



## 10Base-T Transformer Interface Module

Compliant to IEEE802.3 10 Base-T Requirements.

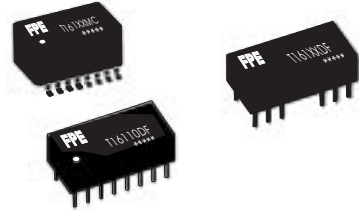
Available With Common Mode Chokes for Better EMI Suppression.

High Isolation Voltage To Comply with IEEE802.3 Safety Requirements For LAN's Applications.

Available In Through Hole and Surface Mount Packages.

RoHS `R` peak solder rating 260,  
non-RoHS peak solder rating 225

For RoHS part, add suffix `R`



### ELECTRICAL SPECIFICATIONS @ 25°C ( Operating Temperature : 0°C to 70°C )

Part Number	Turns Ratio +/-5%	Primary Pins	Open CCT	Interwinding	Leakage	DCR (Ω max)	Schematic /Package
			Inductance OCL(μ H min)	Capacitance Cw/w (pF max)	Inductance L/L (μ H min)		
T16109DF T16109DF-R	1:1/1:1/1:1/1:1	1-2/3-4/5-6/7-8	100	10	0.3	0.3	IN1/TH1
T16110DF T16110DF-R	1:1/1:1/1:1/1:1	1-2/3-4/5-6/7-8	150	12	0.3	0.3	IN1/TH1
T16111DF T16111DF-R	1:1.414/1:1.414/1:1.414/1:1.414	1-2/3-4/5-6/7-8	150	12	0.4	0.4	IN1/TH1
T16112DF T16112DF-R	1CT : 1CT / 1CT :1CT	1-3 / 6-8	200	12	0.4	0.4	IN2/TH2
T16113DF T16113DF-R	1CT : 1CT / 1CT : 2CT	1-3 / 6-8	200	14	0.5	0.6	IN2/TH2
T16114DF T16114DF-R	2CT : 1CT / 1CT : 1CT	1-3 / 6-8	200	14	0.5	0.6	IN2/TH2
T16116DF T16116DF-R	1CT : 1CT / 1CT :1CT	1-3 / 6-8	140	12	0.3	0.4	IN3/TH2
T16117DF T16117DF-R	1CT:1CT / 1CT:1.414CT	1-3 / 6-8	200	13	0.4	0.5	IN3/TH2
T16118DF T16118DF-R	1CT:1CT / 1CT:1.414CT	1-3 / 6-8	200	12	0.4	0.5	IN4/TH1
T16119DF T16119DF-R	1CT : 1CT / 1CT : 2CT	1-3 / 6-8	200	14	0.5	0.6	IN3/TH2
T16120DF T16120DF-R	1CT : 2CT / 1CT : 1CT	1-3 / 6-8	200	14	0.5	0.6	IN3/TH2
T16121DF T16121DF-R	2CT : 1CT / 1CT : 1CT	1-3 / 6-8	140	12	0.1&0.3	0.3	IN3/TH2
T16105MC T16105MC-R	1:1/1:1/1:1/1:1	1-2/3-4/5-6/7-8	100	10	0.3	0.3	IN1/SMT
T16106MC T16106MC-R	1:1/1:1/1:1/1:1	1-2/3-4/5-6/7-8	150	12	0.3	0.3	IN1/SMT
T16109MC T16109MC-R	1CT : 1CT / 1CT : 2CT	1-3 / 6-8	200	14	0.5	0.6	IN2/SMT
T16110MC T16110MC-R	2CT : 1CT / 1CT : 1CT	1-3 / 6-8	200	14	0.5	0.6	IN2/SMT
T16111MC T16111MC-R	1CT:1CT / 1CT:1.414CT	1-3 / 6-8	200	13	0.4	0.5	IN2/SMT
T16112MC T16112MC-R	1CT : 1CT / 1CT :1CT	1-3 / 6-8	140	12	0.3	0.4	IN3/SMT
T16115MC T16115MC-R	1CT : 1CT / 1CT : 2CT	1-3 / 6-8	200	14	0.5	0.6	IN3/SMT
T16116MC T16116MC-R	1CT : 2CT / 1CT : 1CT	1-3 / 6-8	200	14	0.5	0.6	IN3/SMT
T16117MC T16117MC-R	1CT : 2CT / 1CT : 1CT	1-3 / 6-8	112	8	0.3	0.8	IN5/SMT
T16118MC T16118MC-R	1CT : 1CT / 1CT : 1.41CT	1-3 / 6-8	200	15	0.5	0.5	IN6/SMT
T16119MC T16119MC-R	1CT:1CT / 1CT:2CT	1-3 / 6-8	140	15	0.5	0.5	IN7/SMT
T16120MC T16120MC-R	1CT : 2CT / 1CT : 1CT	1-3 / 6-8	200	12	0.3	1.0	IN8/SMT
T16121MC T16121MC-R	1CT : 1CT / 1CT :2CT	1-3 / 6-8	190	15	0.5	0.5	IN6/SMT
T16122MC T16122MC-R	1:1/1:1/1:1/1:1	1-2 / 3-4/5-6/7-8	140	12	0.4	0.4	IN1/SMT
T16123MC T16123MC-R	1:1/1:1/1:1/1:1	1-2/3-4/5-6/7-8	100	12	0.3	0.3	IN1/SMT

