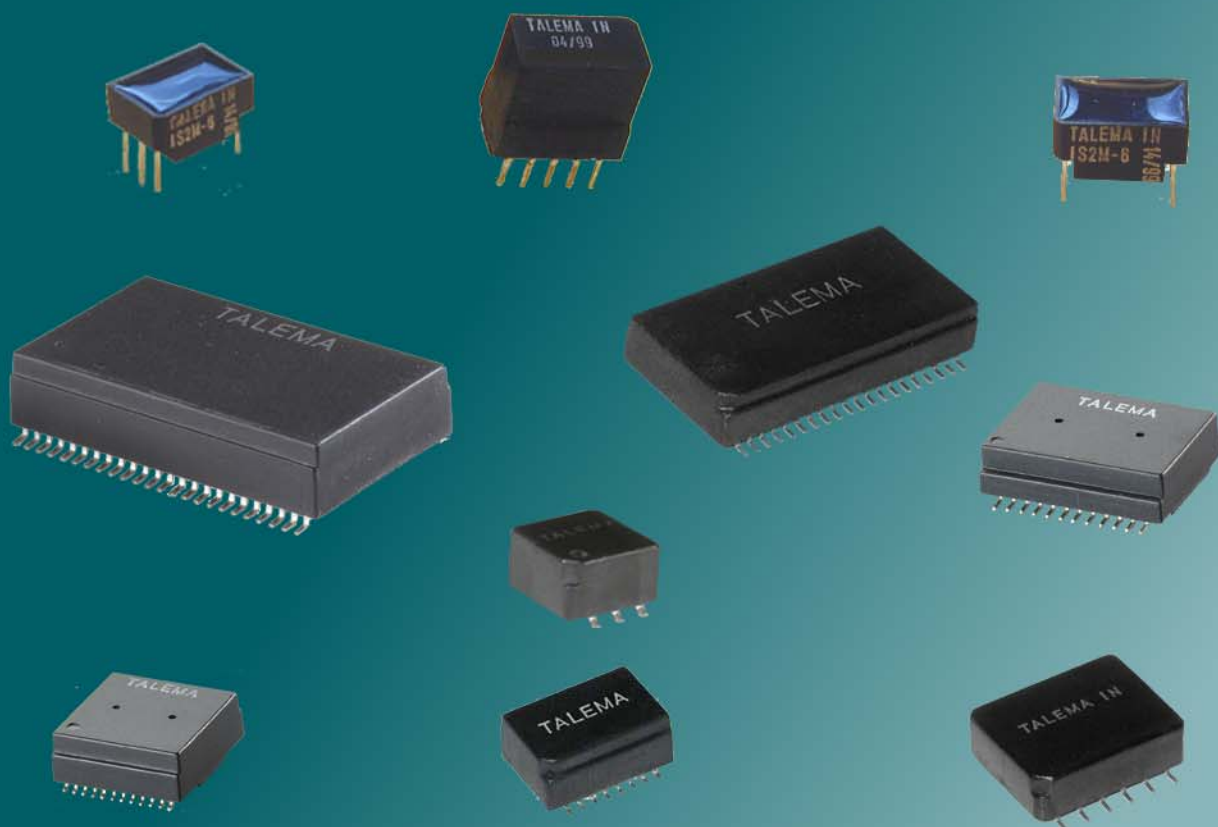


E1/T1/CEPT/ISDN-PRI - T3/E3/D3/STS-1

Interface Transformers for

Telecommunication Products



Magnetic Components for E1/T1/CEPT/ISDN-PRI - T3/E3/D3/STS-1

TALEMA PROFILE

Founded in 1975, The TALEMA International Group has established itself as a world leader in the Design & Manufacture of toroidal transformers and related magnetic components. Our strong technical engineering expertise has contributed to the growth of our current workforce to over 700 employees in manufacturing locations in the Czech Republic and India.

Over the years The Talema Group has succeeded in designing, producing and delivering in excess of 50 million transformers to its customers. The recent incorporation of xDSL technology into our extensive range of Telecom and LAN magnetics offerings, such as ISDN, Ethernet transformers for 10Base-T/100Base-T/1000Base-T, has broadened our market offering to an even higher level.

QUALITY

The TALEMA Group has a total commitment to quality and employs Lean Six Sigma training for engineering, production and administrative staff to help achieve a goal of zero defects. All facilities maintain very stringent Quality Control and Quality Assurance procedures and are certified to and manufacture in accordance with ISO 9001:2008, ISO/TS 16949:2009 and meet a broad range of International Standards including UL, VDE, IEC, and EN.

