

# TOKEN RING ISOLATION TRANSFORMERS

## Designed for 4 and 16 Mbps Applications



- ⊕ Dual low-profile surface mount packages
- ⊕ Low cost front-end solution
- ⊕ Ideal for concentrator and adapter card applications

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

Part Number	Turns Ratio (±2%)	Sine Wave Inductance OCL (μH MIN)	Rise Time (ns MAX)	Interwinding Capacitance (pF MAX)	Leakage Inductance (μH MAX)	DC Resistance (Ω MAX)		Schematic	Mechanical
						Pri	Sec		
<b>SURFACE MOUNT</b>									
PE-65736	1:1	75	—	15	0.18	0.3	0.3	T1	SMT2
PE-65737	1:1.21:1:1.21	75	—	15	0.18	0.22	1.0	T1	SMT2
PE-65738	1:1	50	—	—	—	—	1.0	T5	SMT2
PE-67562	1:1:2CT dual	710	—	15	0.70	—	—	T3	SMT2
23Z110SM	1:1:2:2	75	3	14	0.30	0.2	0.4	T2	SMT4
23Z111SM	1.22:1.22:1:1 ±5%	100	3	10	0.20	0.3	0.3	T6	SMT4
23Z112SM	1:1:2:2	60	3	14	0.30	0.2	0.4	T1	SMT3
23Z116SM	1:1:1:1	75	3	20	0.60	0.6	0.6	T2	SMT4
23Z126SM	1:1:1:1 ±3%	75 ±30%	5	25	0.20	1.0	1.0	T1	SMT3
23Z133SM	1.22:1.22:1:1 ±5%	250	3	15	0.50	0.4	0.4	T1	SMT3
23Z354SM	0.5:0.5:1.22:1.22	75	—	15	0.20	0.5	0.5	T2	SMT4
23Z807SM	1:1:2:2 ±3%	225	5	15	0.30	0.4	0.4	T4	SMT1

NOTE: Transformers are packaged in tubes, unless Tape & Reel is specified. Please add the suffix "T" for all Tape & Reel orders. For example: PE-67562T.



- ⊕ IEEE 802.5 compatible
- ⊕ Single and dual low profile packages
- ⊕ Proven reliable designs
- ⊕ Recommended by Texas Instruments since 1984

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

Part Number	Turns Ratio (±5%)	Sine Wave Inductance OCL (μH MIN)	Rise Time (ns MAX)	Interwinding Capacitance Cww (pF MAX)	Leakage Inductance LL (μH max)	DCR (Ω MAX)	Primary Pins	Schem.	Mech.
<b>THROUGH HOLE</b>									
PE-63838-001	1:1:2:2	500 <sup>2</sup>	15	20 <sup>3</sup>	0.7 <sup>3</sup>	.80	1-2/3-4	T2	TH1
PE-64974-001	1:1:1:1	2600 <sup>2</sup>	15	30 <sup>1</sup>	0.5 <sup>1</sup>	1.0	1-2/3-4/5-6/7-8	T1	TH2
PE-65871	1:1:1:1	500 <sup>1</sup>	9	20 <sup>1</sup>	0.2 <sup>1</sup>	.25	1-2/3-4	T2	TH1
PE-67537	1:1:2:2	900	—	—	—	1.2	1-2/3-4	T2	TH1
PE-67541	1:1:1:1	1200 <sup>2</sup>	—	—	—	1.0	1-2/3-4/5-6/7-8	T1	TH2
23Z111	1.22:1.22:1:1	100 (±20%)	3.0	10	0.2	.30	1-2/3-4	T6	TH4
23Z806	1:1:1:1 ±3%	750	5.0	25	0.2	1.00	1-2/3-4/5-6/7-8	T1	TH3

**NOTES:**

1. Measured at 20 mVrms, 100 KHz.
2. Measured at 20 mVrms, 10 KHz.
3. Measured at 50 mV, 100 KHz.
4. Insertion Loss is 0.5 dB MAX from 1-16 MHz. Return Loss is 15 dB MIN from 10-16 MHz and 20 dB MIN from 1-5 MHz.

