

**MMI**

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**FILTER  
(10/100 BASE)**

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# MMI 13F-1X SERIES 10/100 BASE PULSE TRANSFORMERS (DIP)

## FEATURES

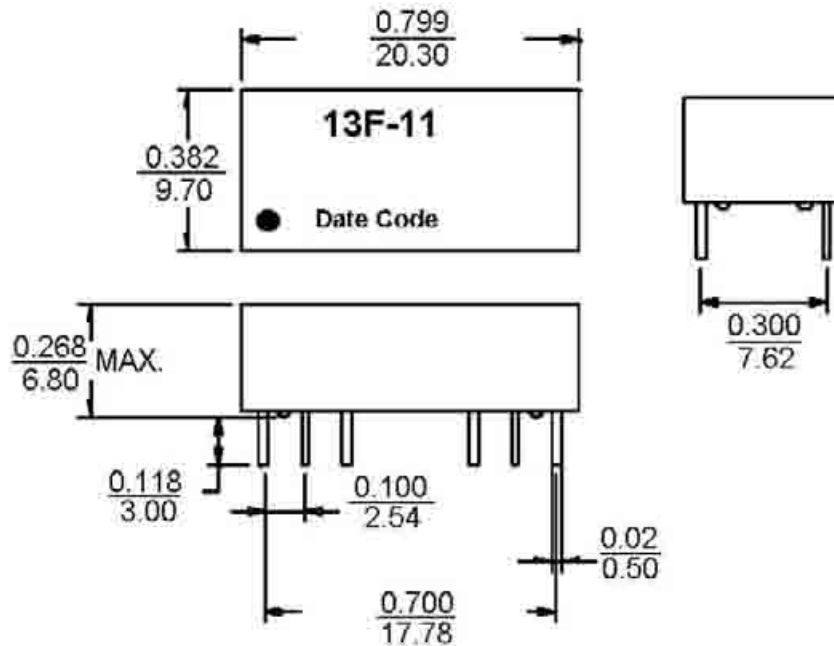
- Compliant with IEEE 802.3u and ANSI X3.263 standards including 350uH OCL with 8mA Bias.
- Operating temperature range: 0°C to +70°C
- Storage temperature range: -25°C to +105°C.



## ELECTRICAL SPECIFICATIONS @25°C-Operating temperature 0°C TO 70°C

Part Number	Turns Ratio(±5%)		Insertion Loss (dB MAX)	Return Loss (dB MIN @100Ω)					Crosstalk (dB MIN)	DCMR (dB MIN)	Hipot (Vrms)
	Transmit	Receive		0.3-100 MHz	30 MHz	40 MHz	50 MHz	60 MHz			
13F-11	1CT:1	1CT:1CT	-1.15	-16	-14	-13.5	-13	-12	-35	-30	1500
13F-12	1CT:1CT	1CT:1CT	-1.15	-16	-14	-13.5	-13	-12	-35	-30	1500
13F-12A	1CT:1CT	1CT:1CT	-1.1	-16	-14	-13.5	-13	-12	-35	-30	1500
13F-13	1CT:1CT	1CT:1CT	-1.0	-16	-13	-13	-13	-10	-38	-30	1500
13F-14	1CT:1CT	1:1	-1.1	-16	-14	-13.5	-13	-12	-35	-30	1500
13F-15	1CT:1CT	1CT:1CT	-1.15	-16	-14	-13.5	-13	-12	-35	-30	1500
13F-16	1CT:1CT	1CT:1CT	-1.15	-16	-14	-13.5	-13	-12	-35	-30	1500
13F-17	1CT:1	1CT:1CT	-1.15	-16	-14	-13.5	-13	-12	-35	-30	1500
13F-17A	1CT:1CT	1CT:1CT	-1.15	-16	-14	-13.5	-13	-12	-35	-30	1500
13F-18	1CT:1CT	1CT:1CT	-1.15	-16	-14	-13.5	-13	-12	-35	-30	1500

## Mechanicals

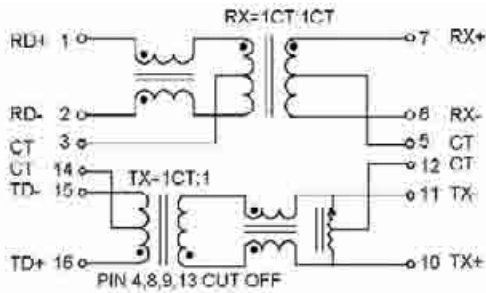


Unit:  $\frac{\text{inch}}{\text{mm}}$  Tolerances:  $xx.x0 \pm \frac{0.010}{0.25}$ ;  $0.xx \pm \frac{0.002}{0.05}$

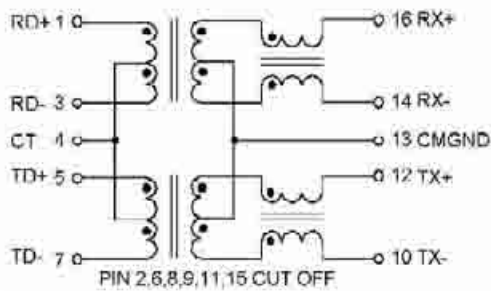
# MMI 13F-1X SERIES 10/100 BASE PULSE TRANSFORMERS (DIP)

## Schematics

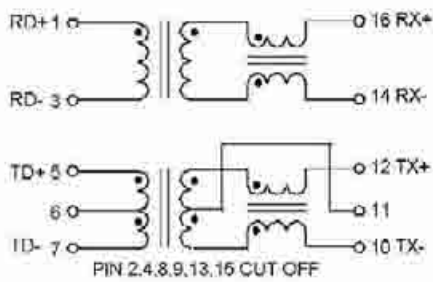
13F-11



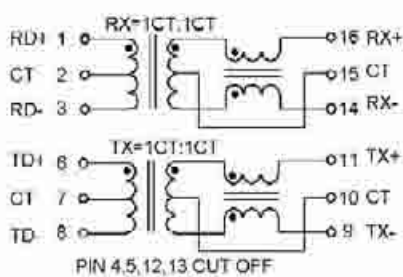
13F-12A



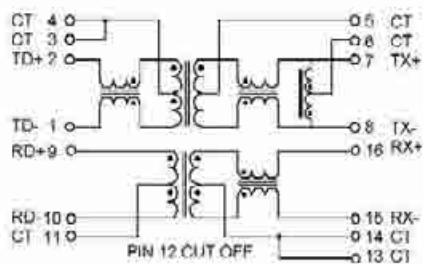
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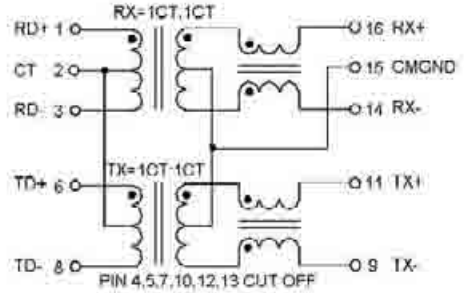
13F-16



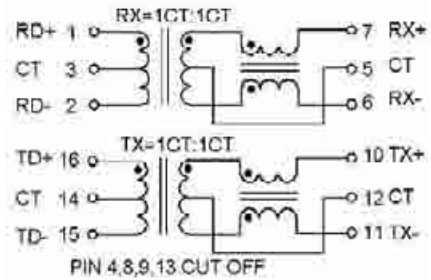
13F-17A



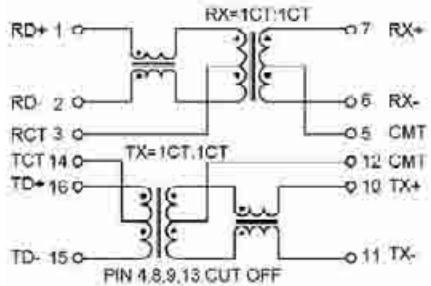
13F-12



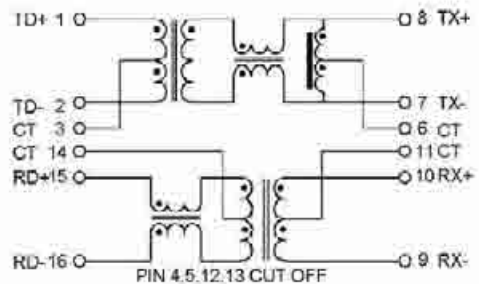
13F-13



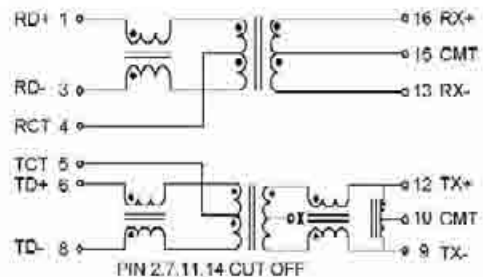
13F-15



13F-17



13F-18



### FEATURES

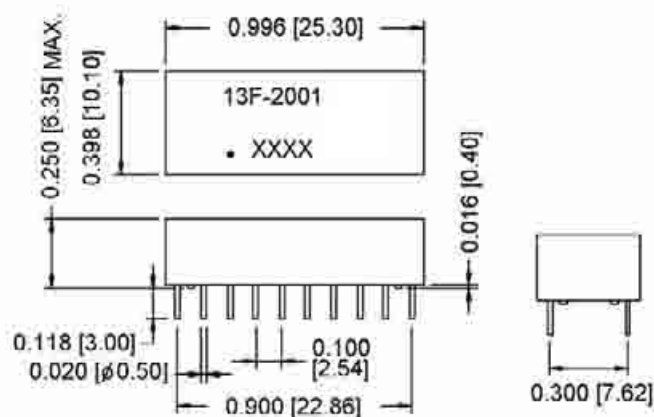
- Compliant with IEEE 802.3u and ANSI X3.263 standards including 350uH OCL with 8mA Bias.
- Operating temperature range: 0°C to +70°C
- Storage temperature range: -25°C to +105°C,
- Isolation voltage: 1500Vrms.



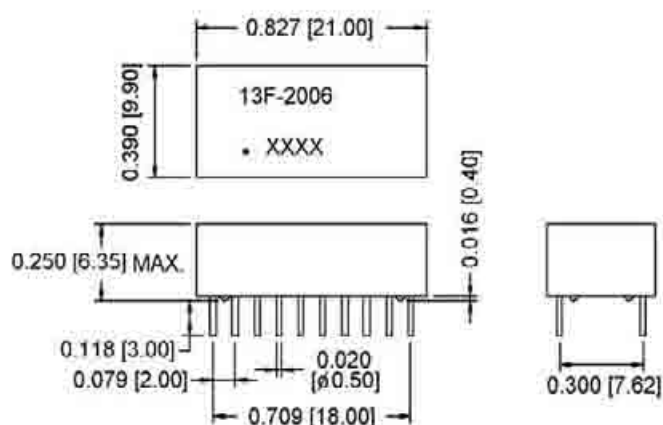
ELECTRICAL SPECIFICATIONS @25°C-Operating temperature 0°C TO 70°C									
Part Number	Turns Ratio(±5%)		Insertion Loss (dB MAX) 0.3-100 MHz	Return Loss (dB MIN @100Ω)			Crosstalk (dB TYP) 0.3-100 MHz	CMRR (dB MIN) 0.3-100 MHz	Mech.
	Transmit	Receive		.3-30 MHz	30-60 MHz	60-80 MHz			
13F-2001	1CT:1CT	1CT:1CT	-1.15	-18	-14	-12	-38	-40	DP1
13F-2002	1CT:1CT	1CT:1CT	-1.15	-18	-14	-12	-38	-40	DP1
13F-2003	1CT:1CT	1CT:1CT	-1.15	-18	-14	-12	-38	-40	DP1
13F-2004	1CT:1CT	1CT:1CT	-1.15	-18	-14	-12	-38	-40	DP1
13F-2005	1CT:1CT	1CT:1CT	-1.15	-18	-14	-12	-38	-40	DP1
13F-2006	1CT:1CT	1CT:1CT	-1.15	-18	-14	-12	-38	-40	DP2
13F-2007	1CT:1CT	1CT:1CT	-1.15	-18	-14	-12	-38	-40	DP1
13F-2008	1CT:1CT	1CT:1CT	-1.15	-18	-14	-12	-38	-40	DP1
13F-2009	1CT:1CT	1CT:1CT	-1.1	-18	-14	-12	-35	-40	DP1
13F-2010	1CT:1CT	1CT:1CT	-1.1	-18	-14	-12	-38	-40	DP1

### Mechanicals

#### DP1



#### DP2

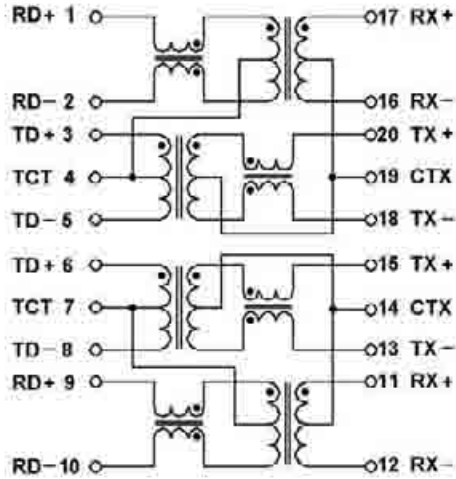


Unit: inch[mm] Tolerance: xx.x0±0.010[0.25] ; 0.xx±0.002[0.05]