ENVIRONMENT

All TALEMA International Group manufacturing facilities are RoHS & REACH Compliant and all Transformers, Chokes, Inductors and HF Components are produced in an Environment Management System (EMS) facility certified to ISO 14001:2004



CONTENTS

Page Nr.

E1 / T1 / PRI / CEPT

- IC Selection Guide for Single & Dual Interface Transformers - 3 - 4
- MJM Series - Miniature SMD Dual Interface Transformers - 16 terminals - 0.05" (1.27mm) pitch - 5 - 6
- IS2M Series - Single THT Interface Transformers - 7 - 8

Tape & Reel Packing and Dimensions - 9 - 10

Regional Locations - Design, Manufacturing, Sales & Marketing - 11

Talema Product Summary (Total Program) - 12

Visit our websites for detailed electrical and mechanical specifications for Talema's extensive line of Magnetic Components for Power Conversion, Toroidal Transformers & LAN Applications:

www.talema.com

www.nuvotem.com

www.ntmagnetics.cz

IC - E1 / T1 / PRI / CEPT Transformer Selection Guide



Talema manufactures a wide range of transformers for all 1.544 and 2.048Mbps applications. A full listing of LIU Transceiver IC's with recommended Talema transformers is listed on the following cross reference chart.

Performance has been proven in the many design-ins of our products in these applications. Quality and consistency is guaranteed through 100% testing of the specified parameters for Primary Inductance, Leakage Inductance, Turns Ratio, DC resistance and Interwinding Capacitance. This ensures that the Return Loss and Pulse Waveshape requirements of ITU-T G.703 and ANSI T1.102 can be met. Additionally all parts are 100% tested for 1500V minimum isolation.

Temperature Performance

Products are offered with extended temperature (-40° to 85°C) as standard. Required minimum inductance levels are maintained at the lower temperature limits.

IC - Transformer Selection Guide for T1/E1/CEPT/ISDN-PRI Interface Modules

IC Manufacturer	IC Part Number	Application	Talema Transformer Part Number		
			Single Through Hole		16 Pin Dual SMD
			Transmit	Receive	Tx / Rs
Cologne Chip	HFC-E1	S2M	--	--	MJM-032
Cirrus Logic (Crystal)	61318	120 E1	IS2M-7 / -19	IS2M-15 / -20	MJM-018
	61318	75 E1	IS2M-17 / -27	IS2M-15 / -20	--
	61577	T1 & E1	IS2M-7 / -19	IS2M-19	MJM-017
	61304A, 61305A, 61535A, 61574A, 61575	T1	IS2M-8 / 21	IS2M-21 / -19	MJM-019
	61304A, 61305A, 61535A, 61574A, 61575	75 E1	IS2M-12	IS2M-7 / -19	MJM-025
	61304A, 61305A, 61535A, 61574A, 61575	120 E1	IS2M-12	IS2M-7 / -19	MJM-025
	61582, 61583		IS2M-8 / -21	IS2M-8 / -21	MJM-013
	61310, 61581		IS2M-7 / -19	IS2M-15 / -20	MJM-018
	61310, 61581	Host	IS2M-7 / -19	IS2M-7 / -19	MJM-026
	61880, 61881		IS2M-8 / -21	IS2M-7 / -19	MJM-019
	61584, 61584A	IQ3	IS2M-7 / -19	IS2M-7 / -19	MJM-017
61582, 61583, 61584, 61584A	IQ5	IS2M-8 / -21	IS2M-8 / -21	MJM-013	
Maxim (Dallas)	DS2196, DS2155, DS2149, DS2148		IS2M-7 / -19	IS2M-15 / -20	MJM-018
	DS2151, DS2152, DS2153, DS2154		IS2M-8 / -21	IS2M-15 / -20	MJM-019
	DS2151, DS2152, DS2153, DS2154		IS2M-10 / -25	IS2M-15 / -20	MJM-028
	DS2148/Q48/Q348/349/Q59	3V	IS2M-7 / -19	IS2M-15 / -20	MJM-018
	DS2148, Q48	5V	IS2M-10 / -25	IS2M-15 / -20	MJM-028
	DS21352/Q352, DS21354/Q354	T1/E1	IS2M-7 / -19	IS2M-15 / -20	MJM-018
	DS21552/Q552, DS21554/Q554	T1/E1	IS2M-8 / -21	IS2M-15 / 20	MJM-019
	DS21552/Q552, DS21554/Q554	T1/E1	IS2M-10 / -25	IS2M-15 / -20	MJM-028
	DS26502, DS2503, DS21455, DS21458, DS26528		IS2M-7	IS2M-15	MJM-018
Exar	XRT5683A, XRT59L91, XRT5894, XRT5897, XRT5997		IS2M-6 / -19	IS2M-6 / -19	MJM-017
	XRT5793, XRT5794		IS2M-12	IS2M-24 / -20	MJM-025
	XRT81L27, 82L24, 82D20		IS2M-25	IS2M-6 / -19	MJM-028
	XRT83L30, XRT83L34, XRT83L38		IS2M-6 / -19	IS2M-6 / -19	MJM-018
	XRT86L30, XRT86L32, XRT86L34, XRT86L38		IS2M-6	IS2M-24	MJM-018
	T5684, XRT7288, 82D20		IS2M-25	IS2M-7 / -19	MJM-028
IDT	82V2044, 82V2048, 82V2048L, 82V2054, 82V2058		IS2M-6	IS2M-6	MJM-043
	82V2041E, 82V2042E, 82V2044E, 82V2048E		IS2M-6	IS2M-24	MJM-018
	82V2081, 82V2082, 82V2084, 82V2088		IS2M-6	IS2M-24	MJM-018
	82P2281, 82P2282, 82P2284, 82P2288		IS2M-6	IS2M-24	MJM-018
Infineon (Siemens)	PEB2254, PEB2255	E1/T1/J1	--	--	MJM-010
	PEB2254, PEB2255	E1/T1/J1	--	--	MJM-021
	PEB22504, PEB22554, PEB2256	3.3V	--	--	MJM-022

