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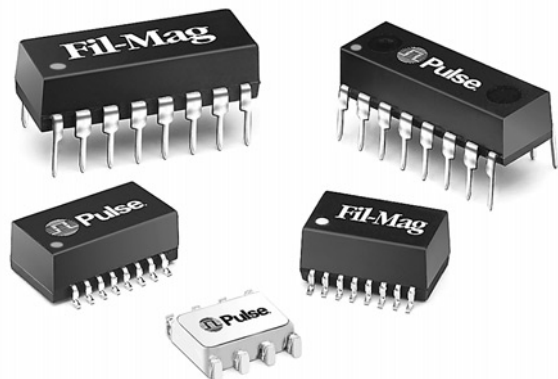
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ISOLATION TRANSFORMERS FOR 10BASE-T

For Adapter Cards, MAUs, Hubs,
and Motherboard Applications



- Designed to meet or exceed IEEE 802.3, 10Base-T specifications
- Available with common mode chokes for EMI suppression
- Surface mount, IC grade, transfer-molded package withstands 235°C peak temperature profile
- Through hole, auto-insertable, 16-pin DIP package

Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

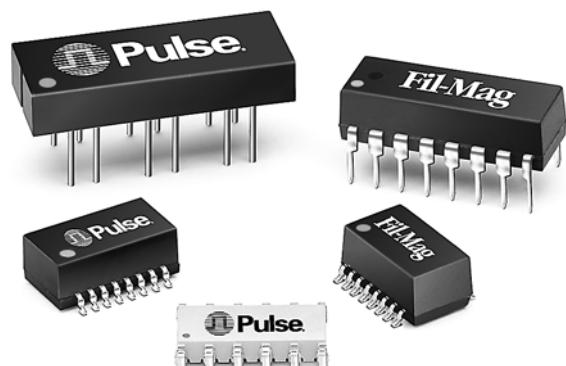
Part Number	Turns Ratio (±5%)		Primary Pins	Common Mode Choke	Sine Wave Inductance OCL ¹ (μH MIN)	Interwinding Capacitance C _{ww} ¹ (pF MAX)	Leakage Inductance L _L ¹ (μH MAX)	DCR (Ω MAX)	Hi-Pot (Vrms)	Schem.	Mech.
	Transmit	Receive									
SURFACE MOUNT ²										pages 6-7	pages 8-9
PE-65454	1:1.414	1:1	3-4/1-2		140	12	0.2	0.4	2000	T1	SMT2
E5017	1CT:1CT	1CT:1CT	1-3/6-8	X	200	10	0.25	1.0	1500	T6	SMT4
PE-65726	1CT:1CT	1CT:1CT	1-3/6-8		200	10	0.2	0.3	2000	T4	SMT4
23Z114SM	1CT:1CT	1CT:1CT	1-3/6-8		200	12	0.3	0.3	2000	T4	SMT5
PE-68048	1CT: 1.414CT	1CT:1CT	6-8/1-3	X	110	15	0.4	1.0	1500	T5	SMT4
PE-65745	1CT: 1.414CT	1CT:1CT	6-8/1-3		140	12	0.2	0.3	2000	T4	SMT4
23Z128SM	1CT:1.414CT	1CT:1CT	6-8/1-3		200	15	0.5	0.4	2000	T4	SMT5
E2023	1CT: 2.5CT	1CT: 1CT	6-8/1-3	X	200	15	0.5	0.4	2000	T10	SMT4
E4005	1CT: 2.5CT	1CT: 1CT	6-8/1-3	X	200	10	0.4	0.5	1500	T10	SMT4
EX2024 ³	1CT: 2.5CT	1CT:1CT	6-8/1-3	X	350	30	0.8	0.6	2000	T10	SMT4
23Z356SM	1CT:1.414CT	1CT:1CT	6-8/1-3	X	200	12	0.5	0.6	2000	T7	SMT5
23Z435SM	2CT:1CT	1CT:1CT	1-3/6-8		100	10	0.4	0.5	2000	T4	SMT5
PE-68052	2CT:1CT	1CT:1CT	1-3/6-8	X	140	12	0.3	1.0	1500	T6	SMT4
E4001	1CT:2CT	1CT:1CT	6-8/1-3	X	112	8	0.3	0.8	3000	T5	SMT4
PE-68041	1CT:2CT	1CT:1CT	6-8/1-3		112	8	0.3	0.5	1500	T4	SMT4
23Z467SM	1CT:2CT	1CT:1CT	6-8/1-3	X	140	12	0.2	0.6	2000	T7	SMT5
PE-68023	1CT:2CT	1CT:1CT	1-3/6-8	X	200	12	0.3	1.0	1500	T6	SMT4
PE-68042	2.828CT:1	1:1	2-4/7-9		200	14	1	0.5	1500	T9	SMT1
PE-68810	—	1:1 (4X)	1-2/3-4		140	12	0.2	0.4	2000	T3	SMT4
PE-68820	1:1.414 (4X)	—	1-2/3-4 5-6/7-8		140	12	0.2	0.4	2000	T3	SMT4
THROUGH HOLE										pages 6-7	page 10
23Z435	2CT:1CT	1CT:1CT	1-3/6-8		80	10	0.4	0.5	2000	T4	TH3
23Z128	1CT: 2CT	1CT:1CT	6-8/1-3		140	15	0.5	0.4	2000	T4	TH3
PE-65263	1CT:1CT	1CT:1CT	1-3/6-8		200	15	0.25	0.3	2000	T4	TH4

