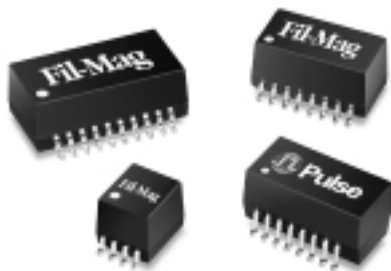


TOKEN RING ISOLATION TRANSFORMERS

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		
SURFACE MOUNT									
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.
THROUGH HOLE									
PE-63838-001	1:1:2:2	500 ²	15	20 ³	0.7 ³	.80	1-2/3-4	T2	TH1
PE-64974-001	1:1:1:1	2600 ²	15	30 ¹	0.5 ¹	1.0	1-2/3-4/5-6/7-8	T1	TH2
PE-65871	1:1:1:1	500 ¹	9	20 ¹	0.2 ¹	.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 ²	—	—	—	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.

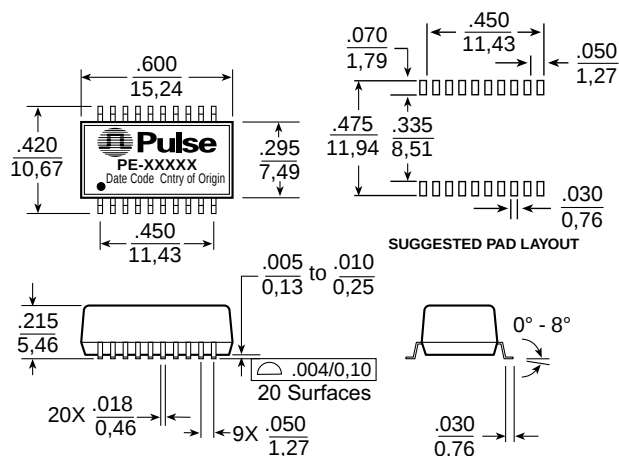
TOKEN RING ISOLATION TRANSFORMERS

Designed for 4 and 16 Mbps Applications



Mechanicals - Surface Mount

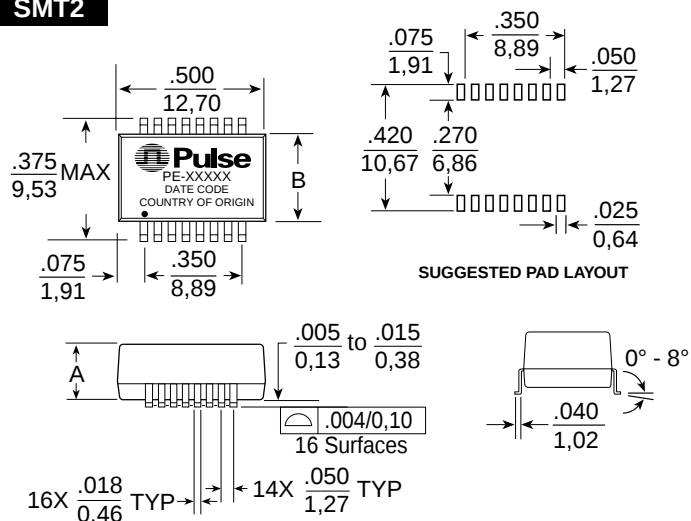
SMT1



Weight 1.39 grams
Tube40/tube
Tape & Reel500/reel

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

SMT2



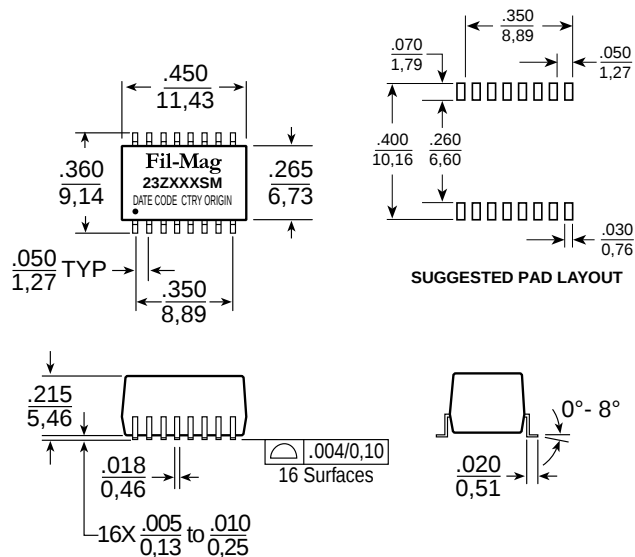
Weight 1.1 grams
Tube40/tube
Tape & Reel900/reel