IC - Transformer Selection Guide for T1/E1/CEPT/ISDN-PRI Interface Modules

IC Manufacturer	IC Part Number	Application	Talema Transformer Part Number		
			Single Through Hole		16 Pin Dual SMD
			Transmit	Receive	Tx / Rs
Intel (Level One)	LXT300, LX301		IS2M-7 / -19	IS2M-7 / -19	MJM-017
	LXT304, LXT305, LXT307	T1/E1	IS2M-7 / -19	IS2M-7 / -19	MJM-017
	LXT304, LXT305, LXT307	T1	IS2M-8 / -21	IS2M-7 / -19	MJM-019
	LXT304, LXT305, LXT307	75, 120 E1	IS2M-12	IS2M-7 / -19	MJM-025
	LXT304, LXT305, LXT307	DSX-1, D4	IS2M-11	IS2M-7	MJM-016
	LXT310, LXT317, LXT318		IS2M-7 / -19	IS2M-15 / -20	MJM-018
	LXT312, LXT313, LXT315		IS2M-26	IS2M-15 / -20	--
	LXT331	T1/E1	IS2M-7 / -19	IS2M-7 / -19	MJM-018
	LXT331, LXT332		IS2M-11	IS2M-7	MJM-016
	LXT331, LXT332		IS2M-8 / -21	IS2M-7 / -19	MJM-019
	LXT331, LXT332		IS2M-7 / -19	IS2M-7 / -19	MJM-017
	LXT334, LXT335	T1/E1	IS2M-7 / -19	IS2M-7 / -19	MJM-017
	LXT334, LXT335	120/75 E1	IS2M-10 / -25	IS2M-7 / -19	MJM-028
	LXT334, LXT335	75 E1	IS2M-12	IS2M-7 / -19	MJM-025
	LXT334, LXT335		IS2M-16	IS2M-15	MJM-026
	LXT336		IS2M-7	IS2M-20	MJM-024
	LXT350, LXT351, LXT359	T1/E1	IS2M-7 / -19	IS2M-15 / -20	MJM-018
	LXT350, LXT351		IS2M-11	IS2M-7	MJM-019
	LXT350, LXT351	120 E1	IS2M-11	IS2M-7	MJM-016
	LXT360, LXT361, LXT362, LXT363	T1/E1	IS2M-7 / -19	IS2M-15 / -20	MJM-018
	LXT360, LXT361, LXT362, LXT363		IS2M-8 / -21	IS2M-7 / 19	MJM-019
	LXT360, LXT361		IS2M-11	IS2M-7	MJM-016
	LXT380, LXT381, LXT384, LXT386, LXT388	T1/ E1	IS2M-7 / -19	IS2M-15 / -20	MJM-018
	LXT380, LXT381, LXT384, LXT386, LXT388		IS2M-11	IS2M-7	MJM-016
LXT3104, LXT3108		IS2M-15 / -20	IS2M-15 / -20	MJM-017	
LXT3104, LXT3108		--	--	MJM-048	
Agere (Lucent)	T7288, T7290A	CEPT/E1	IS2M-10 / -25	IS2M-6 / -19	MJM-028
	T7289A	DS1	IS2M-23 / -21	IS2M-7 / -19	MJM-019
	T7630, T7688, T7690, T7698	CEPT	IS2M-10 / -25	IS2M-10 / -25	--
	T7630, T7688, T7690, T7698	DS1	IS2M-23 / -21	IS2M-23 / -21	MJM-013
	T7693, T7697	CEPT	--	--	MJM-038
	TLIU04C1	DS1	IS2M-23 / -21	IS2M-23 / -21	MJM-013
	TLIU04C1	CEPT	IS2M-10 / -25	IS2M-10 / -25	--
PMC-Sierra	PM4341, PM6341, PM4314		IS2M-25	IS2M-7 / -19	MJM-028
	PM4318, PM4319, PM4323, PM4325		IS2M-7 / -19	IS2M-7 / -19	MJM-017
	PM4351, PM4354	COMET	--	--	MJM-038
Mindspeed (Conexant)	BT8510	T1/E1	IS2M-12	IS2M-7	MJM-031
	BT8510	T1/E1	IS2M-12	IS2M-7	MJM-025
	BT8370, BT8375, BT8376	Low Power	IS2M-8	IS2M-15	MJM-019
	BT8370, BT8375, BT8376	Better RI	IS2M-25	IS2M-15	MJM-028
Zarlink (Mitel)	MT9071, MT9076		--	--	MJM-038
	MT9075, MT9076		--	--	MJM-022
	MT9074, MT9075		IS2M-7	IS2M-24	MJM-018