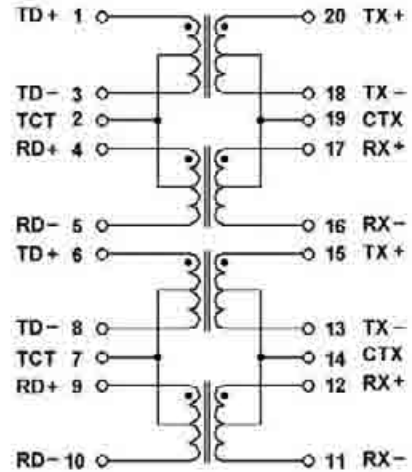


### Schematics

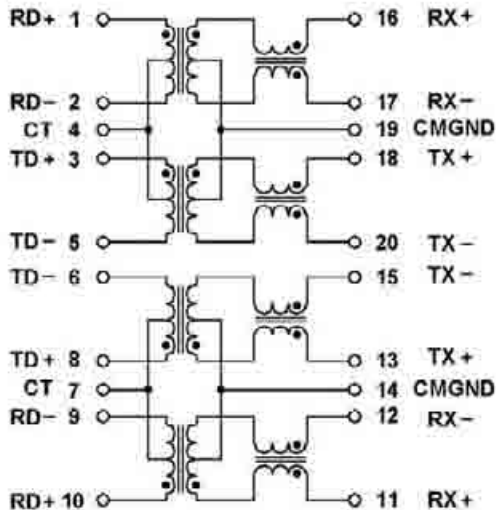
**13F-2001**



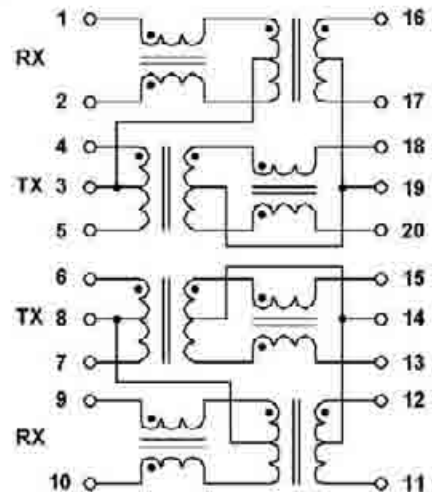
**13F-2002**



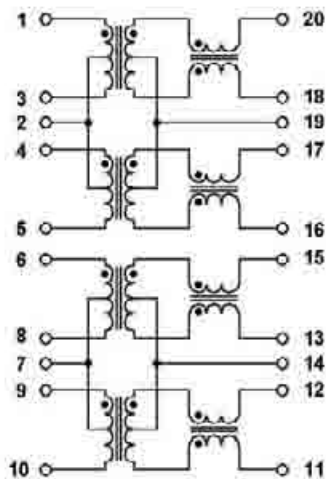
**13F-2003**



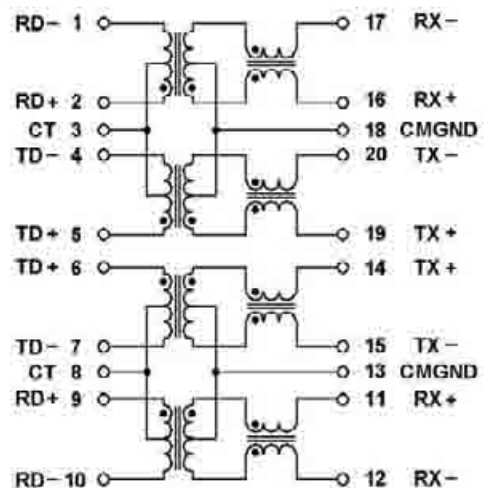
**13F-2004**



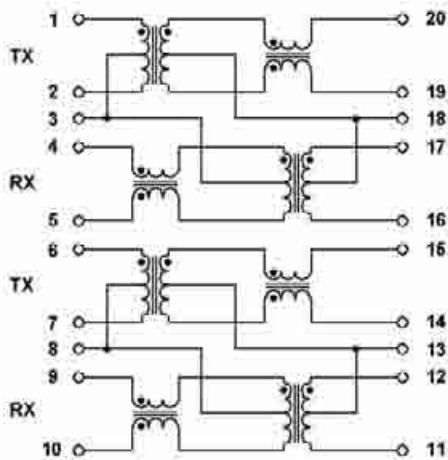
**13F-2005**



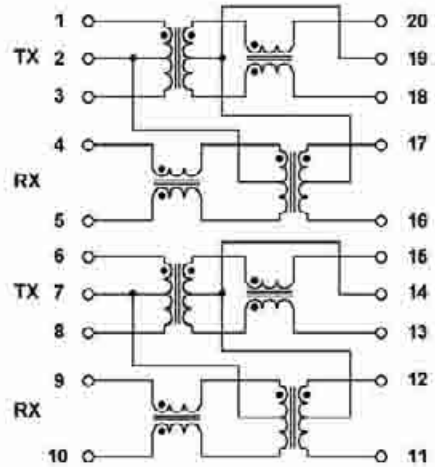
**13F-2006**



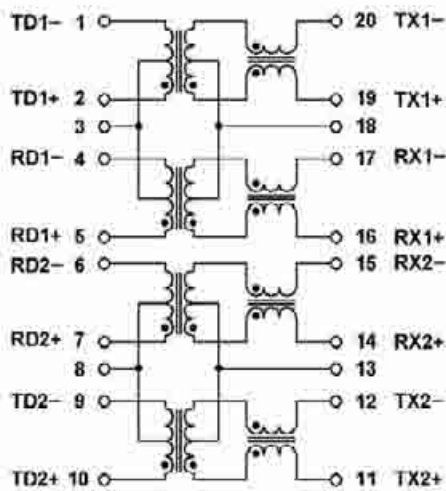
**13F-2007**



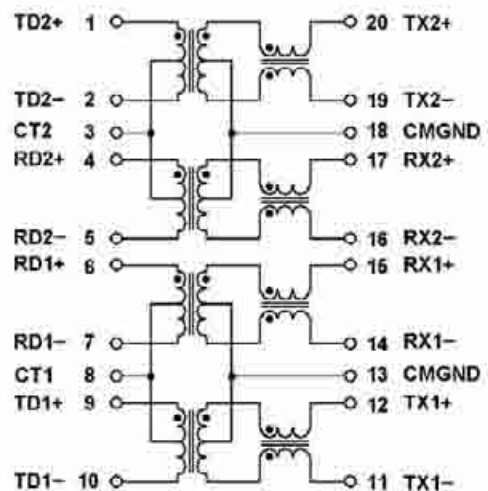
**13F-2008**



**13F-2009**



**13F-2010**



### FEATURES

- Compliant with IEEE 802.3u and ANSI X3.263 standards including 350uII OCL with 8mA Bias.
- Operating temperature range: 0°C to +70°C
- Storage temperature range: -25°C to +105°C.

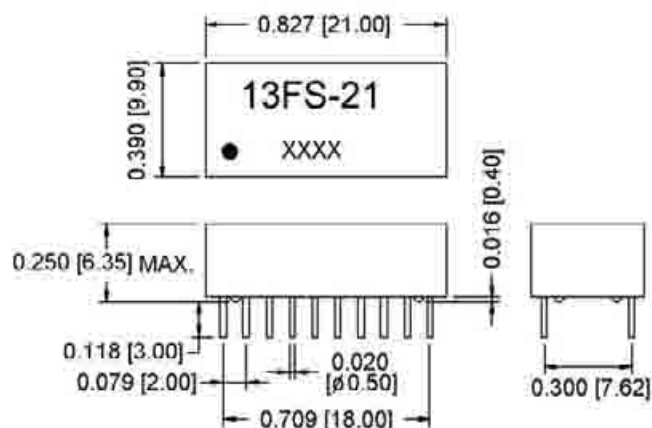
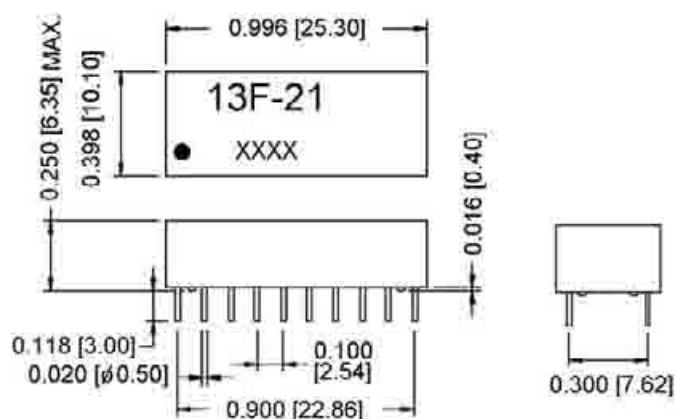


ELECTRICAL SPECIFICATIONS @25°C-Operating temperature 0°C TO 70°C										
Part Number	Turns Ratio(±5%)		Insertion Loss (dB MAX) 0.3-100 MHz	Return Loss (dB MIN @100Ω)			Crosstalk (dB MIN) 0.3-100 MHz	DCMR (dB MIN)		Hipot (Vrms)
	Transmit	Receive		.3-30 MHz	30-60 MHz	60-80 MHz		0.3-60 MHz	60-100 MHz	
13F-21	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-22	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-22A	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-23	1CT:1CT	1:1	-1.1	-18	-14	-12	-38	-40		1500
13F-23A	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-23B	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-24	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-25	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-25A	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-26	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-26A	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-27	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40	-30	1500
13F-28	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13F-211	1CT:1CT	1:1	-1.0	-18	-14	-12	-38	-40		1500
13F-231	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13FS-21	1CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500
13FS-211	2CT:1CT	1:1	-1.15	-18	-14	-12	-38	-40		1500

### Mechanicals

#### 13F-2X

#### 13FS-2X

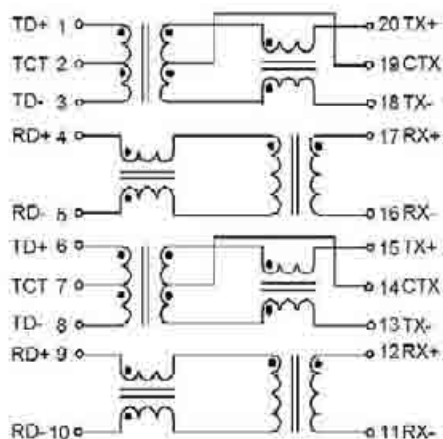


Unit: Inch[mm] Tolerance: xx.x0±0.010[0.25] ; 0.xx±0.002[0.05]