NOTES:

- OCL, C_{ww} and L_L are measured at 20 mVrms, 100 kHz.
- To order Tape & Reel packaging for surface mount parts, add the suffix "T" to the part number. Example: PE-65454T. The "T" will appear on all paper work, but will not be marked on parts.
- Part numbers denoted "EX" are extended temperature parts -40°C to 85°C, electrical specifications @ 25°C.

ISOLATION TRANSFORMERS FOR ETHERNET

AUI Transformers



- Low leakage inductance and coupling capacitance for faster rise times
- Small form factor, 50 mil lead spacing
- Through hole, auto-insertable, 16-pin DIP package

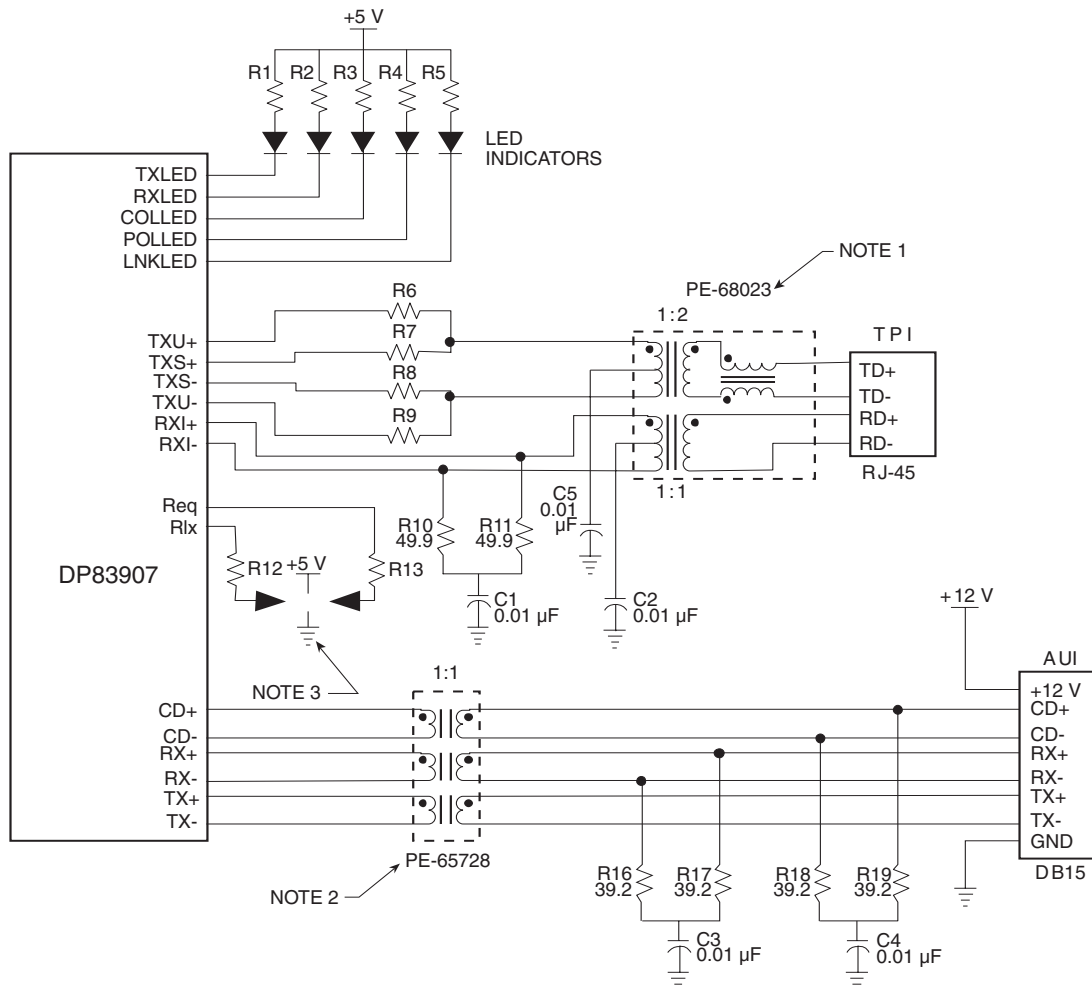
Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