Notes:

- Dallas IC's use either a 1:1.15 or a 1:1.36 ratio transformer depending on the application. Consult the Dallas application notes or contact Talema.
- Consult Siemens Application Note 12.90 ('Just a Single Line Transformer Type for all IPAT (PEB2235) Applications') for calculation of resistor values.
- The Dual Transformer types MJM-010 and MJM-021 are electrically identical but have different schematics. Either part may be used with the PEB2254 and PEB2255.
- See Level One Application Note 118 ('Transformer Specifications for Level One Transceiver Applications') for further details on the choice of transformer ratios.

MJM Series • E1 / T1 / PRI / CEPT Dual Transformer Modules

Features

- SMD design ideal for pick and place compatibility while providing unrivaled coplanarity
- Controlled parameters ensure full compliance with ITU-T G.703 when matched with recommended IC
- Ideal for all 1.544 and 2.048 Mbs interface applications
- Manufactured in an ISO 9001:2008, ISO/TS 16949:2009 and ISO 14001:2004 certified Talema facility
- Extended operating temperature: -40° to +85°C
- Fully RoHS & REACH Compliant and meets lead free reflow level J-STD-020C



- Test Frequency: No load Inductance @ 10KHz/20mV
- Minimum isolation voltage between Pri to Sec 1500Vrms

Electrical Specifications @ 25°C

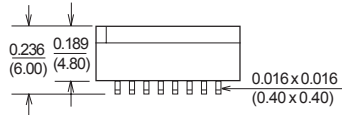
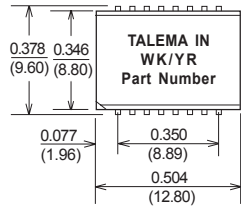
MJM Series - Dual Transformers