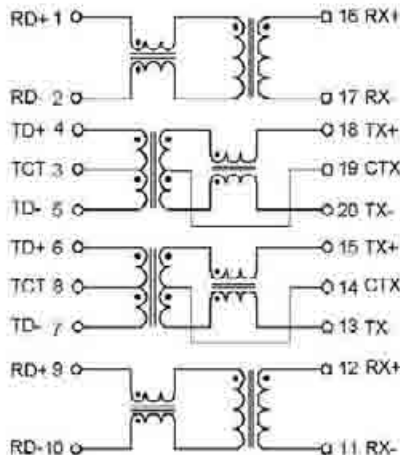


### Schematics

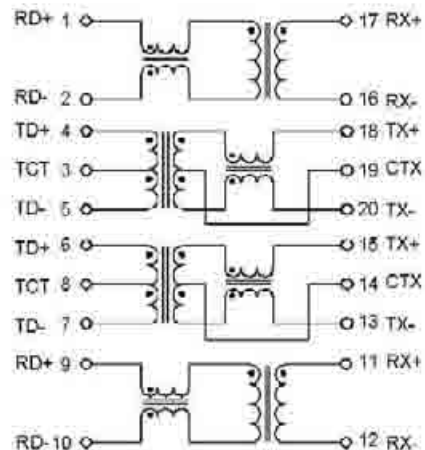
**13F-21**



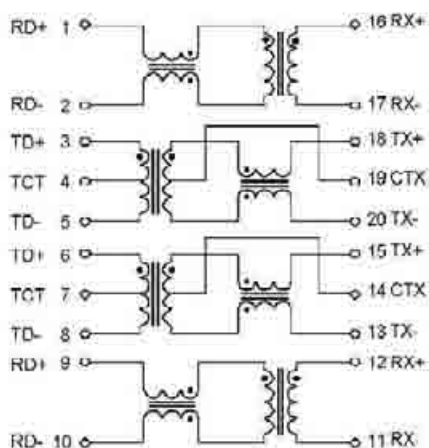
**13F-22**



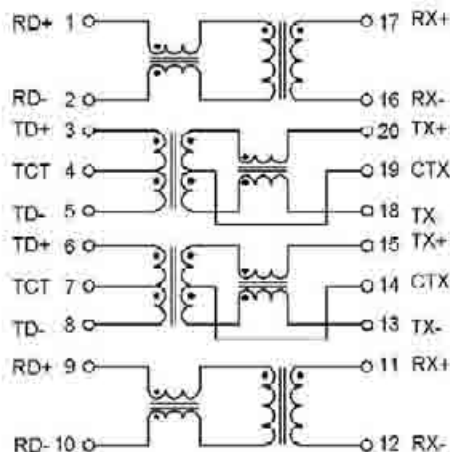
**13F-22A**



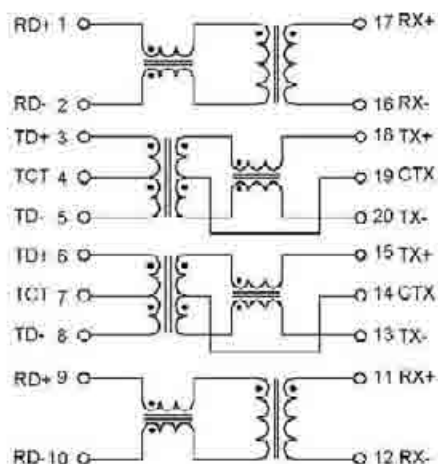
**13F-23**



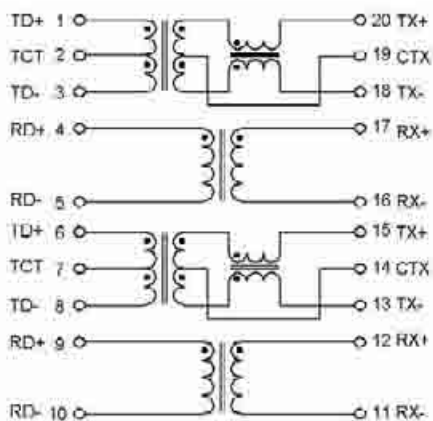
**13F-23A**



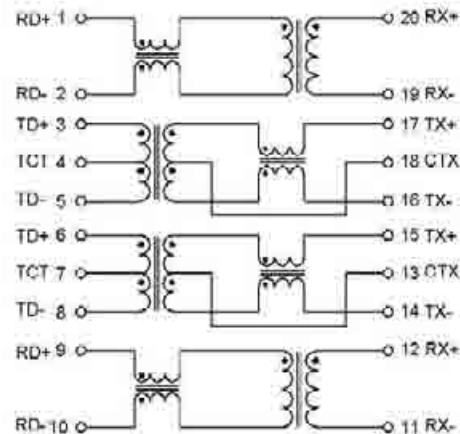
**13F-23B**



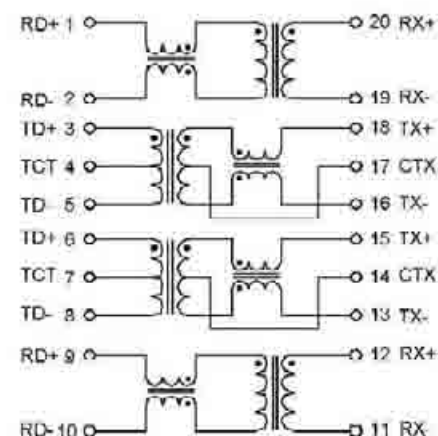
**13F-24**



**13F-25**

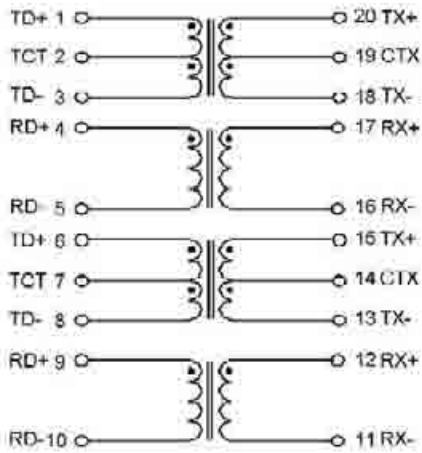


**13F-25A**

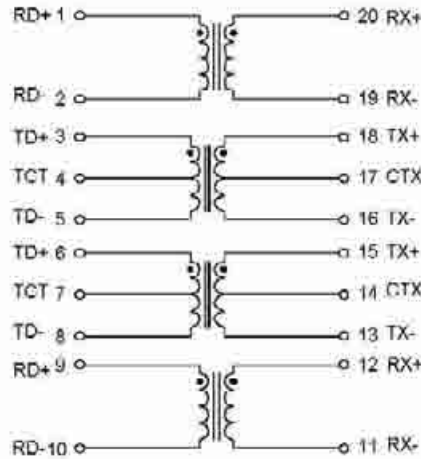




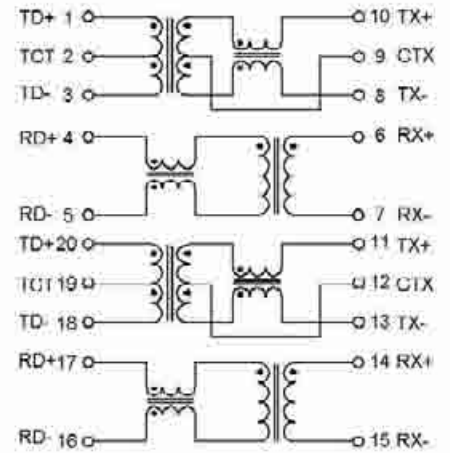
### 13F-26



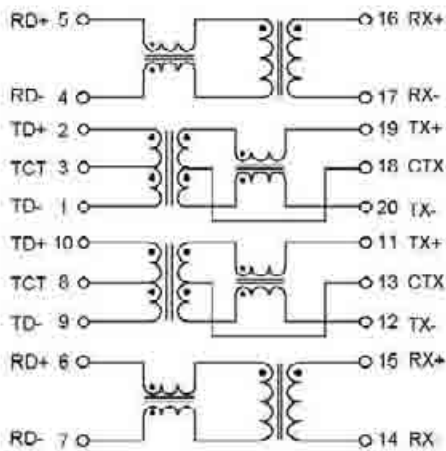
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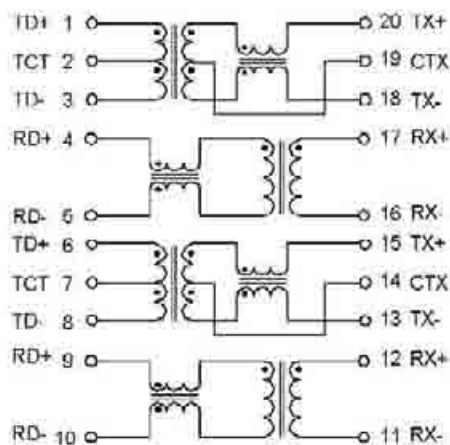
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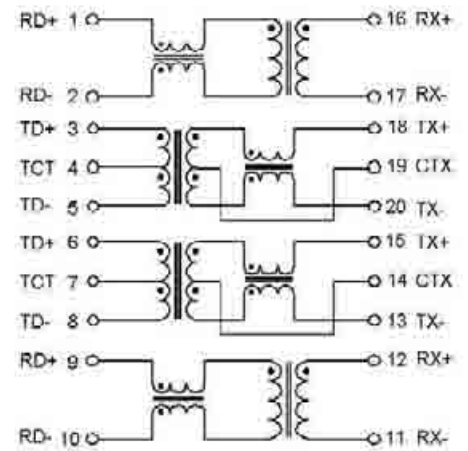
### 13F-28



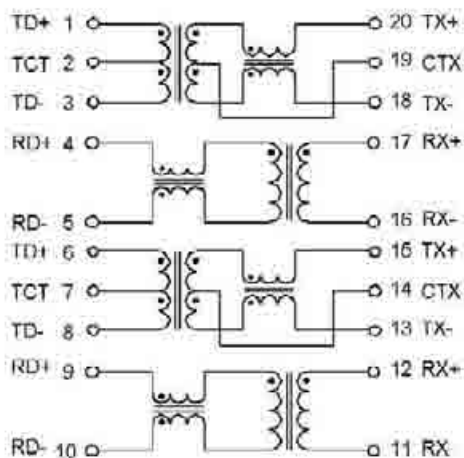
### 13F-211



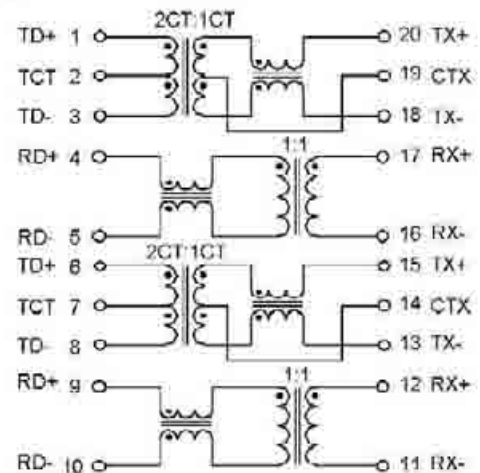
### 13F-231



### 13FS-21



### 13FS-211





# 11F SERIES

# 10/100BASE-T SINGLE PORT SURFACE MOUNT MAGNETICS

## FEATURES

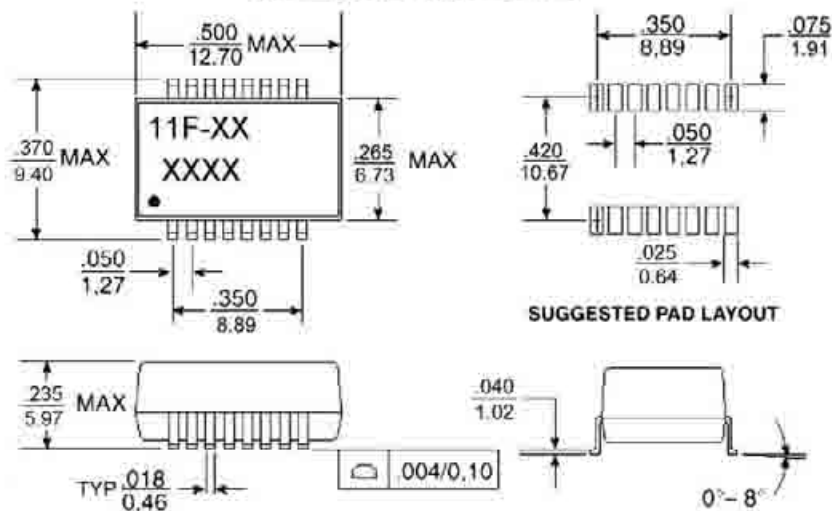
- Meet IEEE 802.3 and ANSI X3.263 standards including 350 uH OCL with 8mA Bias
- Designed to withstand IR reflow temperatures up to 235°C
- Compact footprint use in the most space restrictive applications
- Recognized by UL 1950.



## ELECTRICAL SPECIFICATIONS @25°C-Operating temperature -40°C TO 85°C

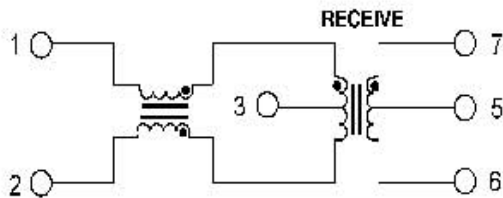
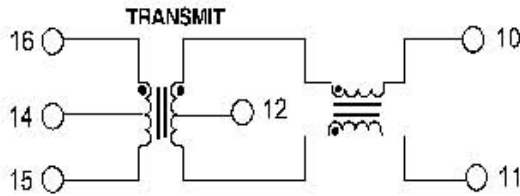
Part Number	Turns Ratio (±5%)		Insertion Loss (dB MAX)	Return Loss (dB TYP)			Differential to Common Mode Rejection (dB MIN)			Crosstalk (dB TYP)			Hipot V <sub>rms</sub> MIN
	TX	RX		30 MHz	60 MHz	80 MHz	30 MHz	50 MHz	100 MHz	30 MHz	60 MHz	100 MHz	
11F-05	1:1	1:1	-1.1	-20	-14	-11.5	-42	-37	-33	-45	-40	-35	1500
11F-06	1.25:1	1:1	-1.1	-20	-14	-11.5	-42	-37	-33	-45	-40	-35	1500
11F-07	2:1	1:1	-1.1	-20	-14	-11.5	-42	-37	-33	-45	-40	-35	1500
11F-08	1:1.414	1:1	-1.1	-18	-12	-11.5	-42	-37	-30	-45	-40	-35	1500
11F-09	1:1	1:1	-1.0	-18	-14	-12	-40	-40	-40	-35	-35	-35	1500
11F-10	1:1	1:1	-0.9	-18	-12	-11	-40	-35	-30	-45	-45	-37	1500
11F-11	1:1	1:1	-1.0	-20	-14	-12	-42	-37	-32	-45	-40	-35	1500
11F-12	1:1	1:1	-1.0	-20	-14	-12	-42	-37	-32	-45	-40	-35	1500
11F-14	1:1	1:1	-1.2	-18	-14	-12	-43	-37	-33	-45	-40	-35	1500
11F-16	1:1	1:1	-1.0	-18	-14	-12	-35	-35	-35	-35	-35	-35	1500
11F-17	1:1	1:1	-1.0	-18	-16	-10	-40	-40	-40	-38	-38	-38	1500
11F-17A	1:1	1:1	-1.0	-16	-12	-10	-40	-40	-35	-40	-40	-35	1500
11F-17B	1:1	1:1	-1.0	-16	-12	-10	-40	-40	-35	-40	-40	-35	1500
11F-18	1:1	1:1	-1.1	-20	-14	-12	-40	-37	-33	-45	-40	-35	1500
11F-19	1:1	1:1	-1.0	-20	-14	-12	-40	-25	-30	-40	-40	-40	1500
11F-19A	1:1	1:1	-1.0	-20	-14	-12	-40	-35	-30	-40	-40	-35	1500
11F-19B	1:1	1:1	-1.0	-20	-14	-12	-40	-35	-30	-40	-40	-35	1500
11F-19C	1:1	1:1	-1.0	-20	-14	-12	-40	-35	-30	-40	-40	-35	1500
11F-19D	1:1.414	1:1	-2.0	-18	-12	-11	-	-	-	-45	-38	-34	1500

