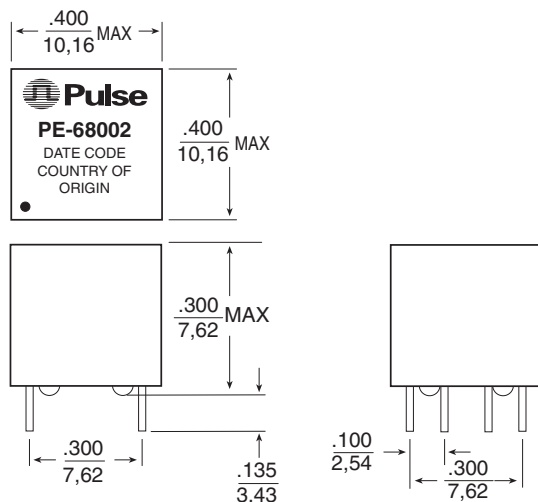
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
Unless otherwise specified,
all tolerances are $\pm \frac{.010}{0,25}$

Weight 0.76 grams
Tube 40/tube

PE-67531



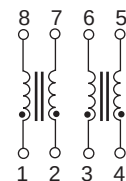
PE-68002



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

Weight 1.4 grams
Tube 50/tube

PE-68002



THROUGH HOLE COMMON MODE CHOKES

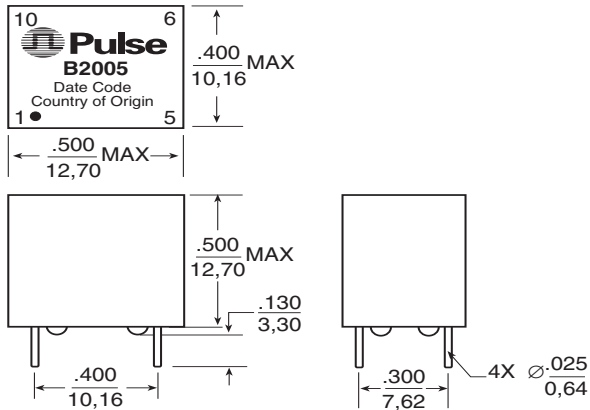
Suited for LAN and Telecom Applications



Mechanical

Schematic

B2005



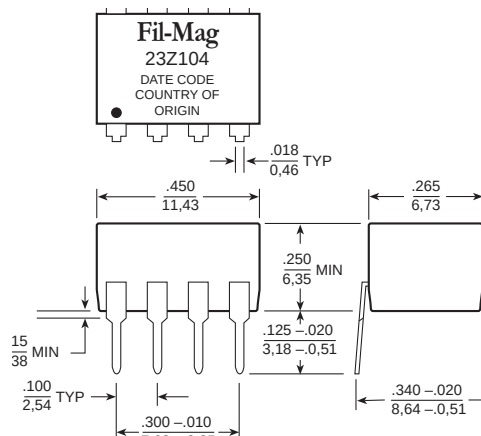
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
Unless otherwise specified,
all tolerances are $\pm \frac{.005}{0,13}$

Weight 3.7 grams
Tube 40/tube

B2005



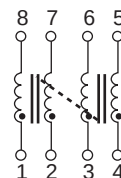
23Z104



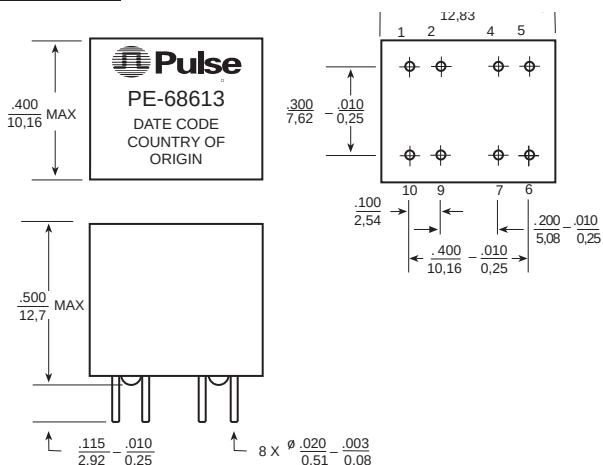
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
Unless otherwise specified,
all tolerances are $\pm \frac{.005}{0,13}$