Note : All models meet Isolation Voltage (HiPot) of 1500Vrms

Operating Temperature : 0°C to 70°C

OCL, Cw/w and L/L are measured at 20mV , 100KHz

Specifications Subject To Change Without Notice

TAIWAN  
TEL: 00886-3-3310896  
FAX: 00886-3-3310865

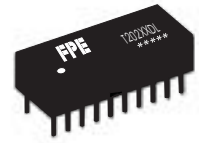
DONGGUAN  
TEL: 086-769-86761589  
FAX: 086-769-86761549



# 10Base-T Transformer Interface Module

Dual Port Transformer Modules Designed For `Filter On Chip`  
10 Base-T MultiPort Applications.

Common mode choke incorporated for better EMI suppression  
Various Pinout Options Available For Optimal Printed Board Layout  
For RoHS part, add suffix `-R`



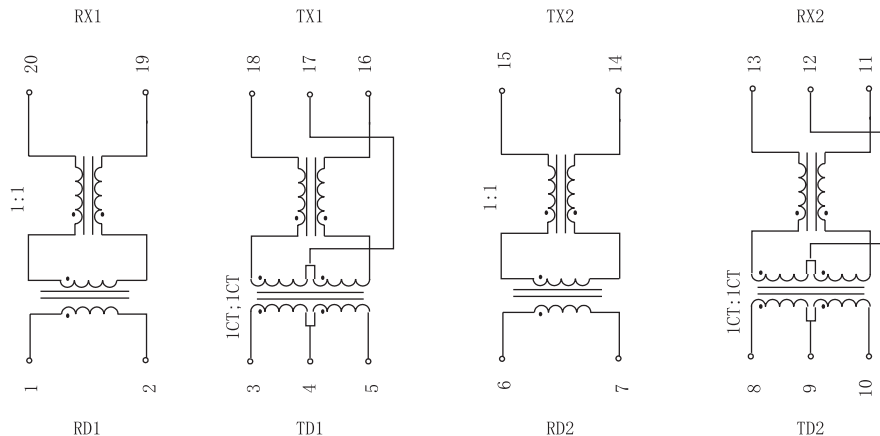
## ELECTRICAL SPECIFICATIONS @ 25°C (Operating Temperature : 0°C - 70°C )

Part Number	Turns Ratio +/- 5 %		OCL (Pri) ( $\mu$ H min)		Interwinding Capacitance Cw/w (pF max)	Leakage Inductance L/L ( $\mu$ H min)	DCR ( $\Omega$ max)	HiPot (Vrms min)
	Tx	Rx	Tx	Rx				
T20201DL T20201DL-R	1CT:1CT	1 : 1	150	150	20	0.3	0.5	1500
T20202DL T20202DL-R	1CT:1CT	1 : 1	150	150	12	0.3	0.5	1500
T20203DL T20203DL-R	1CT:1CT	1 : 1	100	100	12	0.3	0.5	1500
T20204DL T20204DL-R	1CT:1CT	1 : 1	100	100	20	0.3	0.5	1500
T20205DL T20205DL-R T20215DL	1CT:1	1CT : 1	140	140	12	0.4	0.6	1500
T20206DL T20206DL-R	1CT: $\sqrt{2}$ CT	1 : 1	150	150	12	0.4	0.6	1500
T20207DL T20207DL-R	1CT: $\sqrt{2}$ CT	1 : 1	150	150	20	0.4	0.6	1500
T20208DL T20208DL-R	1CT: $\sqrt{2}$ CT	1 : 1	150	150	12	0.4	0.6	1500
T20209DL T20209DL-R	1CT: $\sqrt{2}$ CT	1 : 1	150	150	20	0.4	0.6	1500
T20210DL T20210DL-R	1CT:2CT	1 : 1	50	200	12	0.3	0.5	1500
T20211DL T20211DL-R	1CT:2CT	1 : 1	50	200	12	0.3	0.5	1500
T20212DL T20212DL-R	1CT:2CT	1 : 1	50	200	20	0.5	0.9	1500
T20213DL T20213DL-R	1CT:2CT	1 : 1	50	200	20	0.5	0.9	1500
T20214DL T20214DL-R	2CT:1	1CT : 1	400	100	20	0.5	0.9	1500