## MECHANICAL

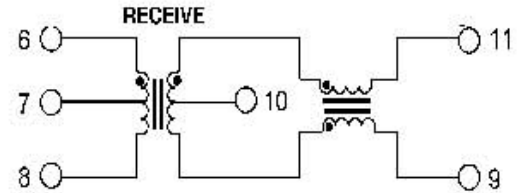
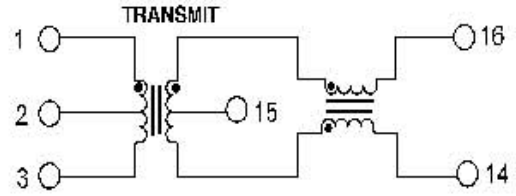


## SCHEMATICS

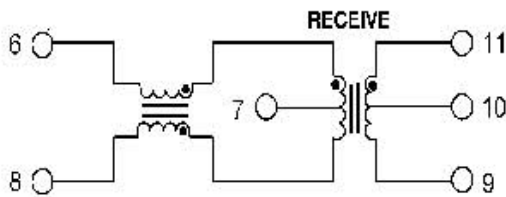
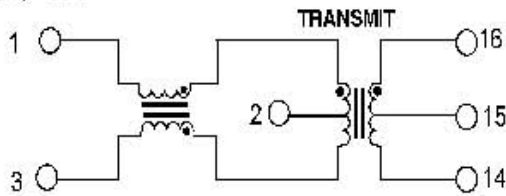
**11F-01**



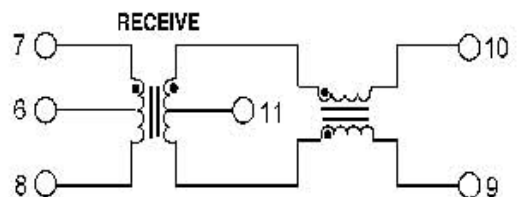
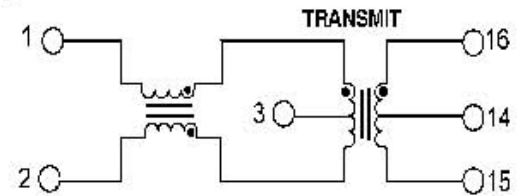
**11F-05, 06, 07, 08, 11**



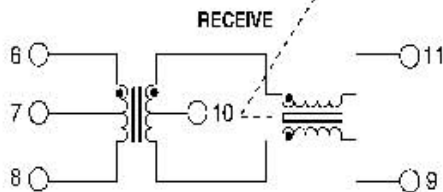
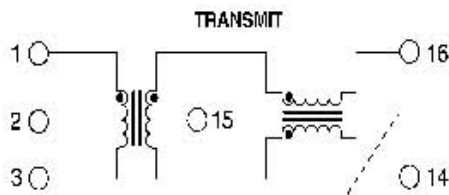
**11F-09, 12**



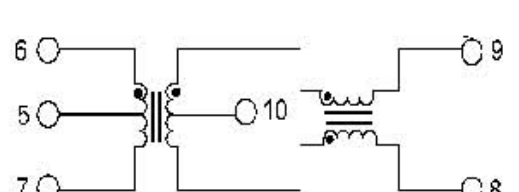
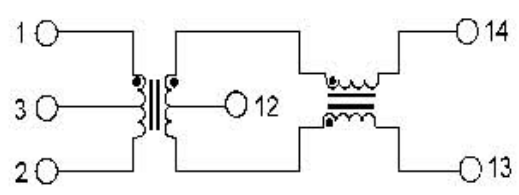
**11F-10**



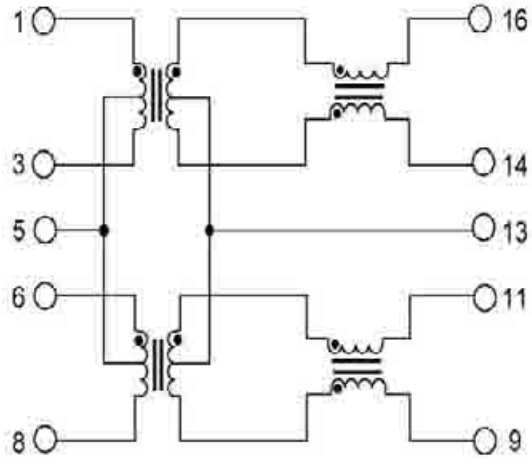
**11F-14**



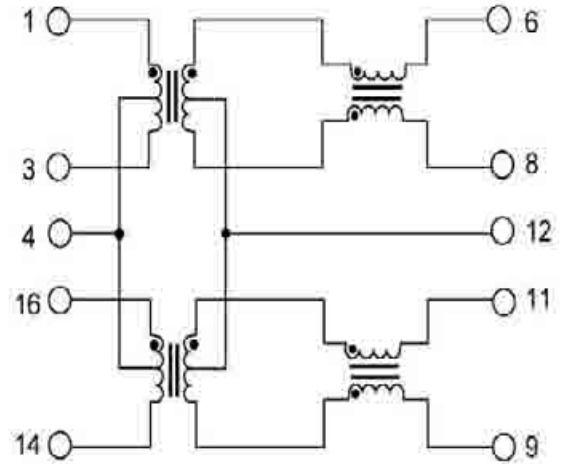
**11F-16**



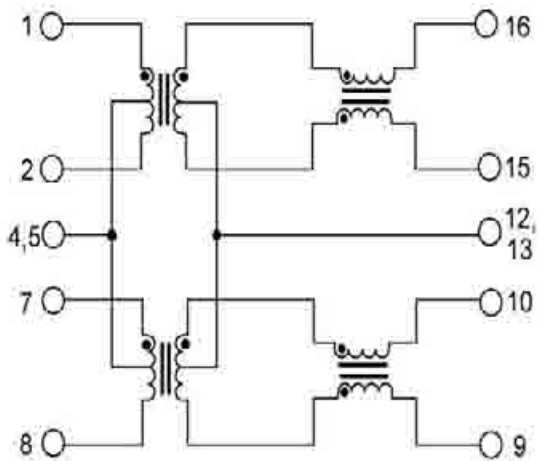
**11F-17**



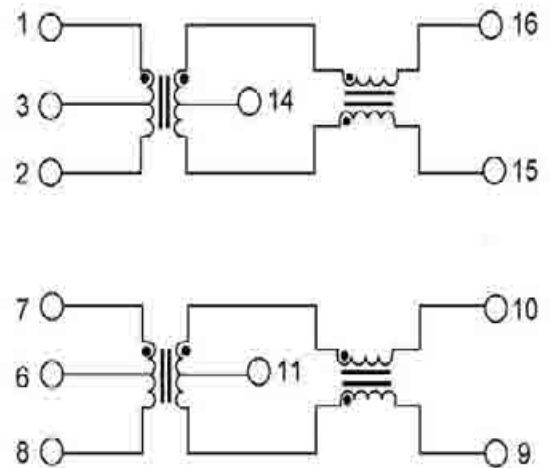
**11F-17A**



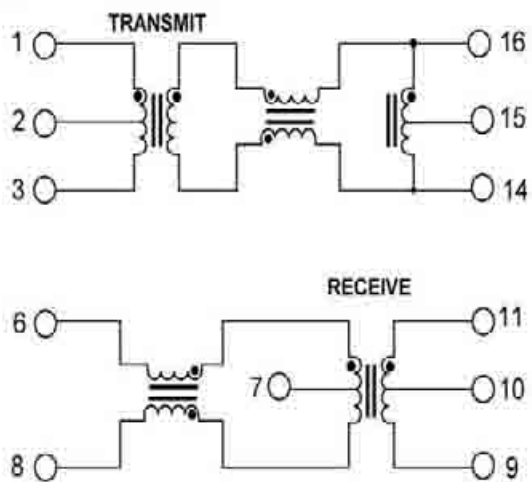
**11F-17B**



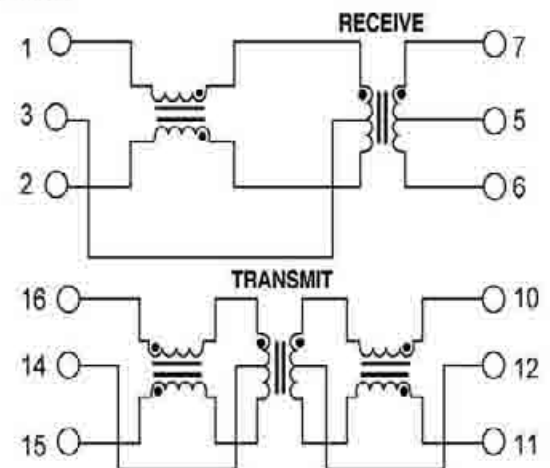
**11F-18**



**11F-19**

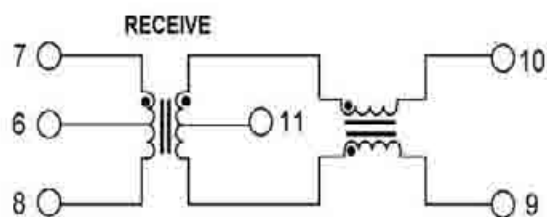
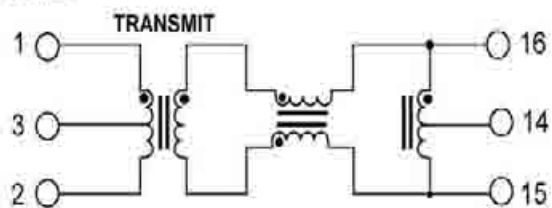


**11F-19A**

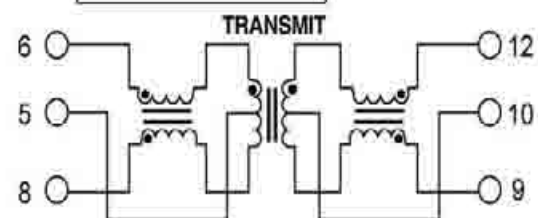
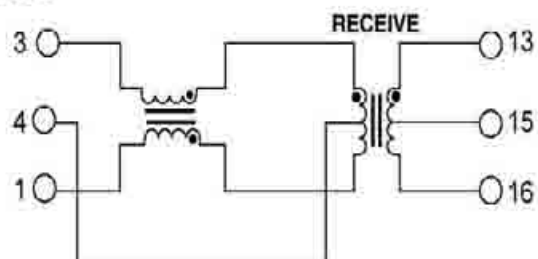




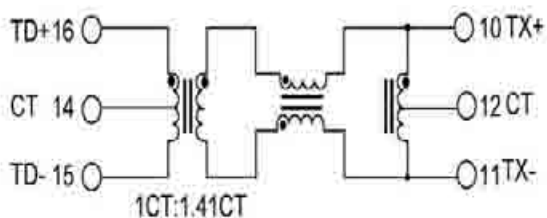
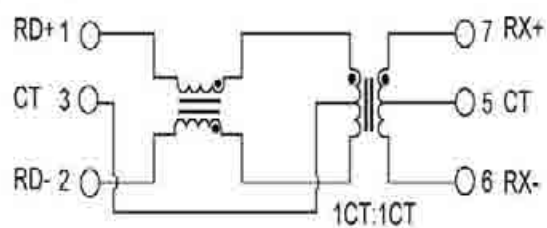
### 11F-19B



### 11F-19C



### 11F-19D



## FEATURES

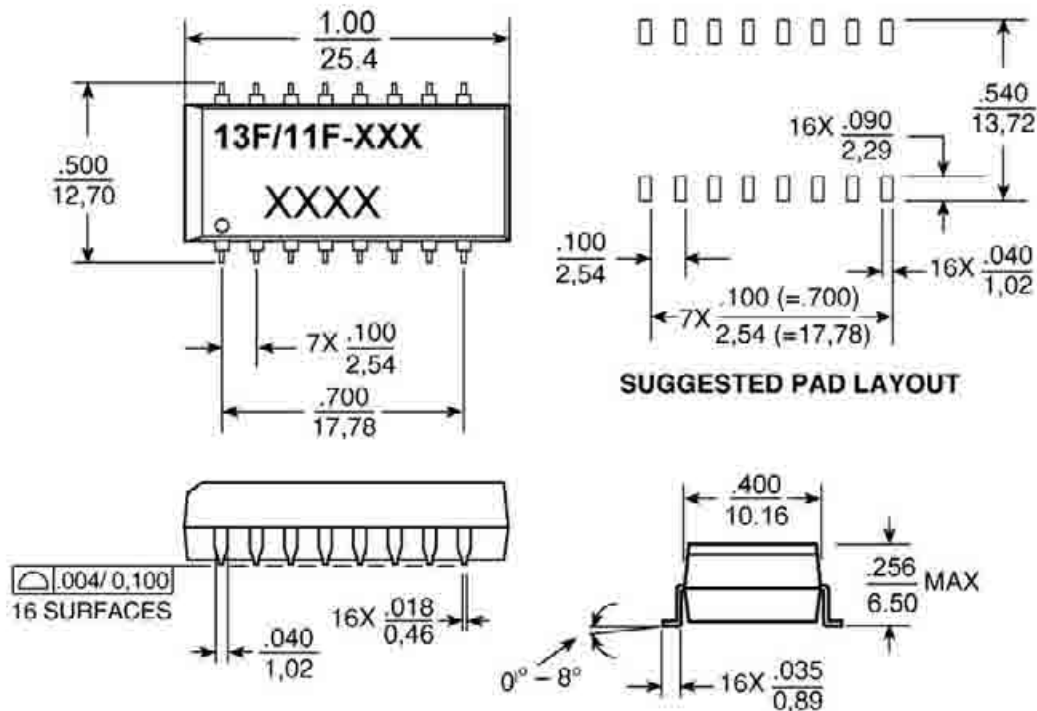
- Meets all IEEE 802.3 and ANSI X3.236 standards including 350  $\mu$ H OCL with 8 mA bias.
- IC grade transfer-molded package withstands 235°C IR reflow.
- Patented Interlock Base construction for high reliability.
- Recognized by UL 1950.