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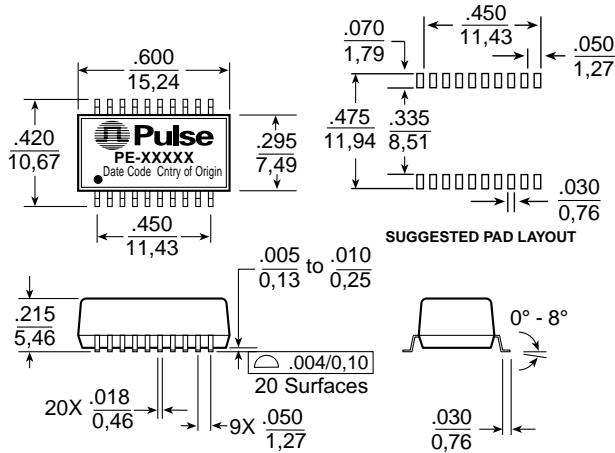
# TOKEN RING ISOLATION TRANSFORMERS

## Designed for 4 and 16 Mbps Applications



### Mechanicals - Surface Mount

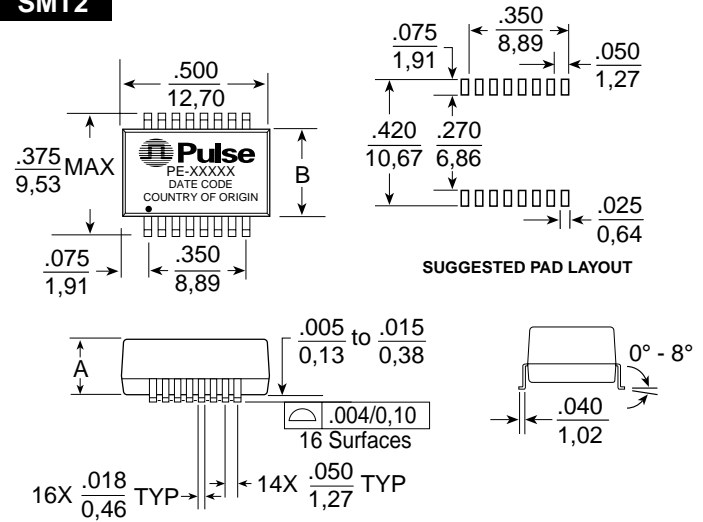
#### SMT1



Weight .....1.39 grams  
 Tube ..... .40/tube  
 Tape & Reel ..... .500/reel

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

#### SMT2



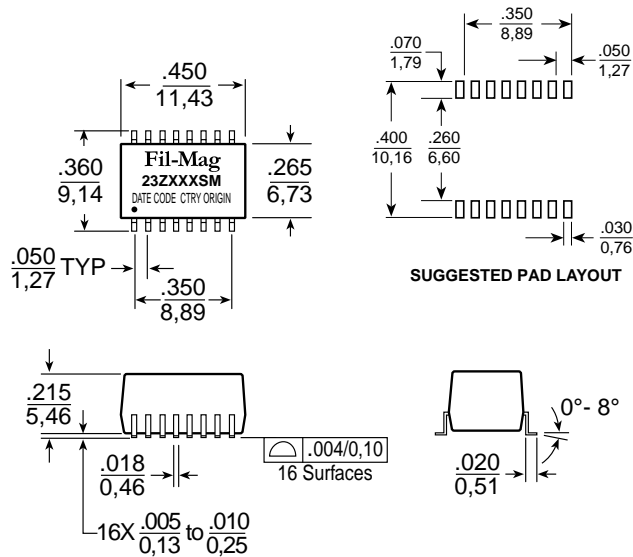
Weight .....1.1 grams  
 Tube ..... .40/tube  
 Tape & Reel ..... .900/reel

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

#### Dimensions: Inches (mm)

Part #	A (MAX)	B (MAX)
PE-65736	.200(5,08)	.285(7,24)
PE-65737	.200(5,08)	.285(7,24)
PE-65738	.200(5,08)	.285(7,24)
PE-67562	.245(6,22)	.270(6,86)