Note : OCL, Cw/w and L/L are measured at 20mV, 100kHz

## SCHEMATICS

### T20201DL, T20201DL-R



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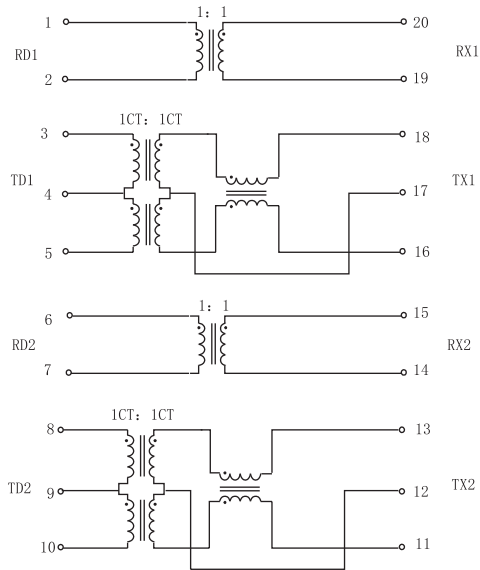
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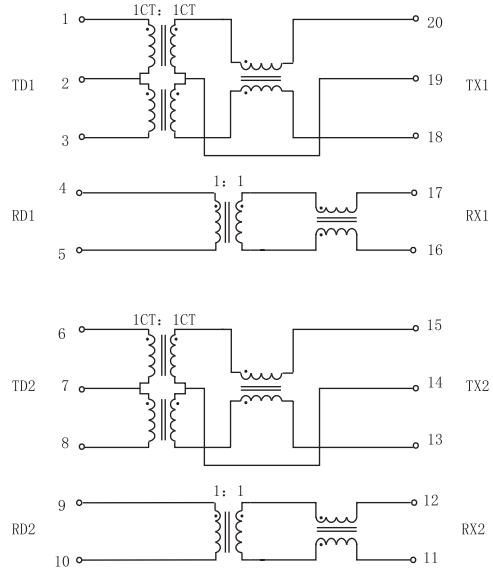
# 10Base-T Transformer Interface Module