## ELECTRICAL SPECIFICATIONS @25°C -Operating temperature 0°C TO 70°C

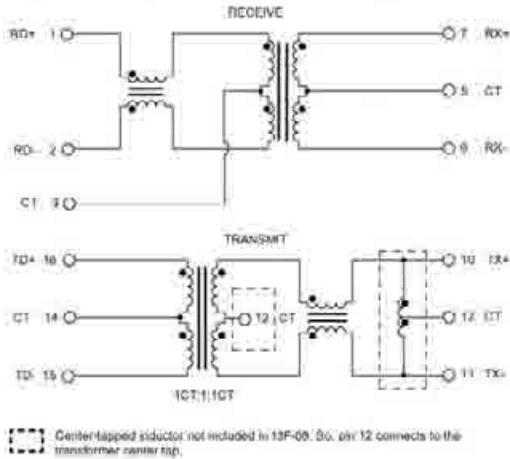
Part Number	Insertion Loss (dB MAX.)	Return Loss (dB MIN @100 $\Omega$ )				Differential to Common Mode Rejection (dB MIN)			Crosstalk (dB MIN)			Hipot (V <sub>RMS</sub> min)
		0.1-100MHz	1-30 MHz	40 MHz	50 MHz	60-80 MHz	30 MHz	60 MHz	100 MHz	30 MHz	60 MHz	
13F-01L	-1.0	-18	-18	-16	-12	-50	-45	-40	-50	-40	-40	1500
13F-02	-1.0	-20	-20	-18	-14	-42	-36	-33	-50	-40	-40	1500
13F-04	-1.0	-22	-20	-18	-12	-45	-40	-35	-50	-40	-40	1500
13F-05	-1.0	-16	-13.5	-11.5	-10	-45	-45	-35	-40	-38	-35	1500
13F-05A	-1.0	-16	-13.5	-11.5	-10	-45	-45	-35	-40	-38	-35	1500
13F-07	-1.0	-22	-20	-18	-12	-45	-40	-35	-50	-40	-40	1500
13F-07A	-1.0	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500
13F-08	-1.0	-22	-20	-18	-12	-42	-38	-32	-50	-40	-40	1500
13F-09C	-1.0	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500
13F-10C	-1.0	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500
11F-03L	-1.0	-18	-16	-15	-12	-45	-40	-35	-50	-40	-40	1500
11F-04	-1.0	-20	-18	-18	-14	-45	-40	-35	-45	-40	-35	1500

## MARKINGS AND DIMENSION

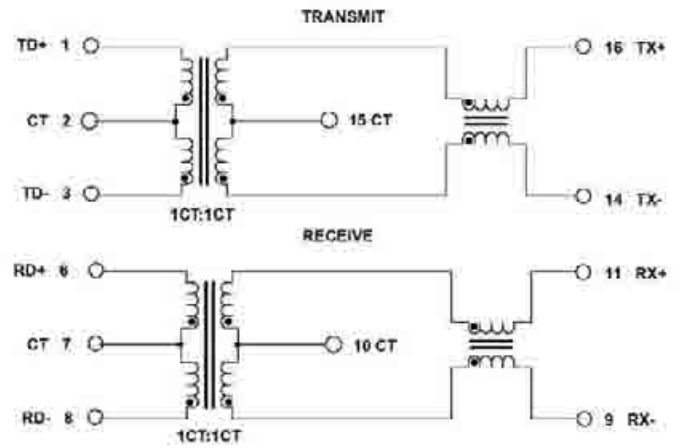


## SCHEMATICS

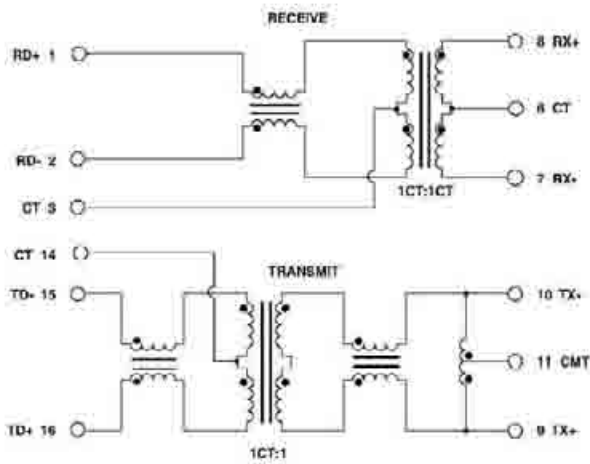
13F-01L, 13F-02, 13F-04, 13F-08, 13F-09C



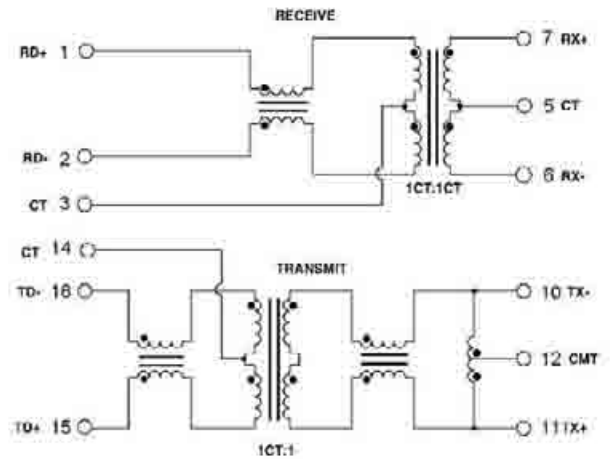
13F-07, 13F-10C



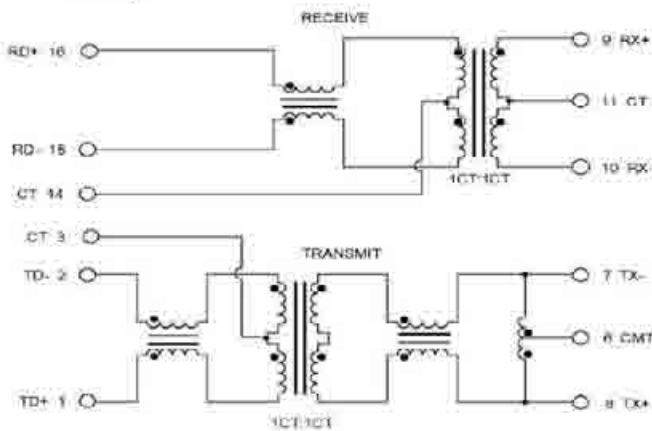
13F-05



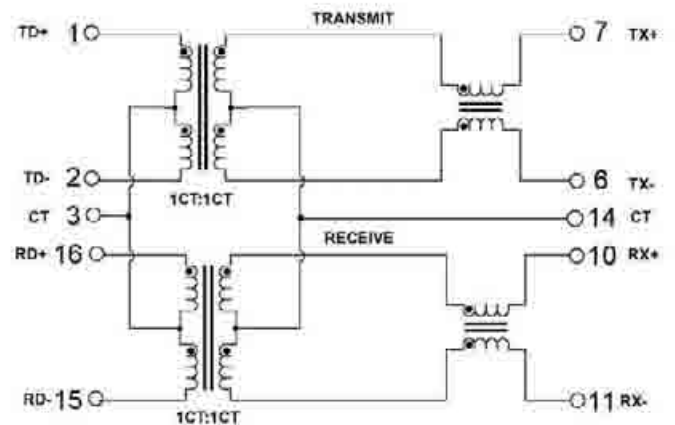
13F-05A



11F-03L, 11F-04



11F-07A





# 13F-30 SERIES

# 10/100BASE-T PC CARD LAN MAGNETICS MODULES

## FEATURES

- Half port and single port designs for maximum layout flexibility
- Low profile packages from 0.094" (2.39 mm) to 0.078" (1.98 mm) for PC Card

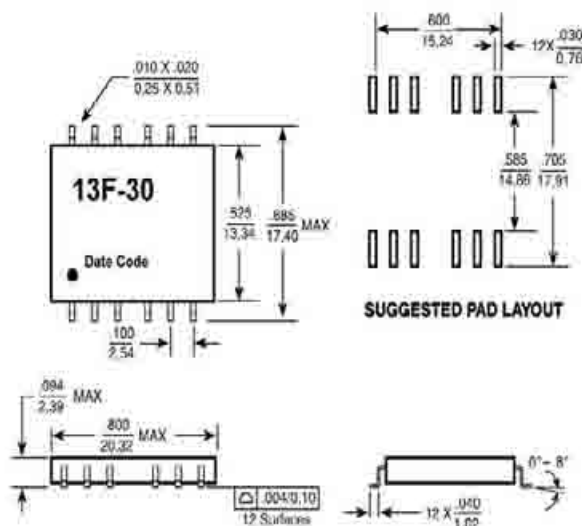


## ELECTRICAL SPECIFICATIONS @25°C-Operating temperature 0°C TO 70°C

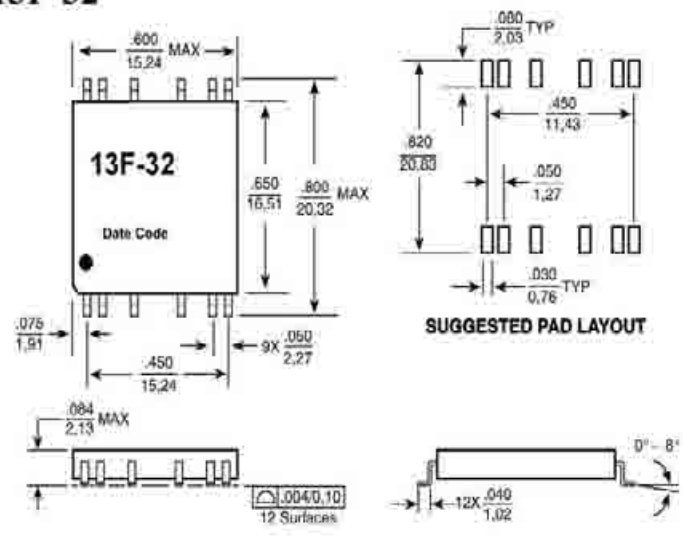
Part Number	Turns Ratio (±5%)		Insertion Loss (dB MAX.)	Return Loss (dB MAX.)			Differential to Common Mode Rejection (dB MAX.)			Crosstalk (dB MIN)			Hipot V <sub>rms</sub> MIN
	Transmit	Receive		0.3-100MHz	30 MHz	60 MHz	80 MHz	30 MHz	50 MHz	100 MHz	30 MHz	62 MHz	
13F-30	1:1	1:1	-1.3	-18	-13	-11	-40	-35	-30	-40	-40	-35	1500
13F-31	1.414:1	1:1	-2.0	-18	-12	-10	-30	-30	-30	-40	-40	-35	1500
13F-32	1:1	1:1	-1.3	-18	-13	-11	-30	-30	-30	-40	-35	-30	1500
13F-35	1:1	1:1	-1.3	-16	-12	-11	-30	-30	-30	-40	-35	-30	1500
13F-37	1.414:1	1:1	-1.1	-17	-12	-10	-30	-30	-30	-40	-35	-30	1500
13F-38	1:1	1:1	-0.9	-16	-12	-11	-35	-33	-20	-50	-45	-40	1500
13F-38A	1:1	1:1	-2.0	-18	-14	-12	-40	-35	-30	-50	-45	-40	1500
13F-39	1:1	1:1	-0.9	-16	-12	-11	-35	-33	-20	-50	-45	-40	1500
13F-39B	1:1	1:1	-0.9	-18	-12	-11	-40	-	-30	-45	-45	-37	1500
13F-39C	1:1	1:1	-2.0	-18	-12	-12	-40	-35	-30	-45	-45	-37	1500