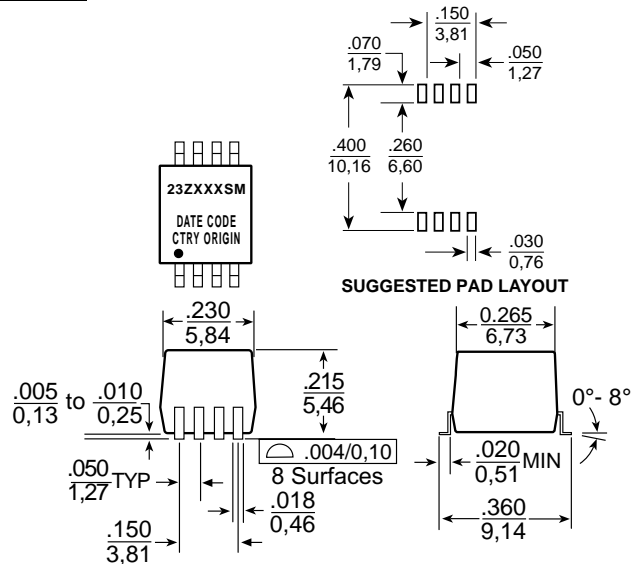
#### SMT3



Weight .....0.82 grams  
 Tube ..... .50/tube  
 Tape & Reel ..... .750/reel

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

#### SMT4



Weight .....0.45 grams  
 Tube ..... .100/tube  
 Tape & Reel ..... .750/reel

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

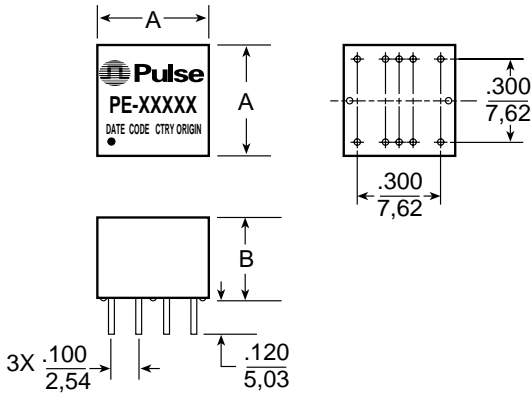
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### Mechanicals - Through Hole

#### TH1

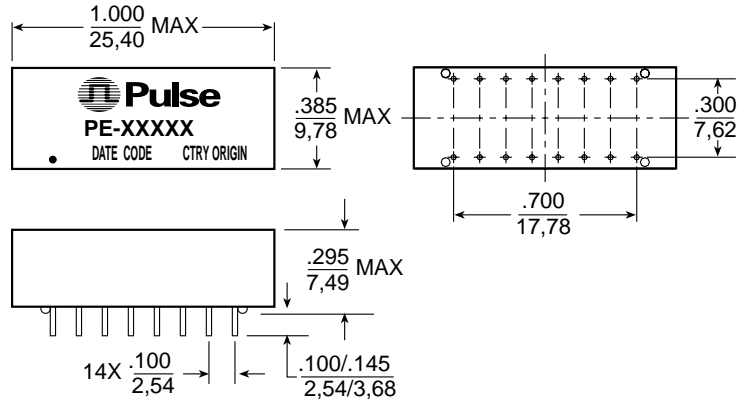


Weight .....1.8 grams  
 Tube .....40/tube

Dimensions: Inches (mm)		
Part #	A (MAX)	B (MAX)
PE-63838-001	.500/12,70	.370/9,40
PE-65871	.500/12,70	.265/6,73
PE-67537	.400/10,16	.300/7,62