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

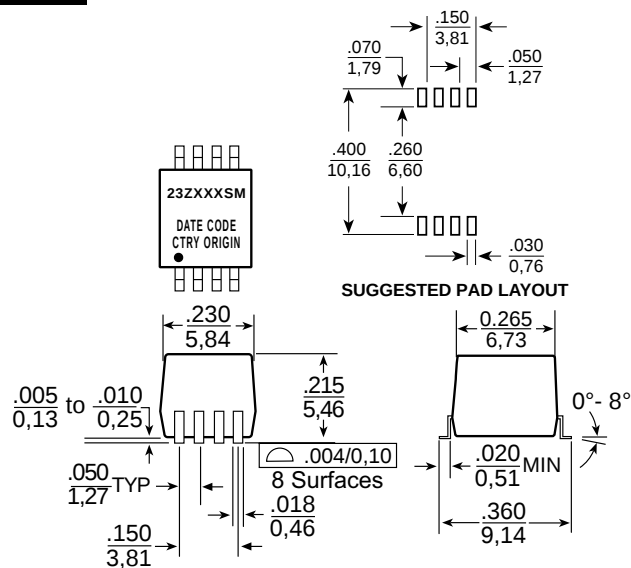
SMT3



Weight 0.82 grams
Tube50/tube
Tape & Reel750/reel

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

SMT4



Weight 0.45 grams
Tube100/tube
Tape & Reel750/reel

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

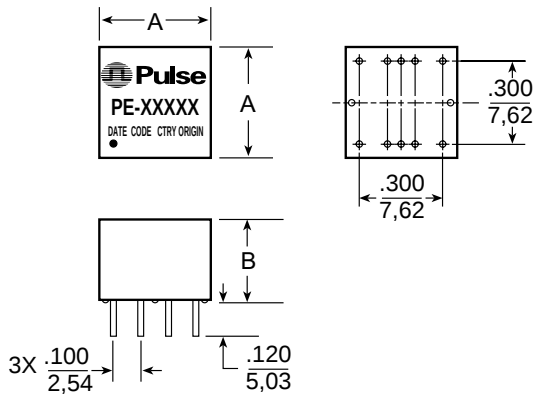
TOKEN RING ISOLATION TRANSFORMERS

Designed for 4 and 16 Mbps Applications



Mechanicals - Through Hole

TH1



Weight1.8 grams
Tube40/tube

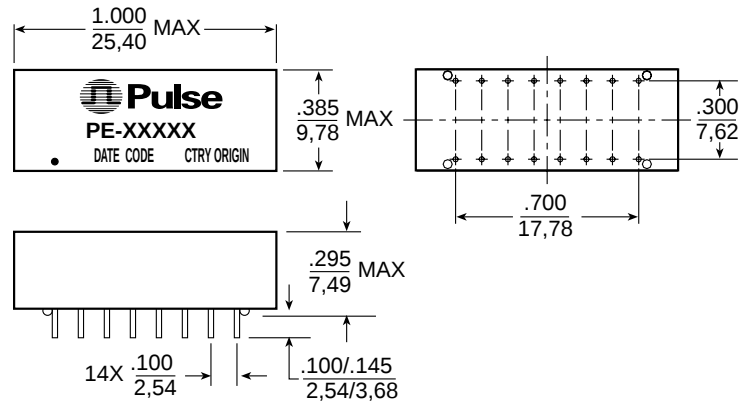
Dimensions: Inches (mm)