Part Number	Transformer - I						Transformer - II						Schematic
	Turns Ratio +/-5%	L _p (mH Min)	R _{CU} (Ohms)		Pri. Pins	Sec. Pins	Turns Ratio +/-5%	L _p (mH Min)	R _{CU} (Ohms)		Pri. Pins	Sec. Pins	
			Pri.	Sec.					Pri.	Sec.			
MJM-010	1ct:1.41ct	1.2	0.41	0.58	16-15-14	1-2-3	1ct:1.41ct	1.2	0.41	0.58	11-10-9	6-7-8	A
MJM-013	1ct:1.15ct	1.2	0.39	0.44	1-2-3	16-15-14	1ct:1.15ct	1.2	0.39	0.44	6-7-8	11-10-9	A
MJM-016	1ct:2ct	1.2	0.39	0.77	6-7-8	11-10-9	1ct:2.3ct	1.2	0.39	0.88	16-15-14	1-2-3	A
MJM-017	1ct:2ct	1.2	0.39	0.77	16-15-14	1-2-3	1ct:2ct	1.2	0.39	0.77	6-7-8	11-10-9	A
MJM-018	1ct:1ct	1.2	0.39	0.38	16-15-14	1-2-3	1ct:2ct	1.2	0.39	0.77	6-7-8	11-10-9	A
MJM-019	1:1.15ct	1.2	0.39	0.44	16-14	1-2-3	1ct:2ct	1.2	0.39	0.77	6-7-8	11-10-9	B
MJM-021	1ct:1.41ct	1.2	0.41	0.58	1-2-3	16-15-14	1ct:1.41ct	1.2	0.41	0.58	11-10-9	6-7-8	A
MJM-022	1ct:1ct	1.0	0.39	0.39	11-10-9	6-7-8	1ct:2.4ct	1.0	0.41	0.90	1-2-3	16-15-14	A
MJM-023	1:1ct	1.2	0.39	0.39	16-14	1-2-3	1:1ct	1.2	0.39	0.39	6-8	11-10-9	C
MJM-024	1ct:1ct	1.0	0.39	0.39	6-7-8	11-10-9	1ct:1.67ct	1.0	0.39	0.66	16-15-14	1-2-3	A
MJM-025	1:1/1.26	1.2	0.39	0.48	16-14	1-2-3	1ct:2ct	1.2	0.39	0.77	6-7-8	11-10-9	B
MJM-026	1ct:1ct	1.2	0.39	0.39	16-15-14	1-2-3	1ct:1.5ct	1.2	0.39	0.58	6-7-8	11-10-9	A
MJM-027	1:2ct	1.6	0.41	0.83	16-14	1-2-3	2:1	1.6	0.41	0.21	6-8	11-9	D
MJM-028	1ct:2ct	1.2	0.39	0.77	16-15-14	1-2-3	1:1.36ct	1.2	0.39	0.52	6-8	11-10-9	E
MJM-029	1:2.42ct	1.2	0.39	0.94	16-14	1-2-3	1:2.42ct	1.2	0.39	0.94	6-8	11-10-9	C
MJM-030	2:1:1	1.2	0.46	0.26	16-14	1-2, 3-4	2:1:1	1.2	0.46	0.26	11-9	5-6, 7-8	F
MJM-031	2ct:1/1.26	1.5	0.41	0.52	1-2-3	16-15-14	2ct:1/1.26	1.5	0.41	0.52	11-10-9	6-7-8	A
MJM-032	1:2.42	1.2	0.39	0.94	16-14	1-2-3	1:1ct	1.2	0.39	0.39	6-8	11-10-9	C
MJM-033*	1:1.9/2.4	1.0	0.41	0.94	16-15-14	1-2-3	0.79:1.9/1	1.0	0.40	0.75	6-7-8	11-10-9	A
MJM-034	1ct:1.5ct	1.5	0.41	0.62	1-2-3	16-15-14	1ct:1.5ct	1.5	0.41	0.62	6-7-8	11-10-9	A
MJM-035	1ct:1ct	1.2	0.39	0.39	6-7-8	11-10-9	1ct:1.36ct	1.2	0.39	0.52	1-2-3	16-15-14	A
MJM-036	2cs:1.57/2	1.5	0.41	0.82	1-2	-	2cs:1.57/2	1.5	0.41	0.82	5-6	-	G
MJM-037	1ct:1ct	1.2	0.39	0.39	16-15-14	1-2-3	1ct:1.36ct	1.2	0.39	0.53	6-7-8	11-10-9	A
MJM-038	1ct:2.42ct	1.2	0.39	0.94	1-2-3	16-15-14	1ct:2.42ct	1.2	0.39	0.94	6-7-8	11-10-9	A
MJM-039	1:2/2.4	1.0	0.39	0.94	1-3	16-15-14	1:0.79/1	1.0	0.39	0.39	6-8	11-10-9	H
MJM-040	1ct:2.4ct	1.2	0.39	0.94	1-2-3	16-15-14	1ct:2.4ct	1.2	0.39	0.94	6-7-8	11-10-9	A
MJM-041	1:2ct	1.2	0.39	0.77	1-3	16-15-14	1:2cs	1.2	0.39	0.77	11-9	5-6, 7-8	J
MJM-042	1:1.36ct	1.2	0.39	0.53	16-14	1-2-3	1:2ct	1.2	0.39	0.77	6-8	11-10-9	C
MJM-043	1ct:2ct	1.2	0.39	0.77	1-2-3	16-15-14	1ct:2ct	1.2	0.39	0.77	6-7-8	11-10-9	A
MJM-044	1ct:2ct	1.2	0.39	0.77	1-2-3	16-15-14	1:1	1.2	0.39	0.39	6-8	11-9	K
MJM-045	1ct:2ct	1.2	0.39	0.77	1-2-3	16-15-14	1ct:2.42ct	1.2	0.39	0.95	6-7-8	11-10-9	A
MJM-046	1ct:1ct	1.2	0.39	0.39	1-2-3	16-15-14	1ct:1ct	1.2	0.39	0.39	6-7-8	11-10-9	A
MJM-047	1ct:1.26ct	1.2	0.39	0.50	1-2-3	16-15-14	1ct:1.26ct	1.2	0.39	0.50	6-7-8	11-10-9	A
MJM-048	1ct:1:0.8	1.2	0.39	0.39	16-15-14	1-2, 3-4	1ct:1:0.8	1.2	0.39	0.39	11-10-9	5-6, 7-8	G
MJM-049	1ct:1.58:2	1.2	0.39	0.80	2-3-4	16-15, 14-13	1:1.65:2	1.2	0.39	0.80	6-7	12-11, 10-9	L
MJM-050	1ct:1:1	1.2	0.39	0.39	16-15-14	1-2, 3-4	1ct:1:1	1.2	0.39	0.39	11-10-9	5-6, 7-8	G
MJM-051	1ct:2.4ct	1.2	0.39	0.94	1-2-3	16-15-14	1ct:1ct	1.2	0.39	0.39	6-7-8	11-10-9	A