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

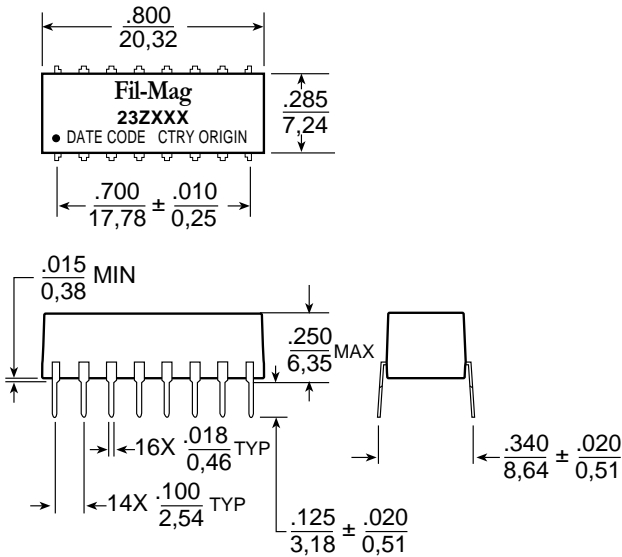
#### TH2



Weight .....3.1 grams  
 Tube .....20/tube

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

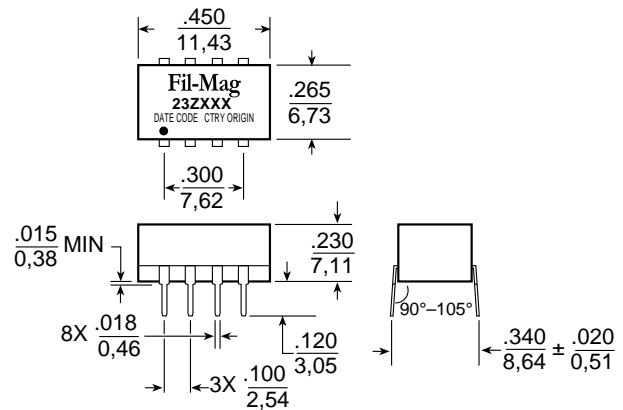
#### TH3



Weight .....1.8 grams  
 Tube .....28/tube

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

#### TH4



Weight .....0.90 grams  
 Tube .....50/tube

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

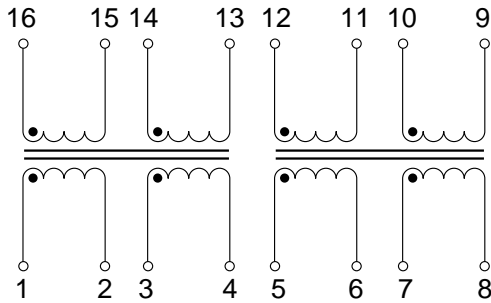
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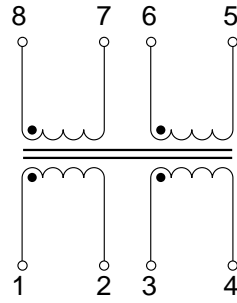