Part Number	Turns Ratio (±5%)	Primary Pins	Primary Sine Wave OCL ¹ (μH ±20%)	Primary ET-Constant (V-μs MIN)	Rise Time ² (ns MAX)	Interwinding Capacitance C _{ww} ¹ (pF MAX)	Leakage Inductance L _L ¹ (μH MAX)	DCR (Ω MAX)	Schem.	Mech.	Hipot (Vrms)
SURFACE MOUNT ³									pages 6-7	pages 8-9	
E6002	1:1	1-2/4-5/7-8	40 (MIN)	2.1	3.0	8	0.20	0.25	T2	SMT4	2000
PE-65723	1:1	1-2/4-5/7-8	75	1.8	3.0	8	0.20	0.30	T2	SMT4	2000
PE-68801	1:1	1-2/3-4/5-6	75	1.8	3.0	12	0.20	0.30	T8	SMT3	2000
23Z90SM	1:1	1-2/4-5/7-8	75	2.4	3.0	10	0.20	0.20	T2	SMT5	2000
PE-65728	1:1	1-2/4-5/7-8	100	1.8	3.0	9	0.20	0.30	T2	SMT4	2000
23Z91SM	1:1	1-2/4-5/7-8	100	2.4	3.0	10	0.20	0.30	T2	SMT5	2000
PE-65727	1:1	1-2/4-5/7-8	150	1.2	3.0	12	0.20	0.30	T2	SMT4	2000
PE-65733	1:1	1-2/4-5/7-8	350	2.6	3.5	16	0.30	0.35	T2	SMT4	2000
23Z108SM	1:1	1-2/4-5/7-8	350	2.5	3.5	16	0.30	0.35	T2	SMT5	2000
THROUGH HOLE									pages 6-7	page 10	
PE-64102	1:1	1-2/4-5/7-8	75	2.1	3.0	10	0.20	0.20	T2	TH4	500
PE-64107	1:1	1-2/4-5/7-8	75	2.4	3.5	10	0.25	0.30	T2	TH2	2000
PE-64502	1:1	1-2/4-5/7-8	75	2.1	3.0	10	0.20	0.20	T2	TH4	2000
PE-64103	1:1	1-2/4-5/7-8	100	2.1	3.0	10	0.20	0.30	T2	TH4	500
PE-64108	1:1	1-2/4-5/7-8	100	2.1	3.5	10	0.25	0.40	T2	TH2	2000
PE-64503	1:1	1-2/4-5/7-8	100	2.1	3.0	10	0.20	0.30	T2	TH4	2000
PE-64104	1:1	1-2/4-5/7-8	150	2.1	3.5	12	0.20	0.30	T2	TH4	500
PE-64109	1:1	1-2/4-5/7-8	150	3.0	3.0	15	0.20	0.45	T2	TH2	2000

NOTES:

- OCL, C_{ww} and L_L are measured at 20 mVrms, 100 kHz.
- Rise time is measured in 75 Ω systems.
- To order Tape & Reel packaging for surface mount parts, add the suffix "T" to the part number.
Example: PE-65723T. The "T" will appear on all paper work, but will not be marked on parts.