## SCHEMATICS (Continued)

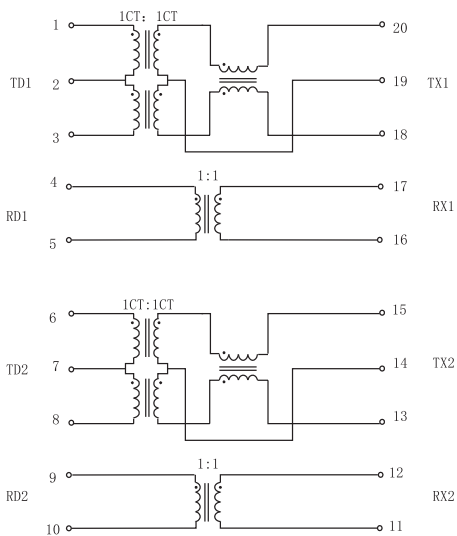
T20202DL  
T20202DL-R



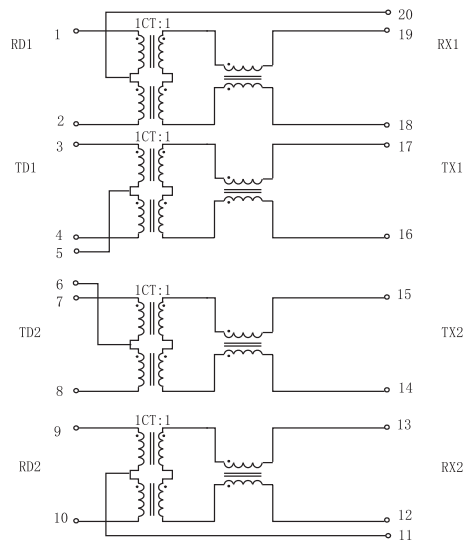
T20203DL  
T20203DL-R



T20204DL, T20204DL-R



T20205DL, T20205DL-R  
T20215DL, T20215DL-R



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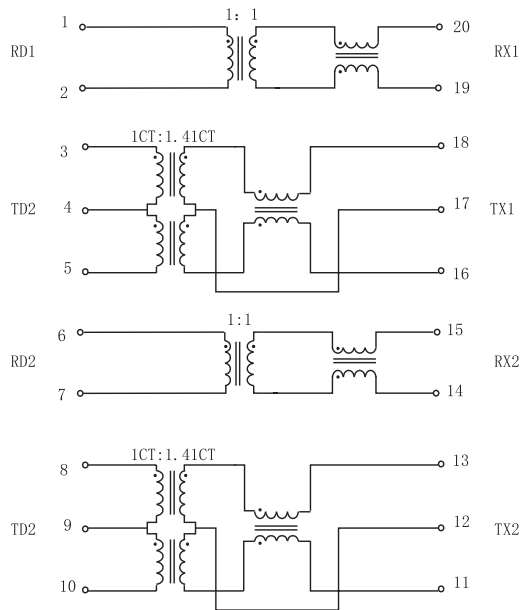
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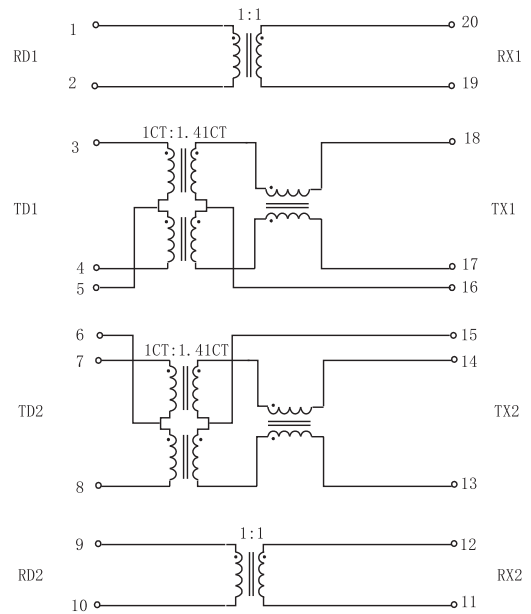
# 10Base-T Transformer Interface Module