## Schematics

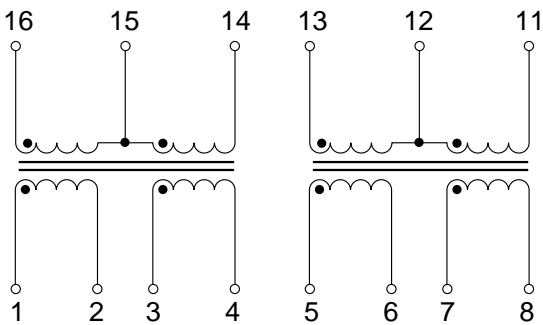
T1



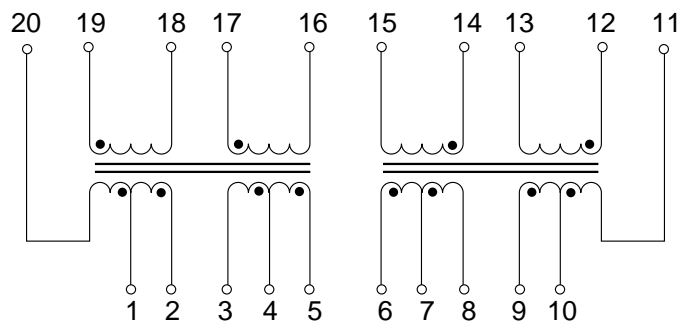
T2



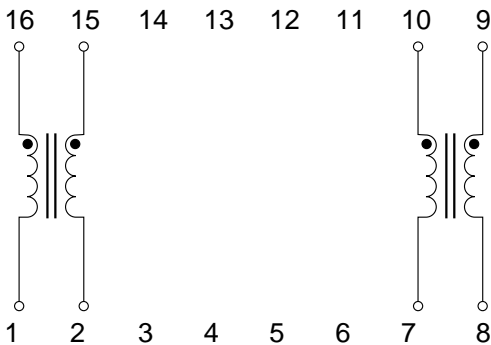
T3



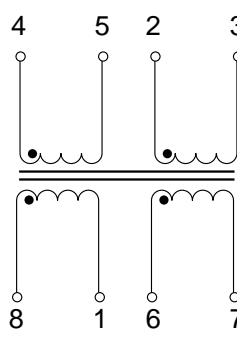
T4



T5



T6



# TOKEN RING ISOLATION TRANSFORMERS

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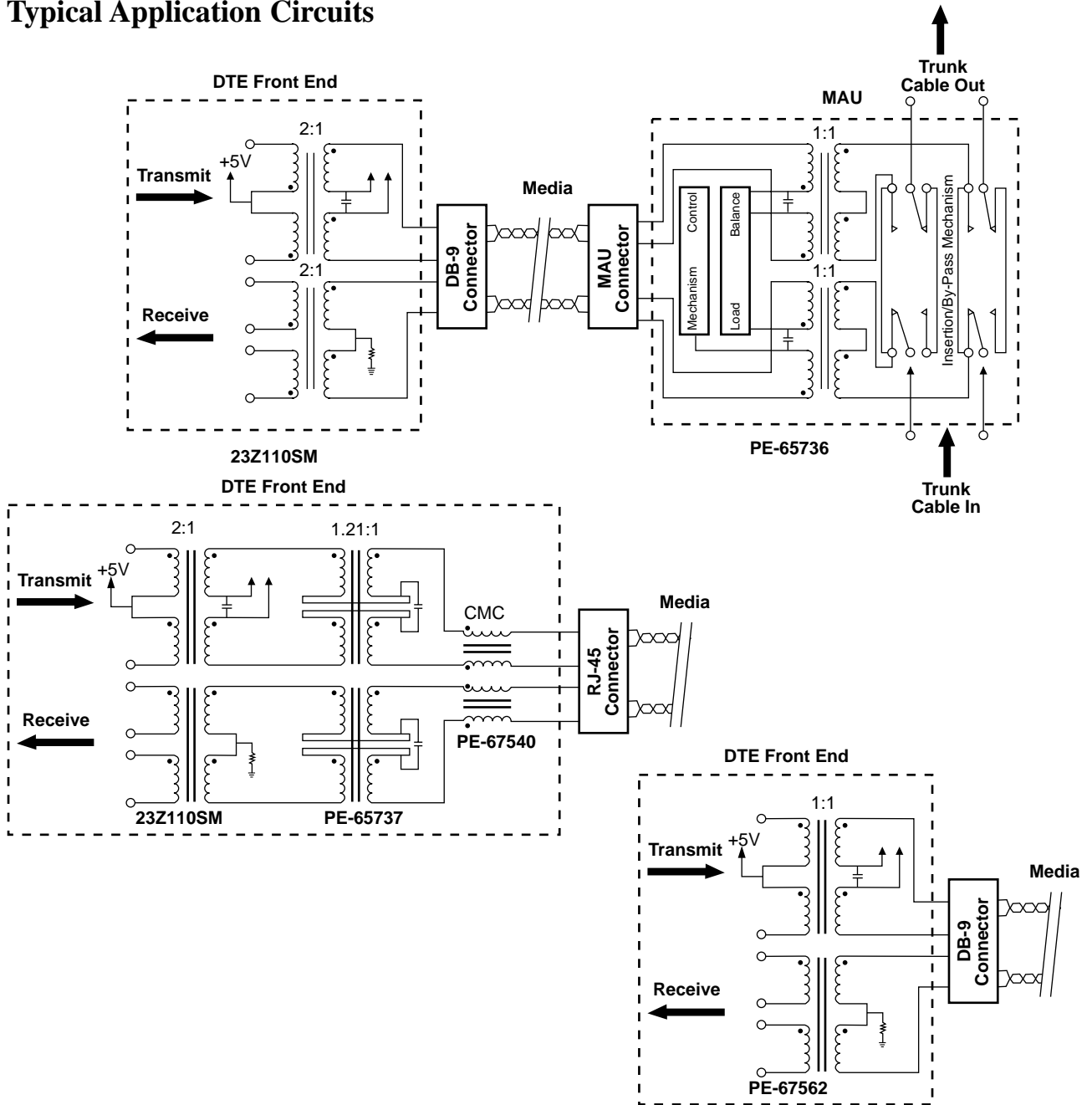


### Application Notes for Surface Mount:

These transformers are designed for use in Token Ring applications that support both 4 Mbps and 16 Mbps data rates. The varying turns ratios allow for maximum design flexibility in either DTE or MAU applications.

For information on combined filter and transformer modules that support either IBM and National Semiconductor, or Texas Instruments Token Ring chip sets, contact Pulse today.