## MECHANICAL

### 13F-30,13F-31



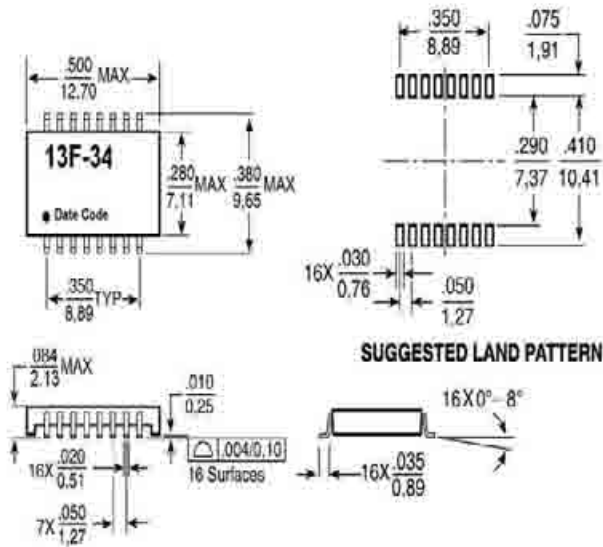
### 13F-32



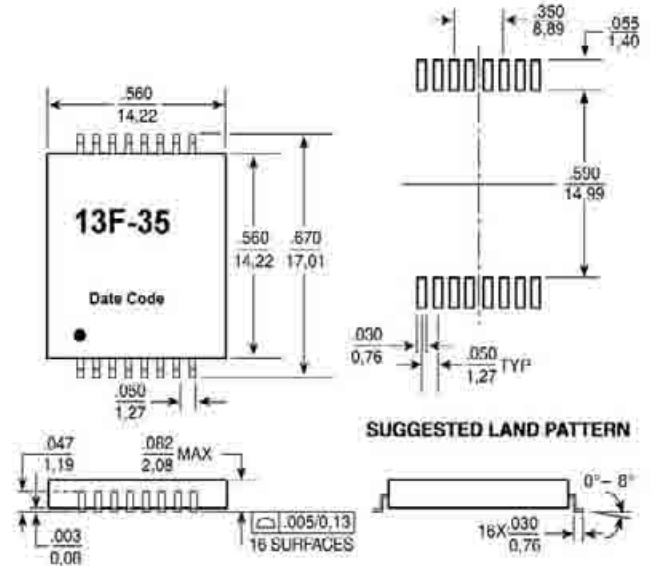
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm 0.10 / 0.25$



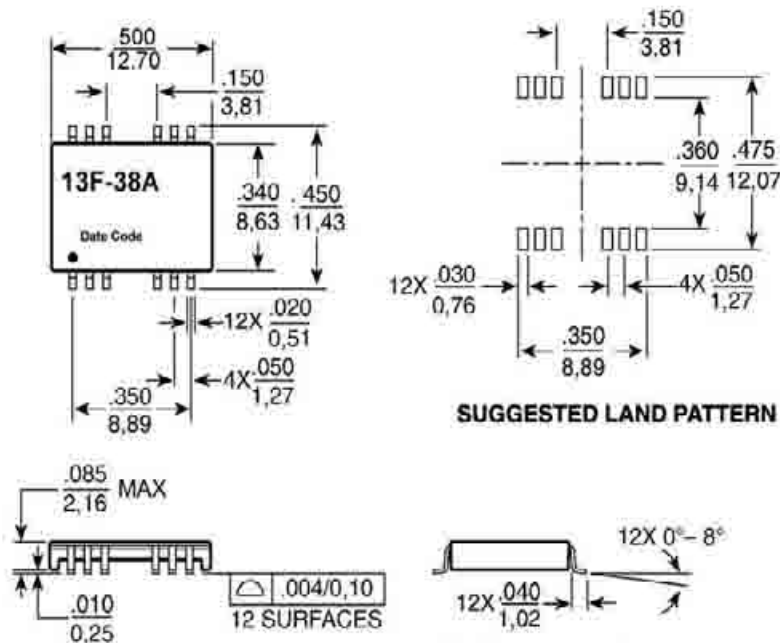
### 13F-39,13F-39B



### 13F-35,13F-37,13F-38



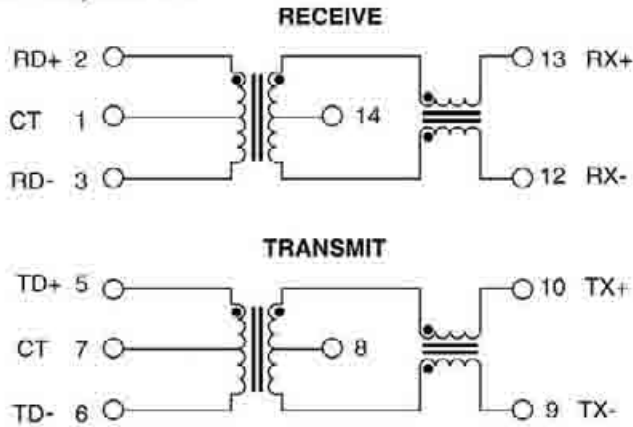
### 13F-38A,13F-38TD,13F-39C



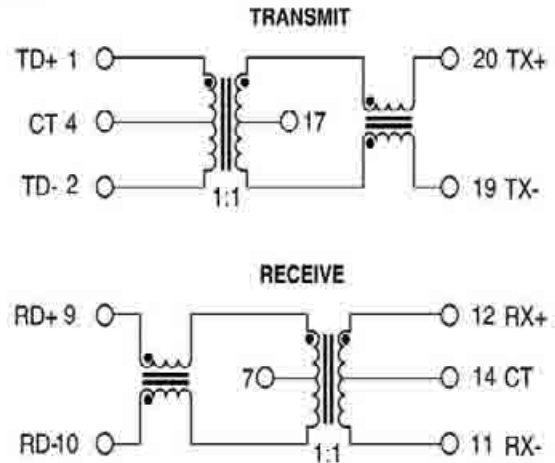
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are:  $\frac{+.010}{0.25}$

### SCHEMATIC

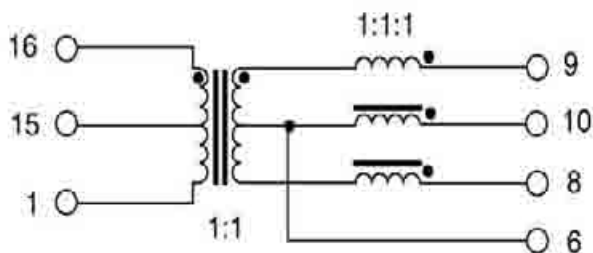
#### 13F-30,13F-31



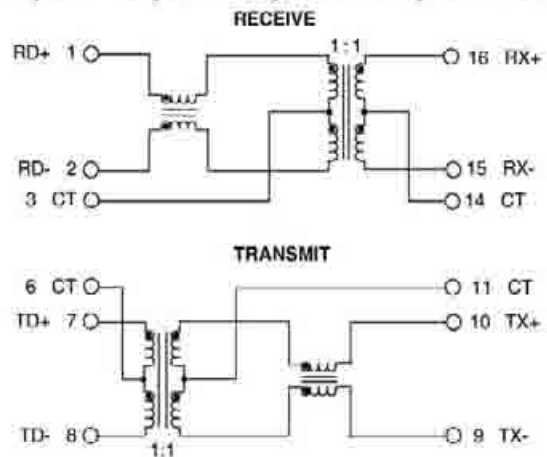
#### 13F-32



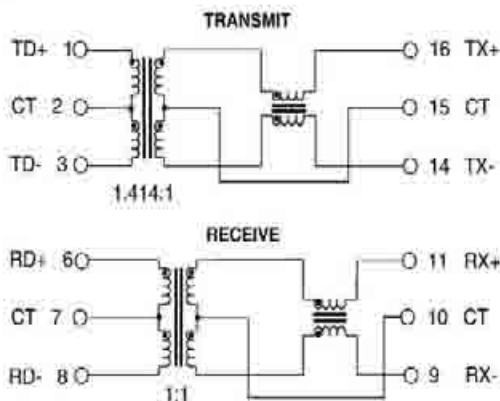
#### 13F-34



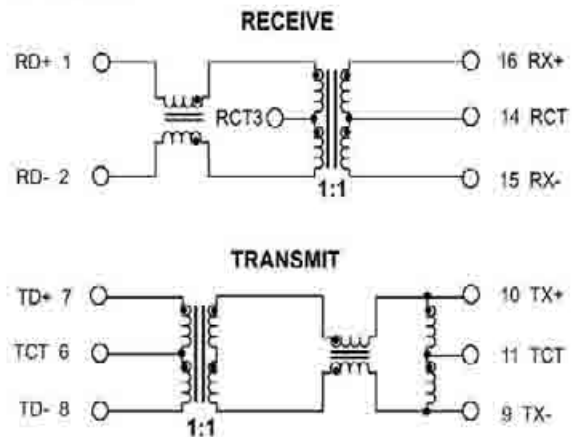
#### 13F-35,13F-37,13F-39,13F-39B,13F-39C



#### 13F-38



#### 13F-38A





# 13F-40 SERIES

# 10/100BASE-T SINGLE PORT TRANSFORMER MODULES

## FEATURES

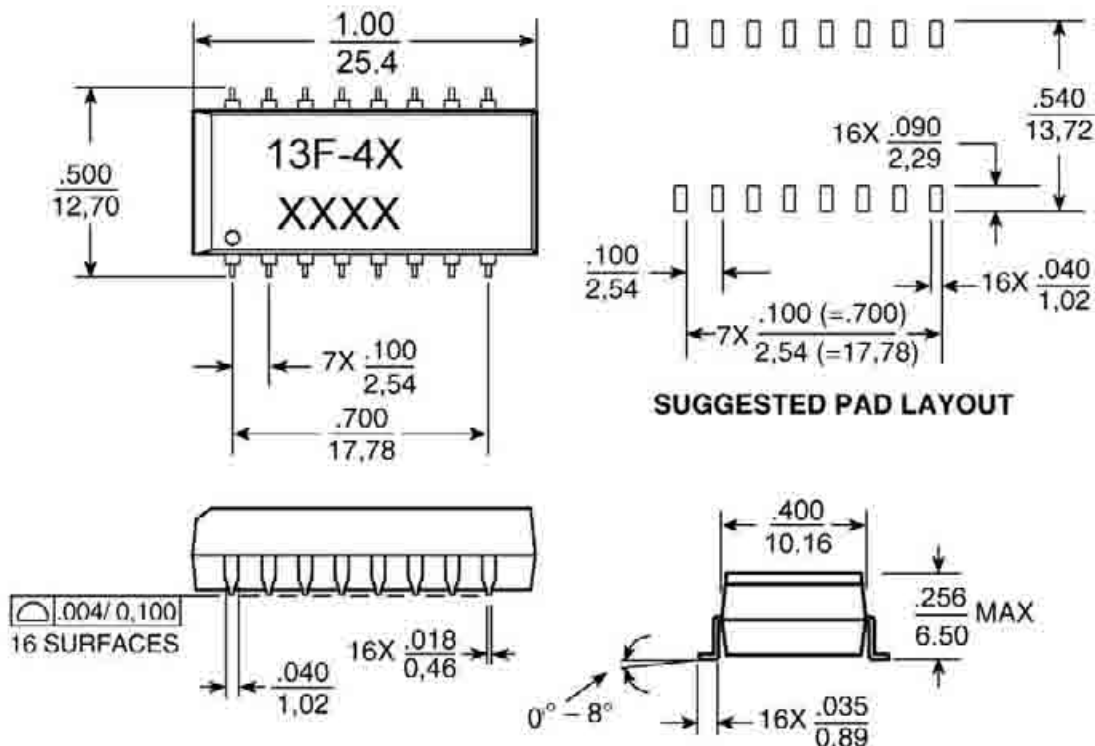
- Meets all IEEE 802.3 and ANSI X3.236 standards including 350  $\mu$ H OCL with 8 mA bias.
- IC grade transfer-molded package withstands 235°C IR reflow.
- Patented Interlock Base construction for high reliability.
- Recognized by UL 1950.



## ELECTRICAL SPECIFICATIONS @25°C-Operating temperature 0°C TO 70°C

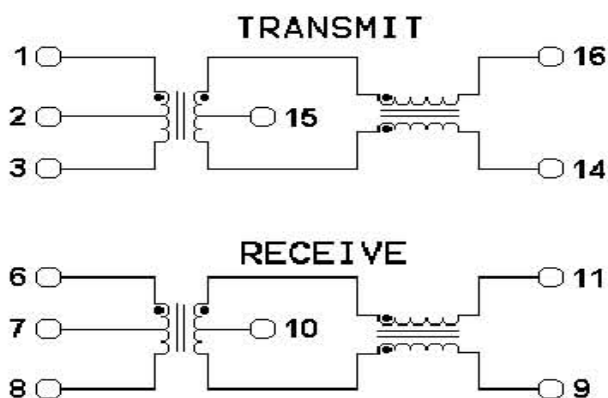
Part Number	Turns Ratio ( $\pm 5\%$ )		Insertion Loss (dB MAX)	Return Loss (dB MIN)			Crosstalk (dB MIN)			Hipot (V <sub>rms</sub> MIN)
	Receive	Transmit		100KHz-100MHz	30 MHz	60 MHz	100 MHz	30 MHz	60 MHz	
13F-40	1:1	$\sqrt{2}$ :1	-1.0	-16	-12	-10	-45	-38	-34	1500
13F-41	1:1	$\sqrt{2}$ :1	-1.0	-16	-12	-10	-45	-38	-34	1500
13F-42	1:1	$\sqrt{2}$ :1	-1.0	-16	-12	-10	-45	-38	-34	1500
13F-43	1:1	$\sqrt{2}$ :1	-1.0	-16	-12	-10	-45	-38	-34	1500
13F-44	1:1	1.25:1	-1.0	-16	-12	-10	-45	-38	-34	1500
13F-45	1:1	1: $\sqrt{2}$	-2.0	-18	-12	-11	-45	-38	-34	1500
13F-46	1:1	$\sqrt{2}$ :1	-1.0	-16	-12	-10	-45	-38	-34	1500
13F-47	1:1	1: $\sqrt{2}$	-2.0	-16	-11	-10	-45	-38	-34	1500

## MARKINGS AND DIMENSION

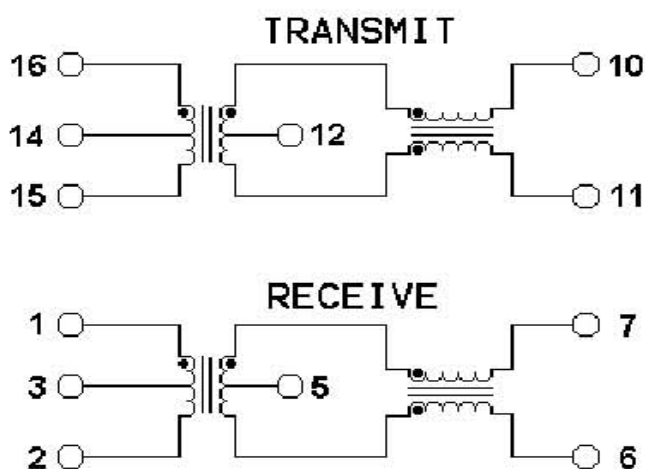


### SCHEMATICS

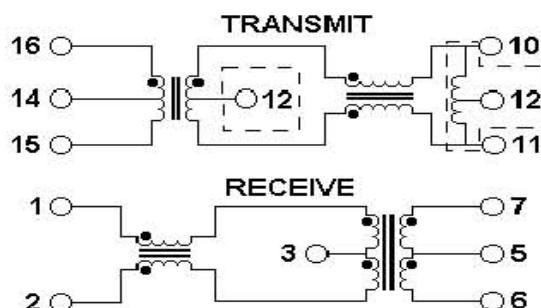
13F-40  
13F-42  
13F-44  
13F-46



13F-41



13F-43  
13F-45  
13F-47



NOTE : The 13F-45 incorporates an autotransformer, so there is no connection to the TX transformer center tap.