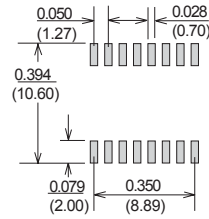
* MJM-033 Turns Ratio: Pins 16-14:1-2 = 1:1.9, Pins 16-14:1-3=1:2.4; Pins 6-8:9-11=0.79:1.9, Pins 6-8:11-10=0.79:1

MJM Series • E1/T1/ PRI/CEPT Dual Transformer Modules

MJM Dimensions



Suggested Pad Layout



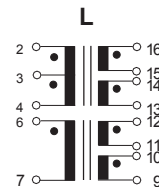
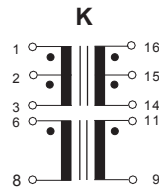
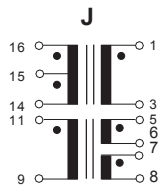
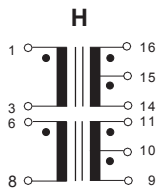
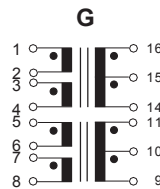
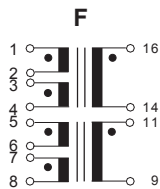
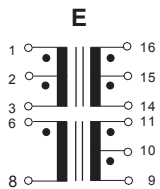
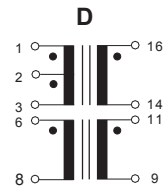
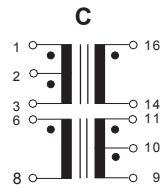
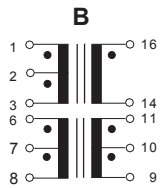
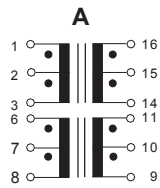
Dimensions: Inches (Millimeters)

Tolerance: ± 0.010 (0.25) unless specified otherwise

Surface Coplanarity will be 0.004 (0.10) maximum

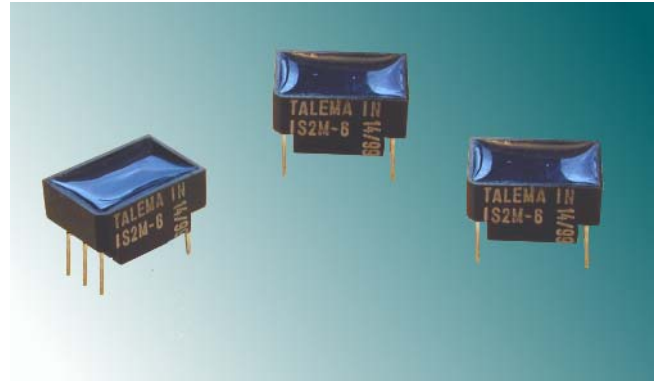
Packing Method: Tape and Reel; Qty/Reel: 600 Pcs