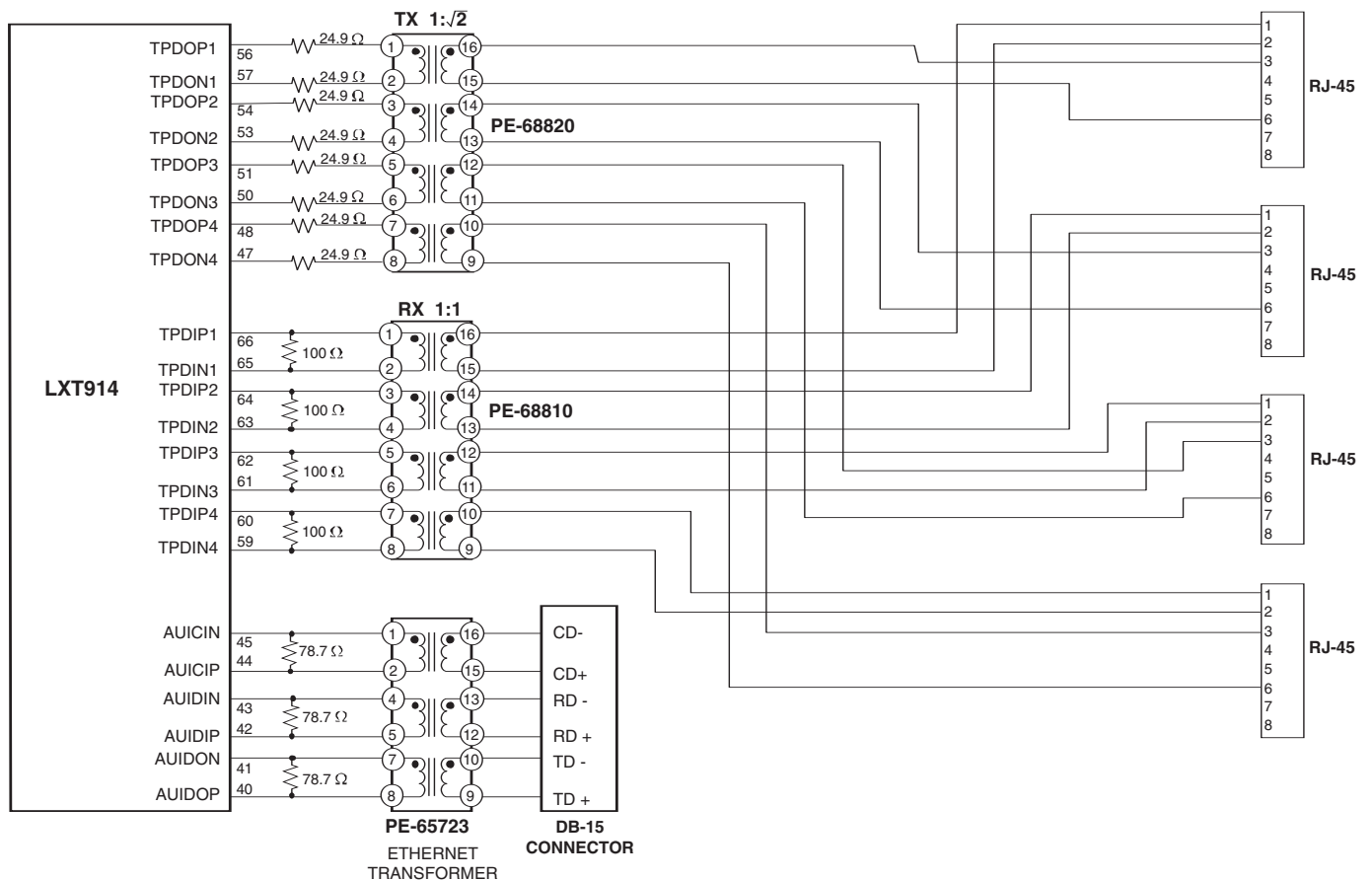
Typical Application Circuit



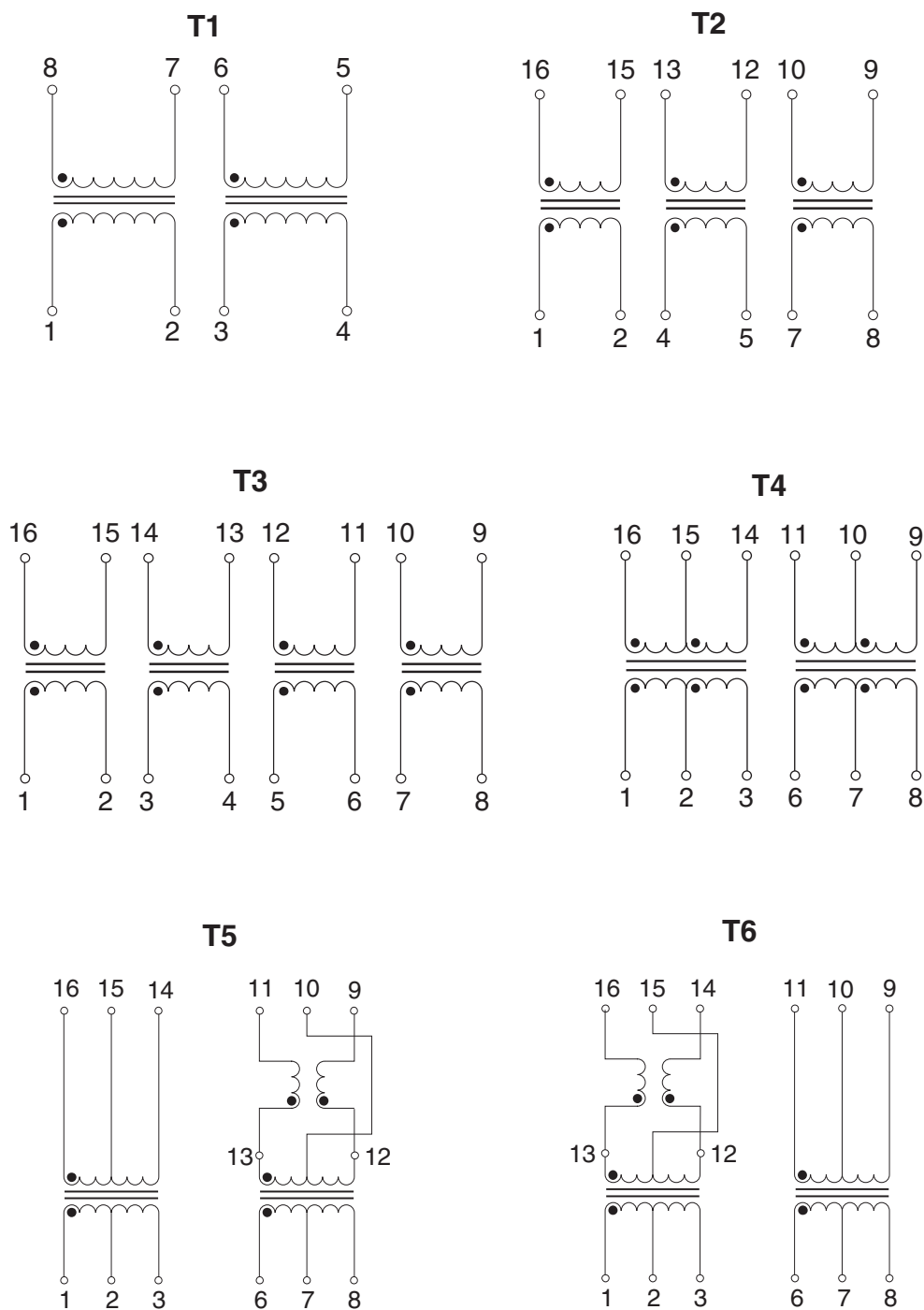
NOTES:

1. Connections at pins 12 and 13 apply to PE-68023 only. These are test points. **Do not ground.**
2. For specific information, see pages 2 and 3 in this catalog.
3. For specific connection, refer to National's Application Notes.