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 $\pm \frac{.010}{0,25}$

TH2

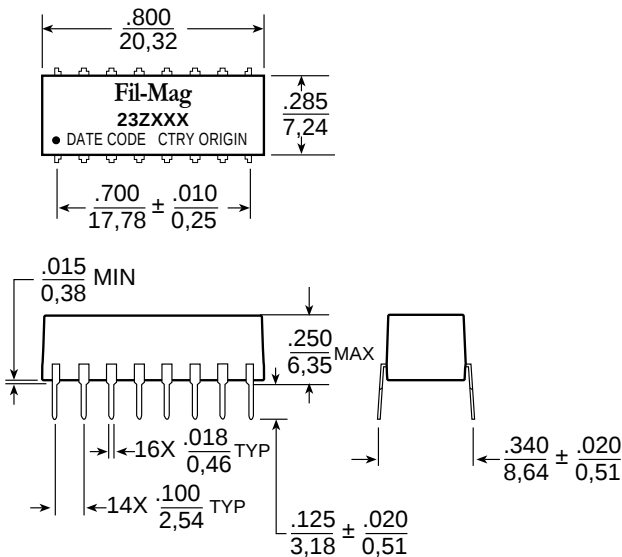


Weight3.1 grams
Tube20/tube

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

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

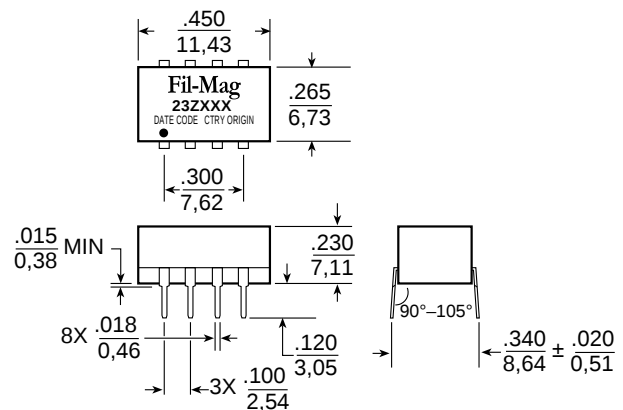
TH3



Weight1.8 grams
Tube28/tube

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

TH4



Weight0.90 grams
Tube50/tube

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

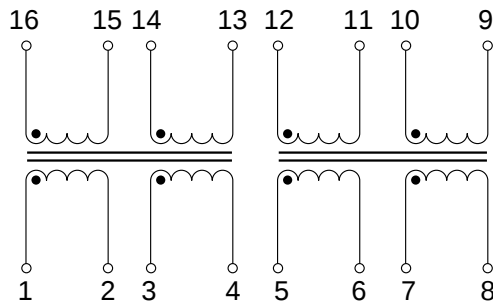
TOKEN RING ISOLATION TRANSFORMERS

Designed for 4 and 16 Mbps Applications

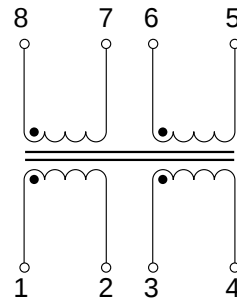


Schematics

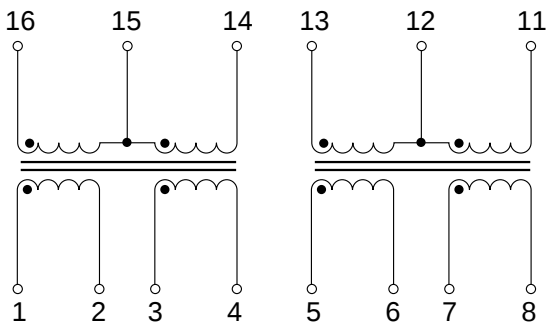
T1



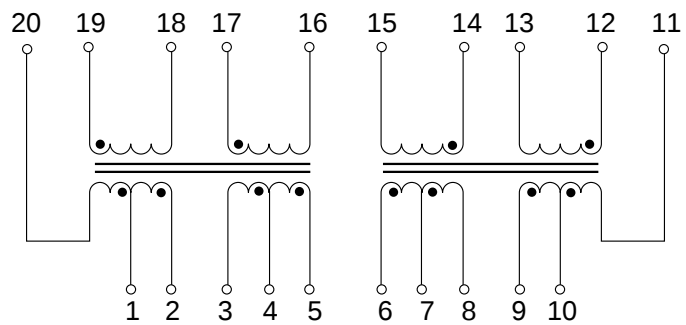
T2



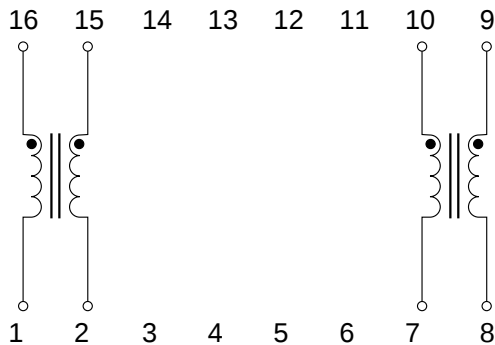
T3



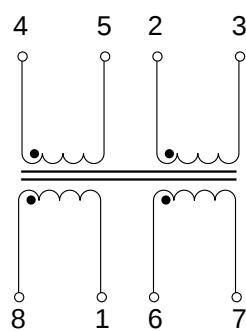
T4



T5



T6



TOKEN RING ISOLATION TRANSFORMERS

Designed for 4 and 16 Mbps Applications

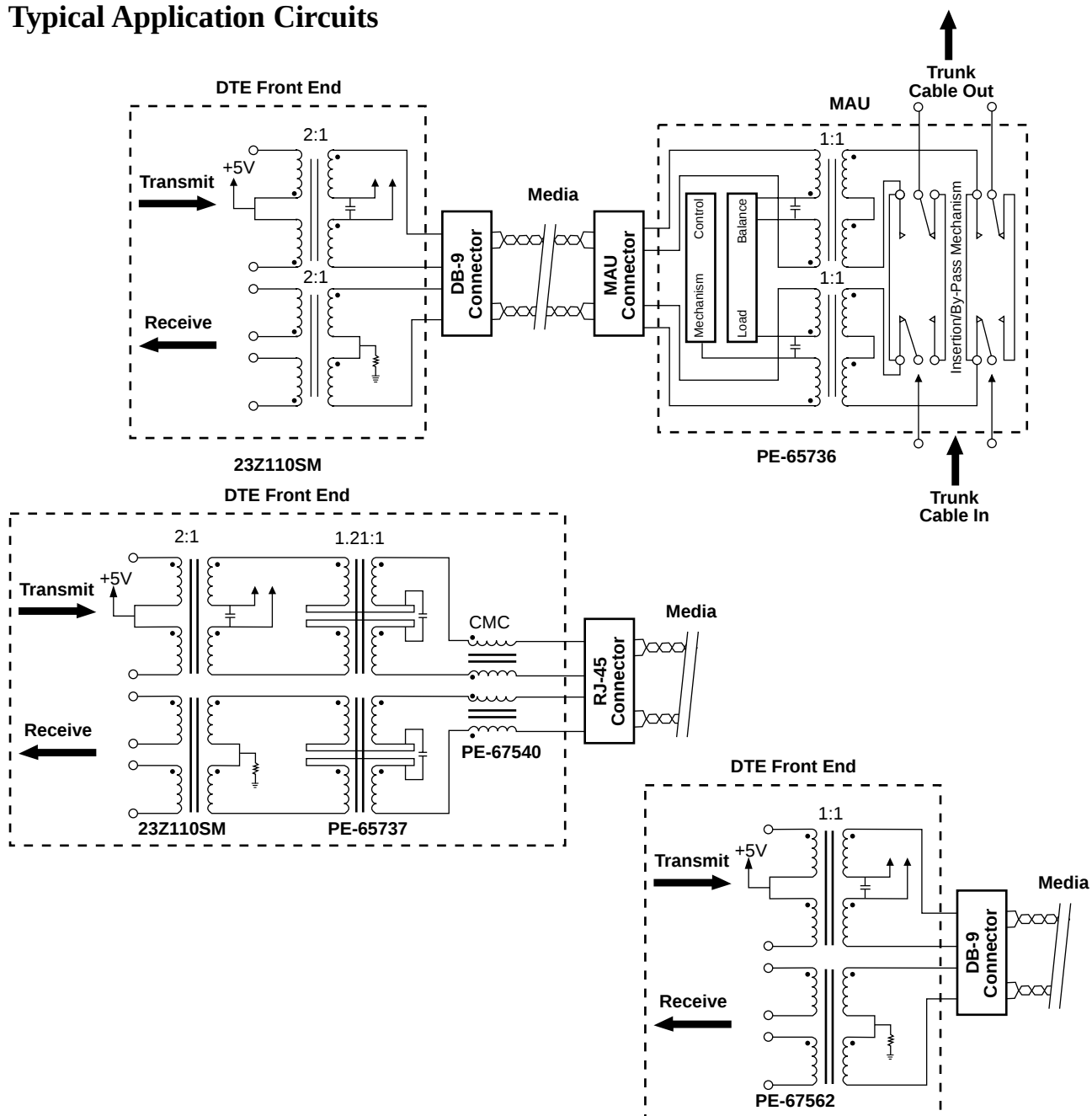


Application Notes for Surface Mount:

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