## SCHEMATICS (Continued)

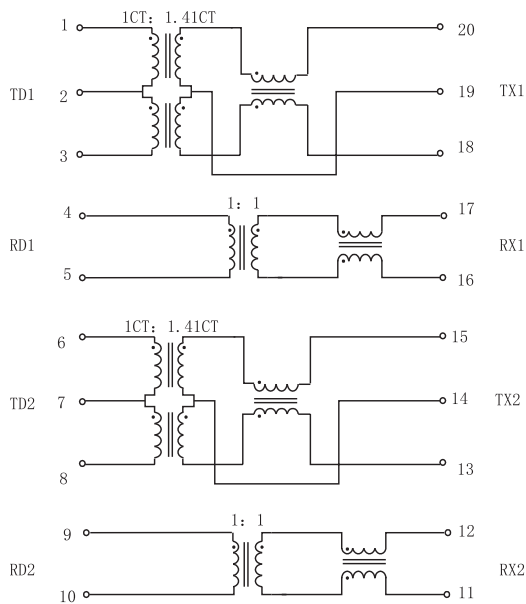
**T20206DL, T20206DL-R**



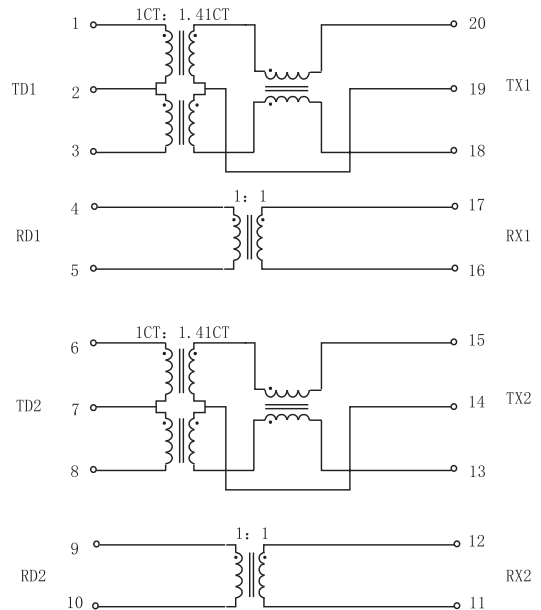
**T20207DL, T20207DL-R**



**T20208DL, T20208DL-R**



**T20209DL, T20209DL-R**



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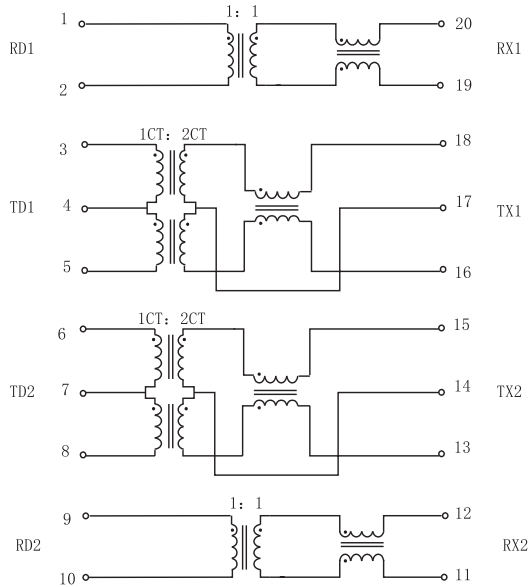
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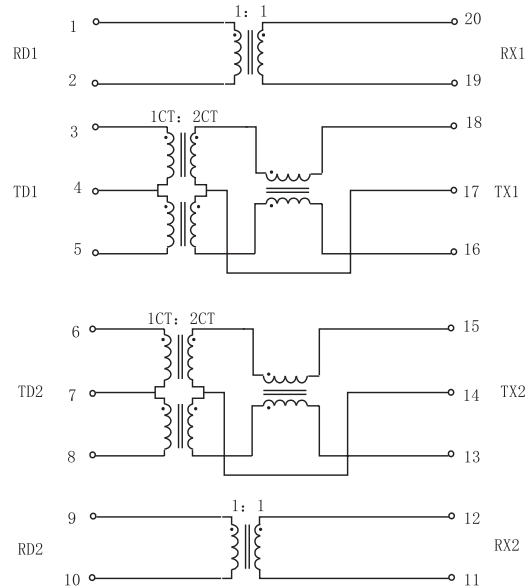
# 10Base-T Transformer Interface Module