Typical 10Base-T Application Circuit

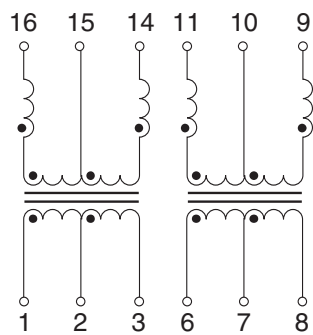


Schematics

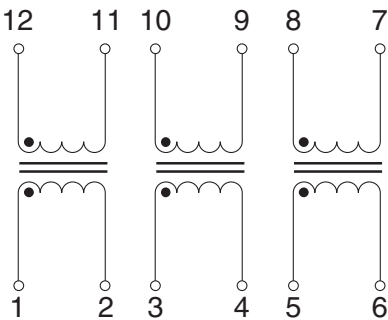


Schematics (continued)

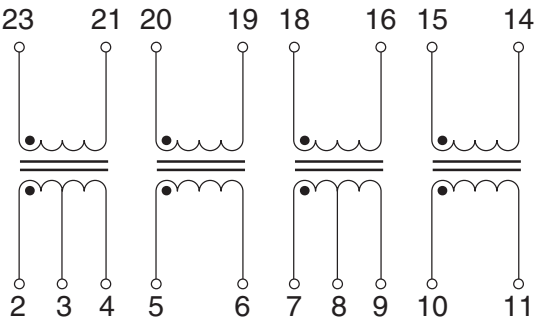
T7



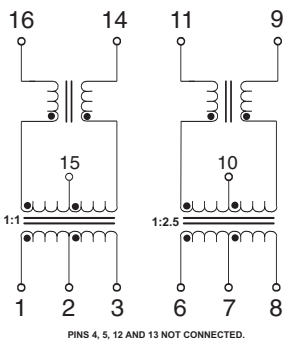
T8



T9



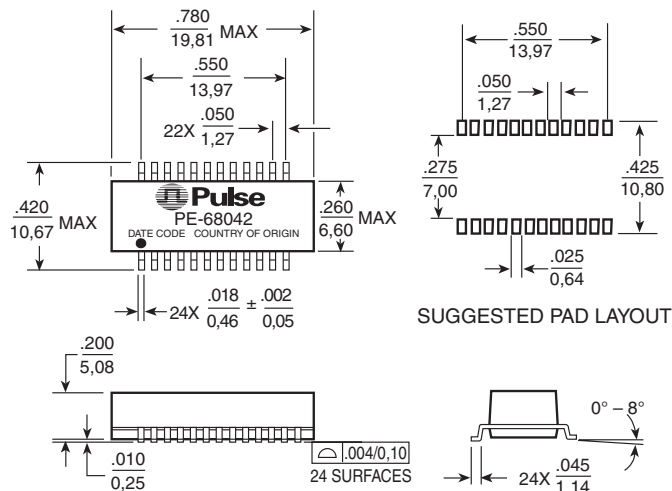
T10





Surface Mount Mechanicals

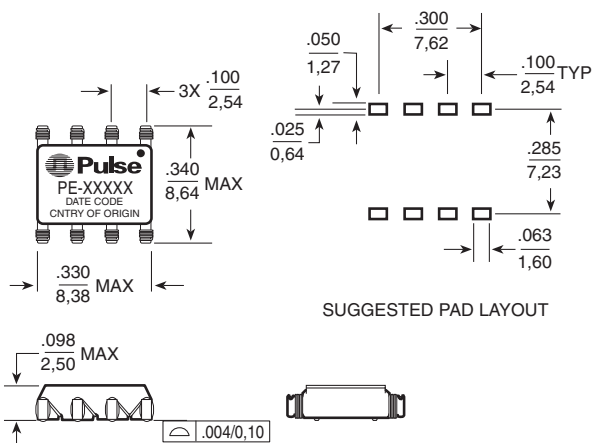
SMT1



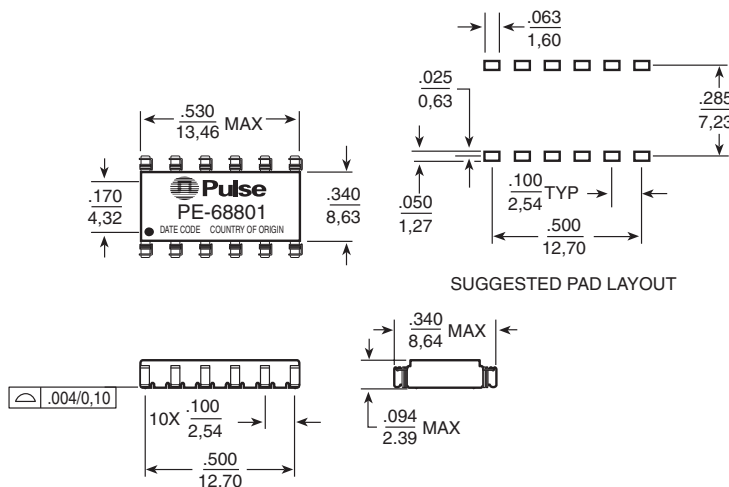
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified,
 all tolerances are $\pm .010$