# MMT 81F-1X SERIES

# 10/100BASE-TX DUAL PORT TRANSFORMER MODULES

## FEATURES

- Compliant with IEEE 802.3u and ANSI X3.236-1995 standards including 350  $\mu$ H OCL with 8 mA bias from 0°C to 70°C.
- Modules designed to support two RJ-45 connectors.
- IC-grade transfer molded package withstands 235°C peak temperature profile.
- Recognized by UL 1950.

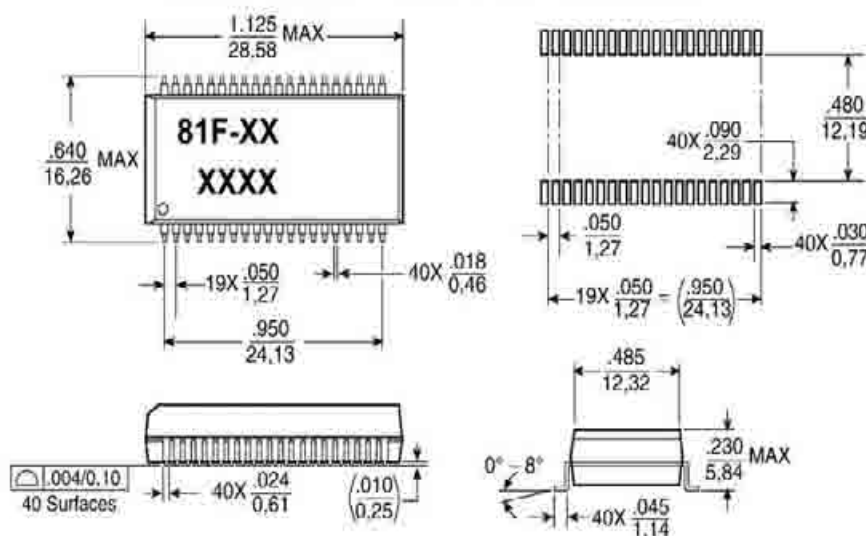


## ELECTRICAL SPECIFICATIONS @25°C-Operating temperature 0°C TO 70°C

Part Number	Insertion Loss (dB TYP)	Return Loss (dB TYP)				Crosstalk (dB TYP)				Common to Common Rejection Ratio 0.1-60MHz (dB TYP)		Differential to Common Mode Rejection(dB TYP)	
		0.1-100 MHz	2-30 MHz	40 MHz	50 MHz	60-80 MHz	1 MHz	30 MHz	60 MHz	100 MHz	Transmit	Receive	1-60 MHz
81F-01	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30
81F-02	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-30	-30	-40	-30
81F-03L	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-30	-30	-40	-30
81F-04	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-30	-30	-40	-30
81F-05	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-45	-30	-53	-40
81F-06	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30
81F-07	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30
81F-08	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-40	-30	-45	-35
81F-09	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-40	-30	-45	-35
81F-10	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-30	-30	-40	-30
81F-11	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30
81F-12	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30
81F-13	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30
81F-14	-1.2	-16	-14	-13.0	-12	-50	-45	-40	-35	-40	-30	-37	-33

NOTE: 1. All MODELS MEET INPUT/OUTPUT BREAKDOWN (Hipot) of 1500 Vrms.

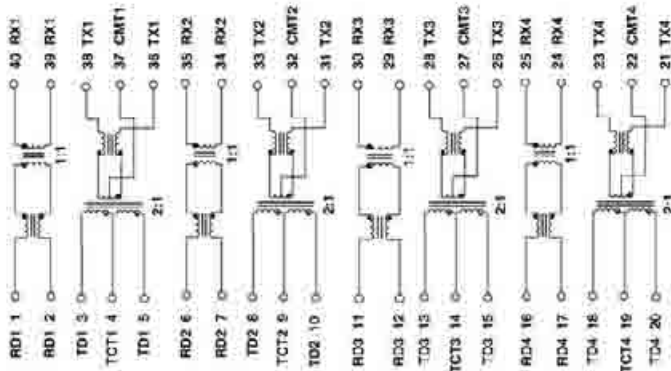
## MARKINGS AND DIMENSIONS



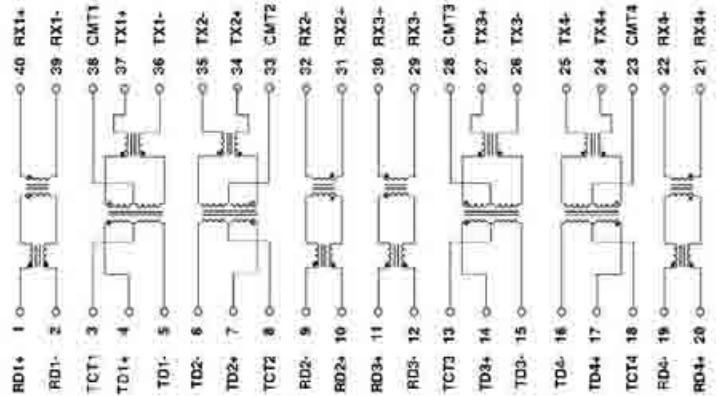
Dimensions:  $\frac{\text{inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$

## SCHEMATICS

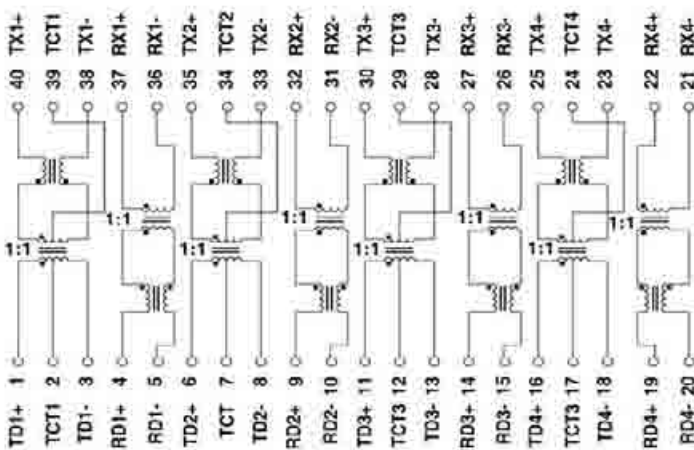
### 81F-01



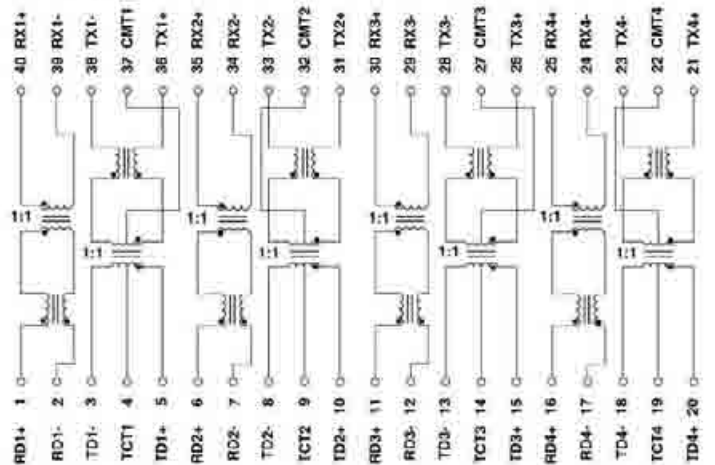
### 81F-02



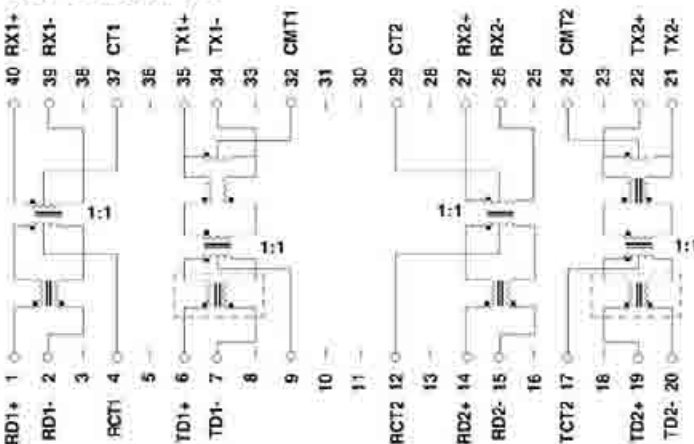
### 81F-03L



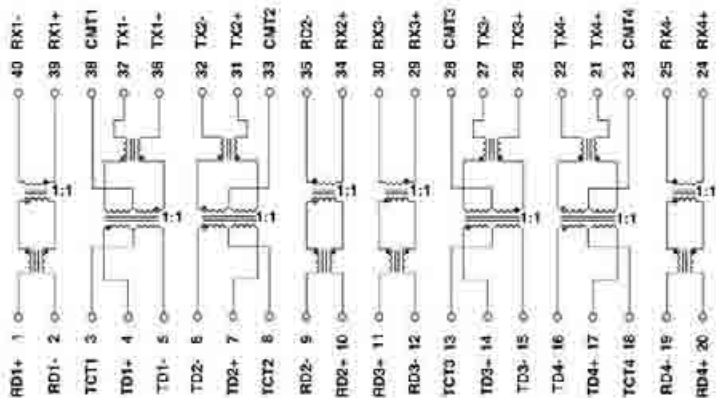
### 81F-04



### 81F-05/81F-08



### 81F-06

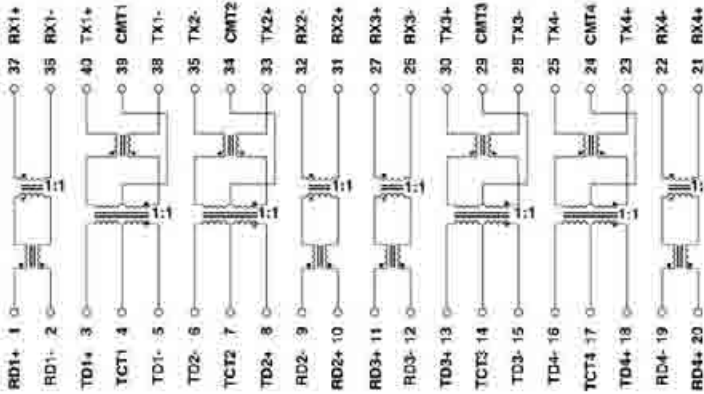


NOTE: 81F-05 has input common mode choke on pins 6-7 and pins 19-20.  
81F-08 does not have the additional choke.