Schematics



IS2M Series • E1/T1/ PRI/CEPT Single Transformers
Features

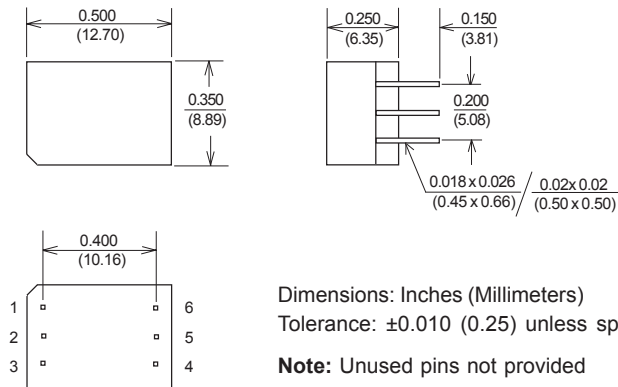
- Industry standard through-hole footprints
 - Wide range compatible with all common transceiver IC's
 - Controlled parameters ensure full compliance with ITU-T G.703 when matched with recommended IC
 - Ideal for all 1.544 and 2.048 Mbs interface applications
 - Manufactured in an ISO 9001:2008, ISO/TS 16949:2009 and ISO 14001:2004 certified Talema facility
 - Extended operating temperature: -40° to +85°C
 - Fully RoHS & REACH Compliant
-
- Test Voltage: 1.5KVrms - Line side winding in series to IC side winding in series


Electrical Specifications @ 25°C

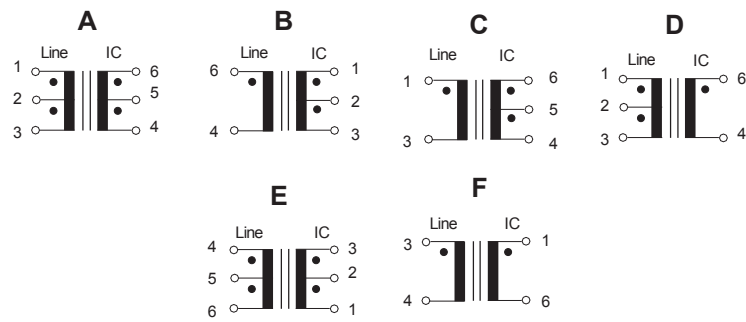
 Turns Ratio: **Bold** = IC side windings

IS2M Series Transformers								
Part Number	Turns Ratio ±5%	OCL (mH Min.)	L _L (μH Max.)	DCR Pri (Ohms)	DCR (Ohms)	V _p (Vrms)	Primary Pins	Schematic
IS2M-6	1ct: 2ct	1.2	0.5	0.7	1.2	1500	1-3	A
IS2M-7	1:2ct	1.2	0.5	0.7	1.2	1500	6-4	B
IS2M-8	1:1.15ct	1.5	0.6	0.7	0.9	1500	6-4	B
IS2M-10	1:1.36ct	1.2	0.8	0.5	0.8	1500	1-3	C
IS2M-11	1:2.3ct	1.2	0.8	0.7	1.4	1500	1-3	C
IS2M-12	1:1/1.26	1.5	0.5	0.7	0.9	1500	6-4	B
IS2M-15	1ct: 1	1.2	0.5	0.7	0.7	1500	1-3	D
IS2M-16	1:1.5ct	1.2	0.6	0.7	1.0	1500	6-4	B
IS2M-17	1:1.53	1.2	0.8	0.5	1.0	1500	3-4	F
IS2M-18	1:1.185	1.2	0.5	0.7	0.8	1500	3-4	F
IS2M-19	1ct: 2ct	1.2	1.0	1.0	2.0	1500	6-4	E
IS2M-20	1ct: 1ct	1.2	1.0	1.0	1.0	1500	1-3	A
IS2M-21	1:1.15ct	1.5	1.0	1.0	1.0	1500	6-4	B
IS2M-23	1:1.14ct	1.2	1.0	0.7	0.8	1500	1-3	C
IS2M-24	1:1	1.2	0.5	0.7	0.7	1500	1-6	F
IS2M-25	1:1.36	1.2	0.8	0.7	0.9	1500	3-4	F
IS2M-26	1ct: 3ct	1.2	0.8	0.7	2.1	1500	1-3	A
IS2M-27	1:1.583ct	1.2	0.6	0.7	1.0	1500	6-4	B