## SCHEMATICS (Continued)

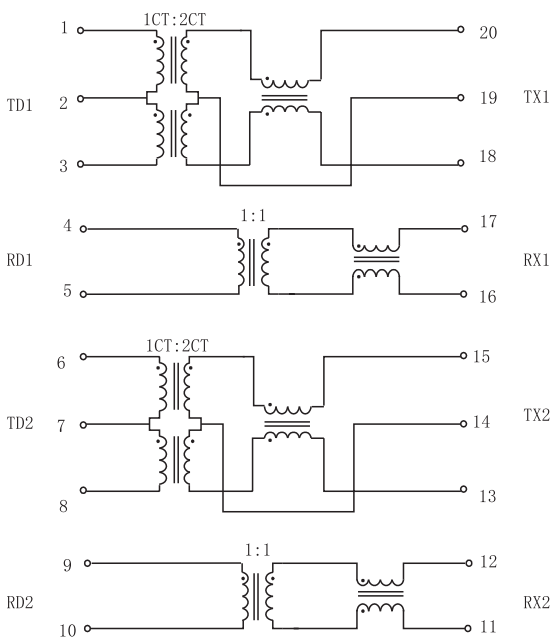
### T20210DL, T20210DL-R



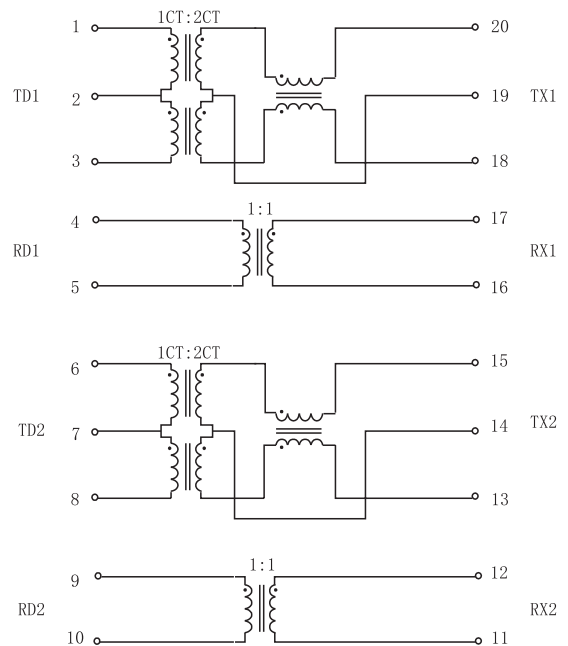
### T20211DL, T20211DL-R



### T20212DL, T20212DL



### T20213DL, T20213DL-R



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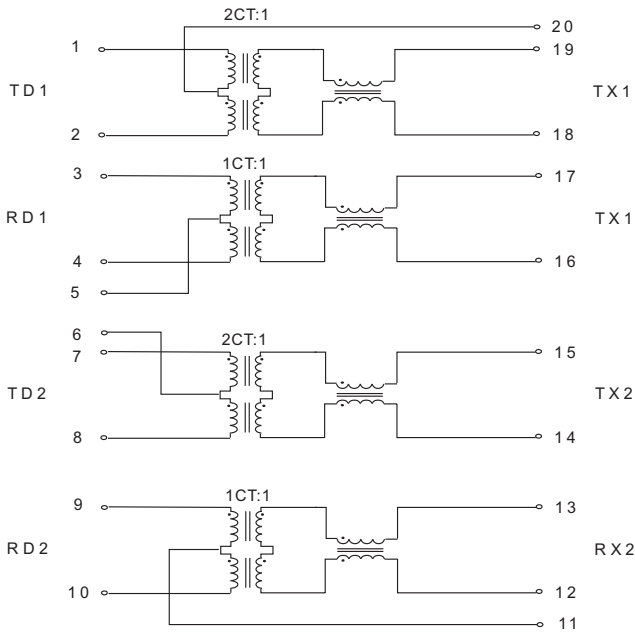
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## SCHEMATICS ( Continued )



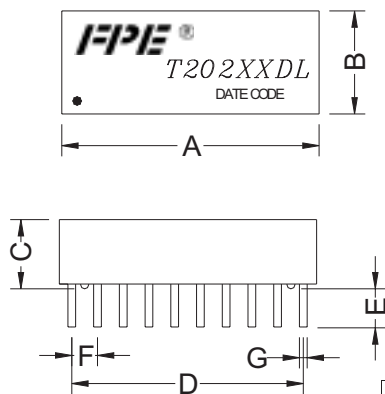
## APPLICATION NOTES

This series of filterless Through Hole Dual Transformer Modules have been developed and designed as a low cost solution to provide two complete cable interfaces for used in 10Base-T multi-port applications with no sacrifice in performance versus similar single port type. These two port devices provide common mode noise suppression, signal wave shaping and high isolation transformers to supply equipment isolation as per IEEE802.3 standards.

All modules are incorporated with high impedance common mode chokes on either the transmits channel or on both transmit and receive channel for added EMI suppression which may be necessary for FCC Class B certification.

The T20201DL T20202DL T20203DL T20204DL T20205DL series are designed to interface with AMD's QuIET™, QuEST™ and eIMR™ 10 Base-T applications while the T20206DL T20207DL T20208DL T20209DL series are optimised for Level One's LXT901/914/916/944 and Texas Instrument's TNETE2004. The T20210DL T20211DL T20212DL T20213DL T20214DL series are for used in National Semiconductor's DP83936 10 Base-T applications respectively.

## DIMENSIONS & MARKING



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	25.15	25.65	0.990	1.010
B	9.78	10.28	0.385	0.405
C	5.84	6.35	0.230	0.250
E	3.10	3.50	0.122	0.138
D	22.86(typical)		0.900(typical)	
F	2.54(typical)		0.100(typical)	
G(DIA)	0.50(typical)		0.020(typical)	
H	7.62(typical)		0.300(typical)	

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