The schematic diagram illustrates a 10/100 Ethernet switch using the 782052 IC. The circuit includes four transceiver chips (T1, T2, T3, T4) and two transceiver ICs (23Z289, 23Z354, 23Z110SM, 782052SM). The Ethernet Transceiver is connected to T1 and T2. The Token Ring Transceiver is connected to T2 and T4. The RJ-45 (UTP) connector is connected to the 782052 IC. Various passive components like capacitors (18 pF, .1 μF, 56 μF) and resistors (75 Ω) are shown.

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.

The diagram illustrates the internal components and connections of a network interface module. On the left, the **DTE Front End** (part number **PE-64974-001**) is shown. It features a **TRANSMIT** path with a **+5V** supply and a **RECEIVE** path. The transmit side includes a **2:1** transformer and a battery symbol. The receive side includes a transformer and a battery symbol. The DTE Front End is connected to a **DB9 Connector**. This connector is linked via **MEDIA** (represented by a twisted pair cable) to an **MAU Connector**. The MAU Connector is connected to the **MAU** (Media Access Unit, part number **PE-65871**). The MAU contains a **Mechanism Control** block, a **Balance** block, and a **Load** block. It also features a **1:1** transformer and a battery symbol. The MAU is connected to **Trunk Cable IN** and **Trunk Cable OUT** via an **Insertion/By-Pass Mechanism**.

EC200.A (12/00)