### Typical Application Circuits

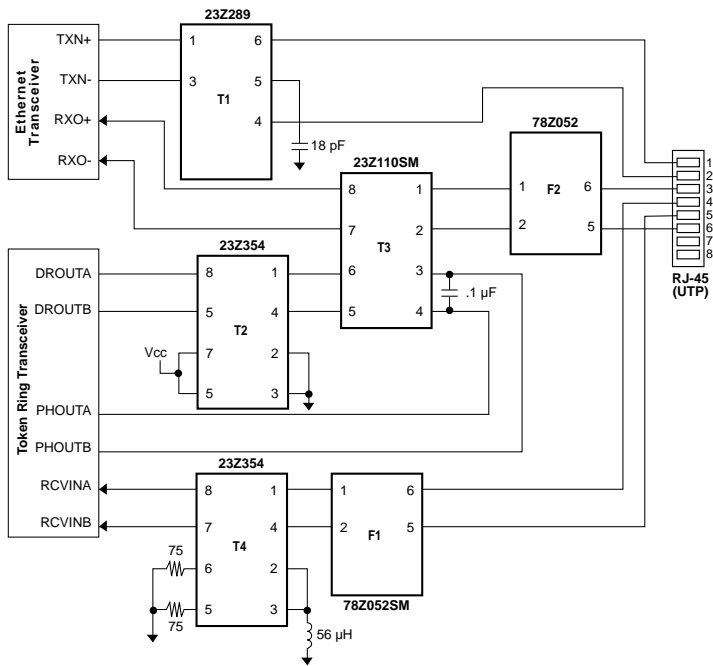


# TOKEN RING ISOLATION TRANSFORMERS

## Designed for 4 and 16 Mbps Applications



### Typical Application Circuits



### Application Note for Surface Mount:

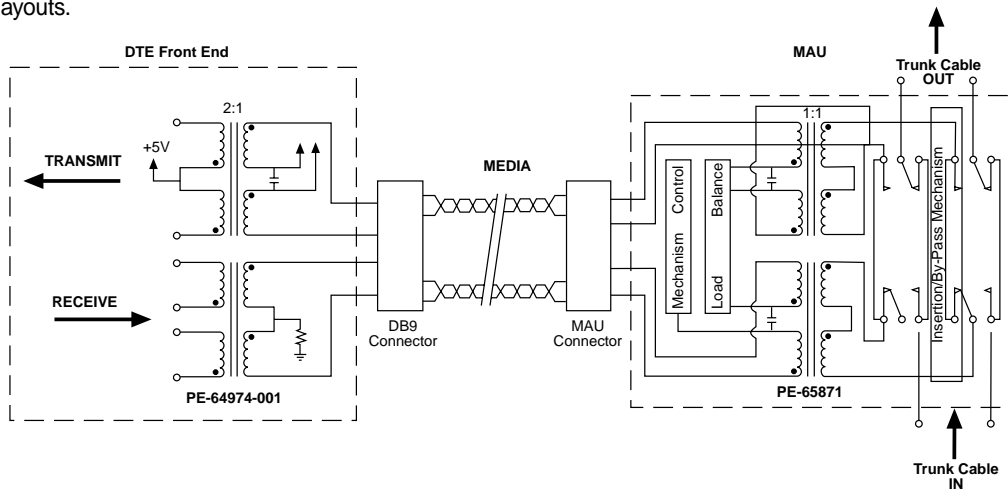
A combined Token Ring and 10Base-T application circuit is shown below. The suggested application circuit supports either Token Ring UTP or 10Base-T Ethernet media interface. The 23Z354SM was designed to provide isolation and impedance matching for dual protocol UTP media applications. The application circuit provides all necessary components to implement a complete magnetics and media interface for 10Base-T and Token Ring UTP media.

Transformers T2 and T4 provide isolation and impedance matching for Token Ring UTP media interface. Transformer T3 provides phantom interface to the media. Filter F2 is the necessary differential filtering in compliance with IEEE 802.5 and FCC emission requirements. An identical F1 filter, included in the receiver path, eliminates high frequency noise on the receive channel and protects against FCC radiated emissions.

### Application Note for Through Hole:

These transformers are specifically designed for use in IEEE 802.5 Token Ring applications at either 4 Mbps or 16 Mbps data rates. The varying turns ratios allow the product to be used in either DTE or MAU applications. Single and dual package options provide further flexibility for board layouts.

The 23Z111 and 23Z379 can provide 100 Ω to 150 Ω impedance transformation. The PE-63838-001, PE-67537, 23Z110, 23Z112, 23Z379, and the 23Z807 can provide 600 Ω to 150 Ω conversion. The 23Z111 and 23Z807 provide taps for 100 Ω and 150 Ω outputs.



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