Weight 1.0 grams
Tube 50/tube

23Z104



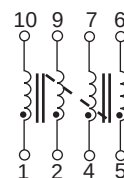
PE-68613



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

Weight 3.5 grams
Tube 40/tube

PE-68613

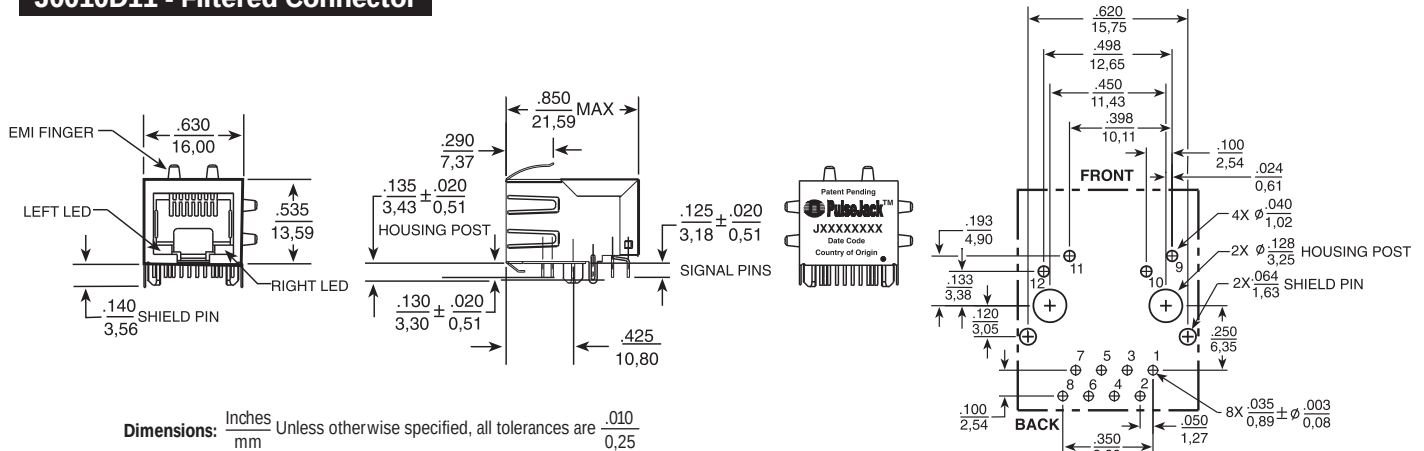


THROUGH HOLE COMMON MODE CHOKES

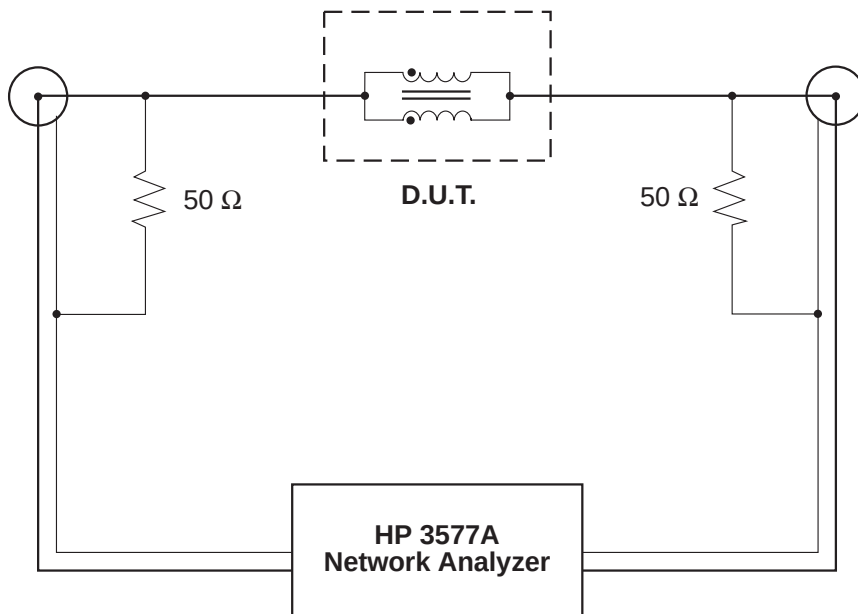
Suited for LAN and Telecom Applications



J0010D11 - Filtered Connector



Common Mode Test Circuit for Surface Mount and Through Hole



Test Notes:

1. Network analyzer calibrated to compensate for 50 Ω 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).

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