 0,25

Weight 1.15 grams
Tube25/tube
Tape & Reel350/reel

SMT2



SMT3



Weight022 grams
Tube60/tube
Tape & Reel1500/reel

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

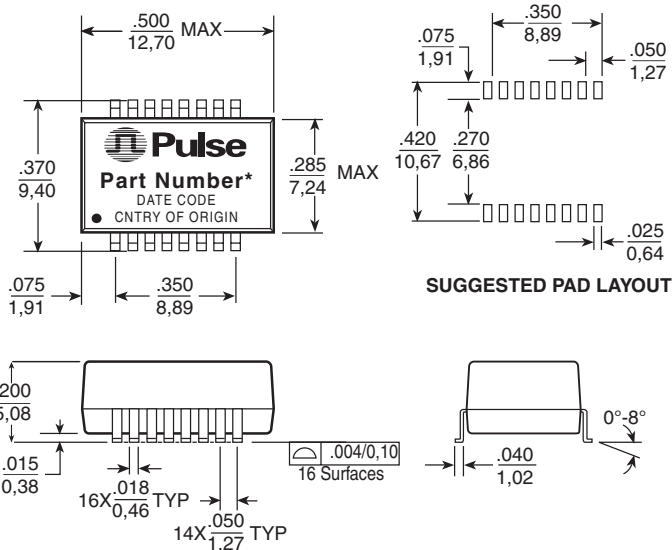
Weight028 grams
Tube35/tube
Tape & Reel1500/reel



Surface Mount Mechanicals (continued)

SMT4

*PE-6XXXX, EXXX, EX2XXX



Dimensions: $\frac{\text{Inches}}{\text{mm}}$

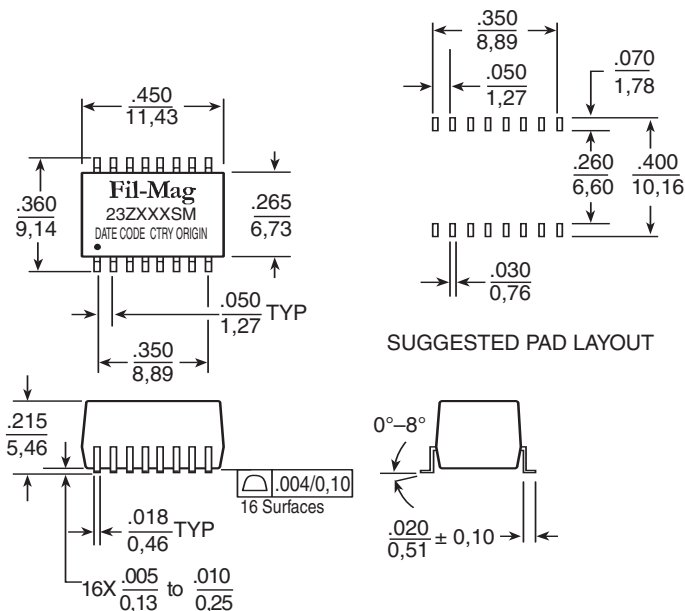
Unless otherwise specified, all tolerances are $\pm \frac{.010}{0,25}$