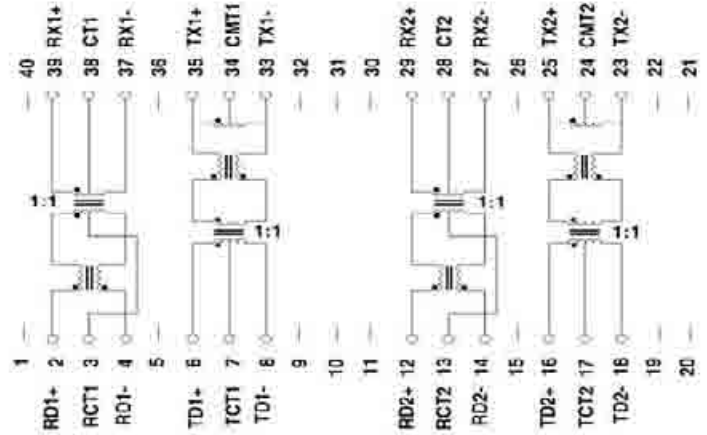


## SCHEMATICS

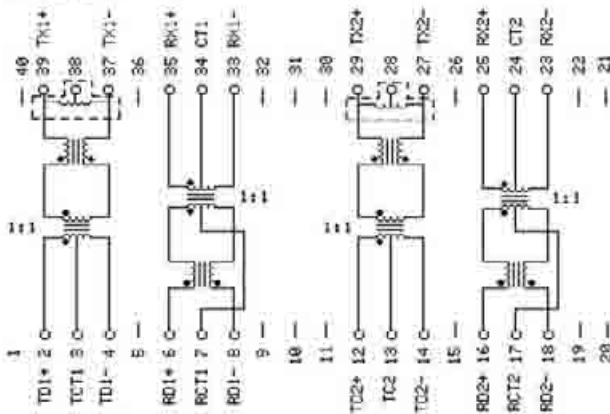
### 81F-07



### 81F-09

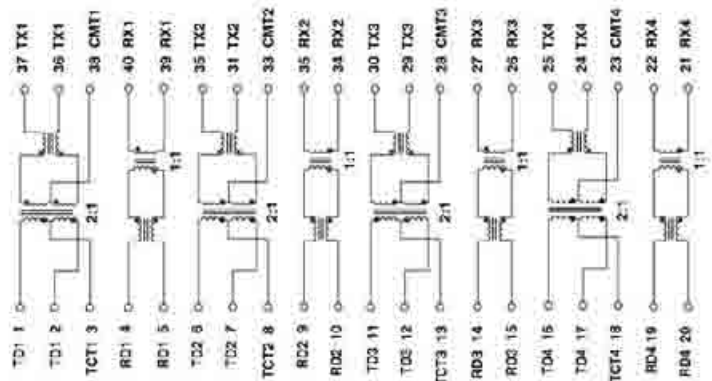


### 81F-10/81F-14

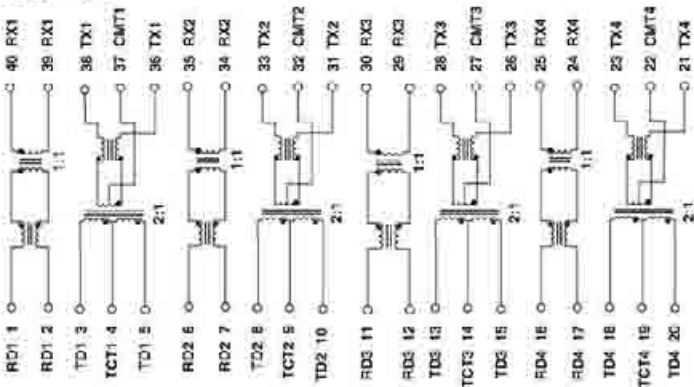


NOTE : 81F-14 INCLUDES THE SHUNT CHUKE.

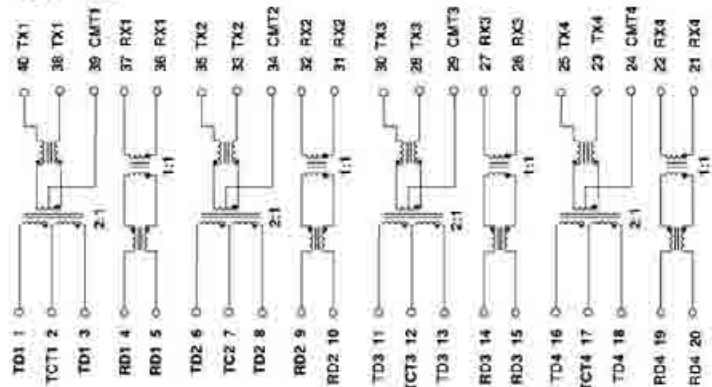
### 81F-11



### 81F-12

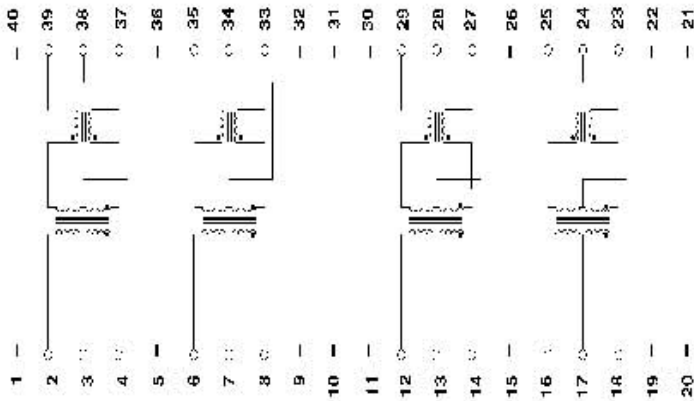


### 81F-13

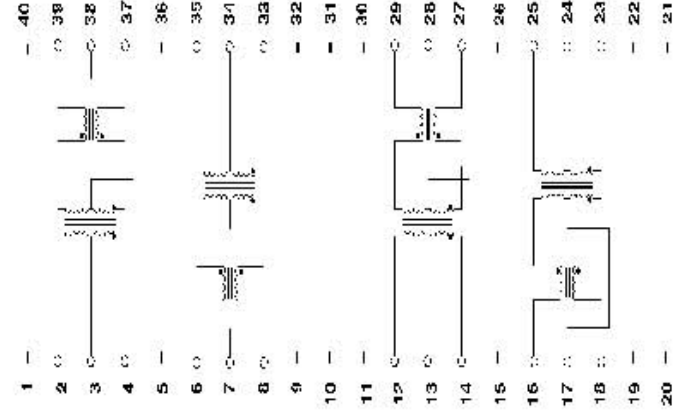


## SCHEMATICS

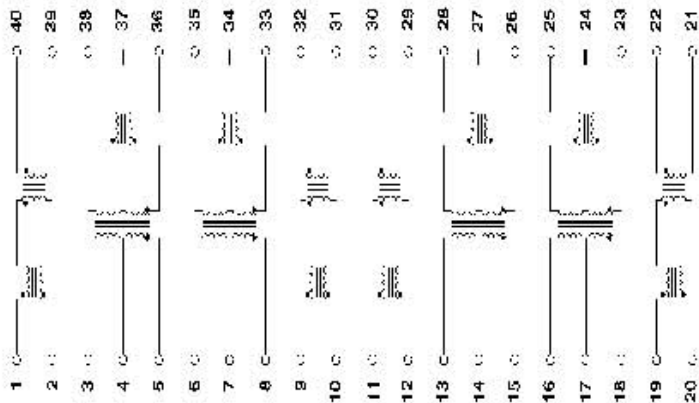
### 81F-15



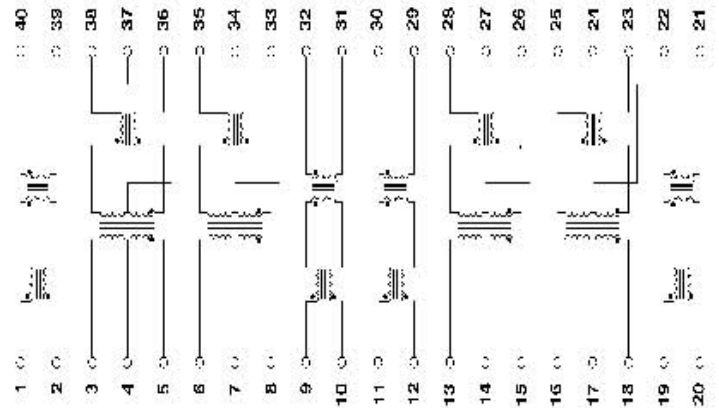
### 81F-16



### 81F-16A



### 81F-17





## FEATURES

- Symmetrical TX and RX channels for Auto MDI/MDIX capability
- Compliant with IEEE 802.3u and ANSI X3.263 standards including 350  $\mu$ H OCL with 8 mA bias
- Designed for reflow soldering at temperatures up to 235°C

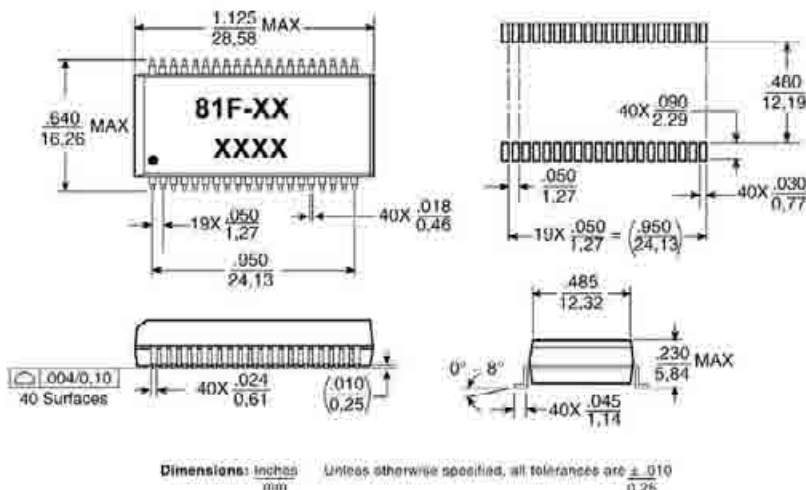


## ELECTRICAL SPECIFICATIONS @25°C-Operating temperature 0°C TO 70°C

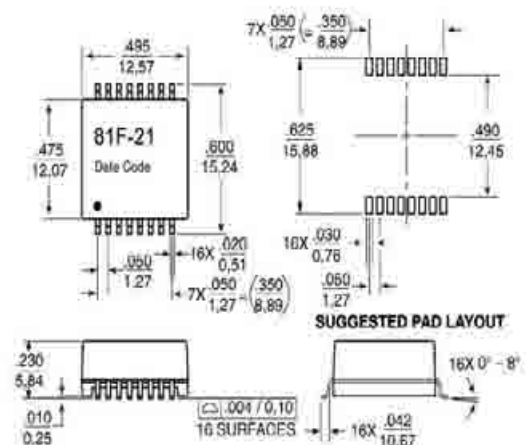
Part Number	Insertion Loss (dB MAX)	Return Loss (dB MIN)					Crosstalk (dB TYP)				Differential to Common Mode Rejection (dB MIN)		Hipot (Vrms MIN) @60Hz
		0.1-100 MHz	2-30 MHz	40 MHz	50 MHz	60-80 MHz	1 MHz	30 MHz	60 MHz	100 MHz	1-60 MHz	60-100 MHz	
81F-20	-1.0	-18	-14.4	-13.1	-12	-65	-50	-40	-35	-40	-35	1500	
81F-21	-1.0	-18	-14.4	-13.1	-12	-65	-50	-40	-35	-40	-35	1500	
81F-22	-1.0	-18	-14.4	-13.1	-12	-55	-45	-40	-33	-37	-25	1500	
81F-22C	-1.4	-18	-14.4	-13.1	-12	-55	-45	-40	-33	-37	-25	1500	
81F-20C	-1.0	-16.5	-16	-15.5	-12	-60	-43	-38	-33	-43	-27	1500	

## Mechanicals

### 81F-20,81F-22,81F-22C,81F-20C

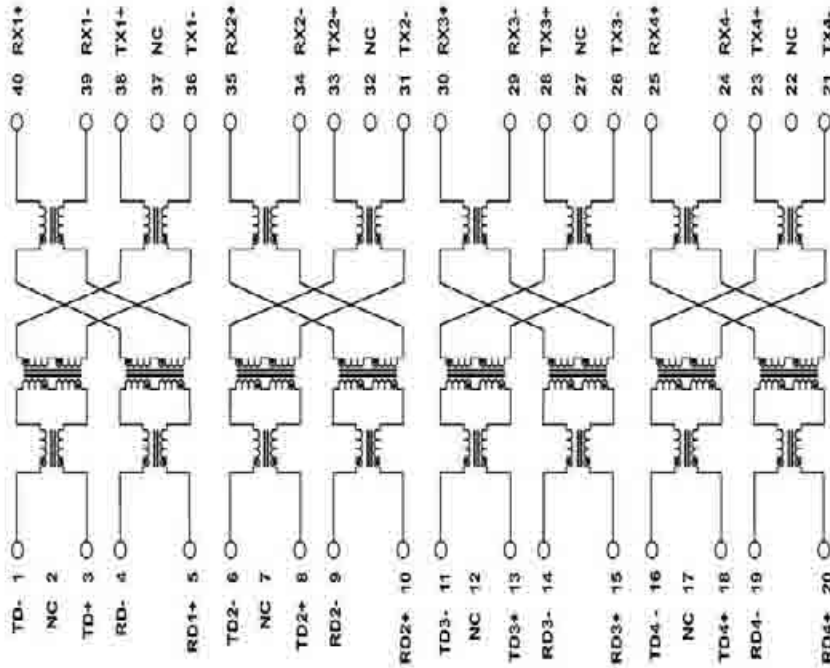


### 81F-21

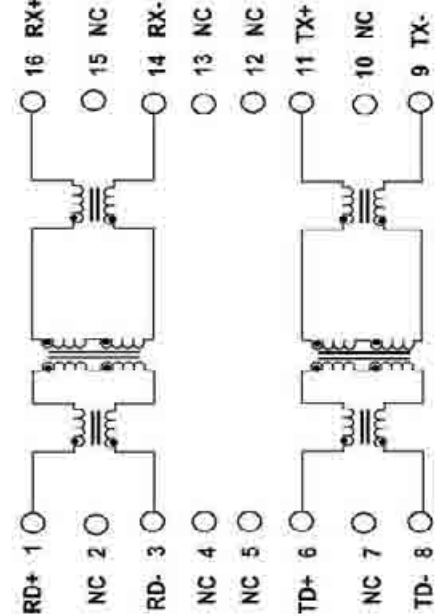


**Schematics**

**81F-20,81F-20C**



**81F-21**



**81F-22,81F-22C**