Weight 0.82 grams

Tube40/tube

Tape & Reel900/reel

SMT5



Dimensions: $\frac{\text{Inches}}{\text{mm}}$

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

Weight 0.85 grams

Tube50/tube

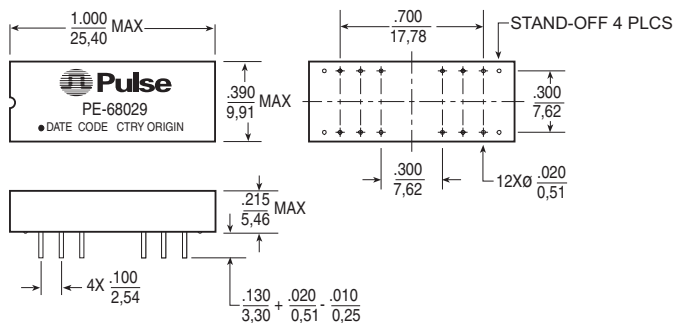
Tape & Reel750/reel

ISOLATION TRANSFORMERS



Through Hole Mechanicals

TH1



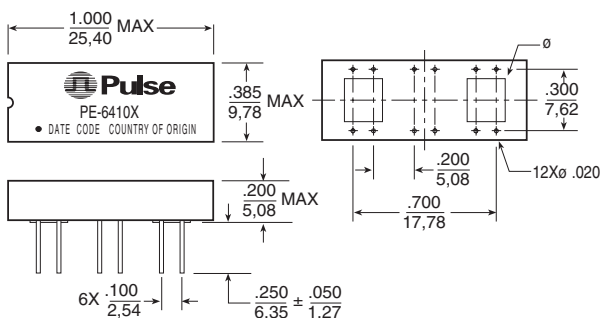
Dimensions: $\frac{\text{Inches}}{\text{mm}}$

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

Weight 2.17 grams

Tube20/tube

TH2



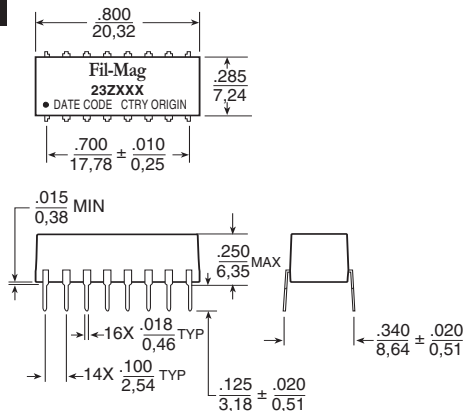
Dimensions: $\frac{\text{Inches}}{\text{mm}}$

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

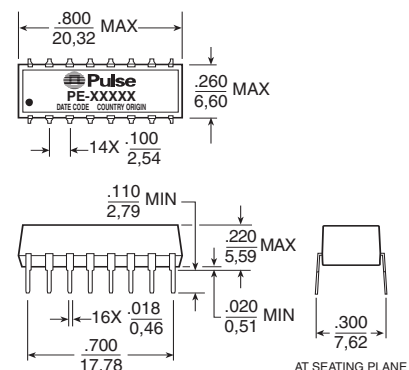
Weight 2.18 grams

Tube20/tube

TH3



TH4



Dimensions: $\frac{\text{Inches}}{\text{mm}}$

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

Weight 1.7 grams

Tube28/tube

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

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