IS2M Series



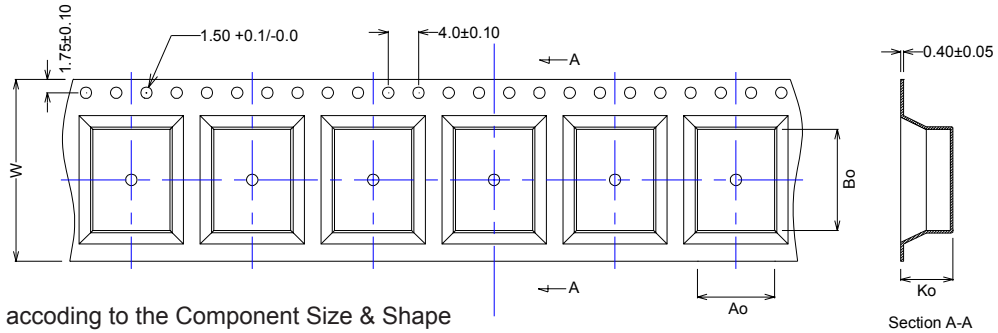
Schematic



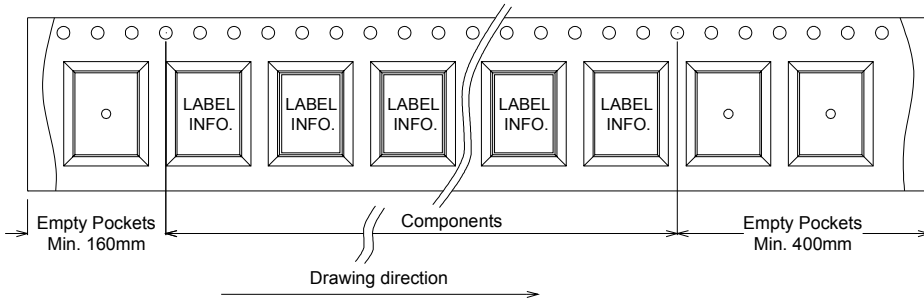
Tape & Reel Packing and Dimensions

Carrier Tape - 1

Carrier Tape Dimensions (12.00mm, 16.00mm & 24.00mm)



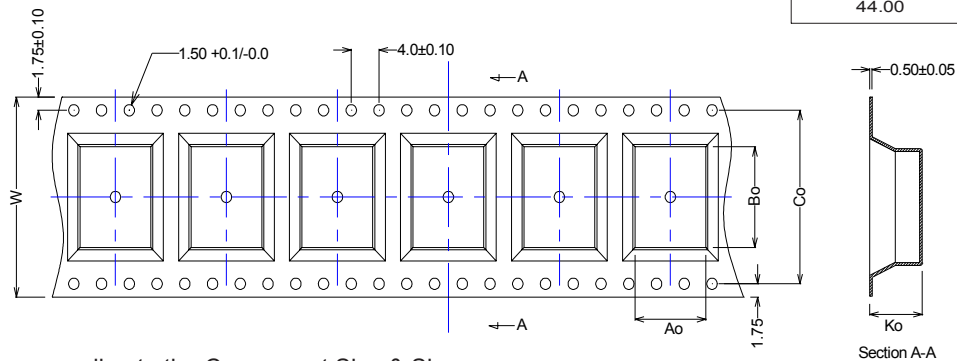
Ao , Bo & Ko - Vary according to the Component Size & Shape



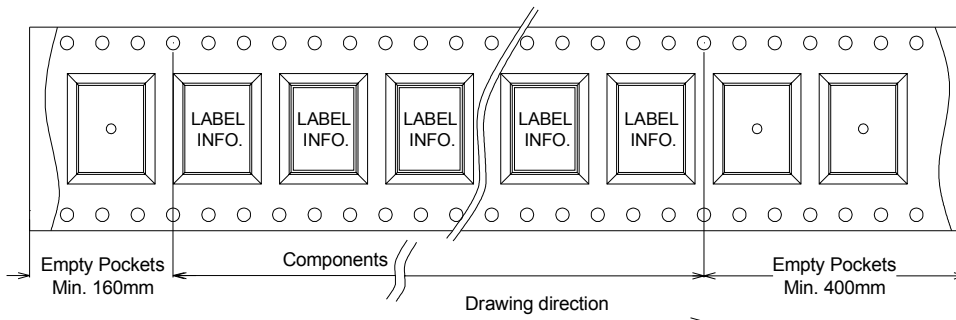
Carrier Tape - 2

Carrier Tape Dimensions (32.00mm & 44.00mm)

Carrier Tape Dimensions in mm	
Width	Pitch (Co)
32.00	28.50
44.00	40.50

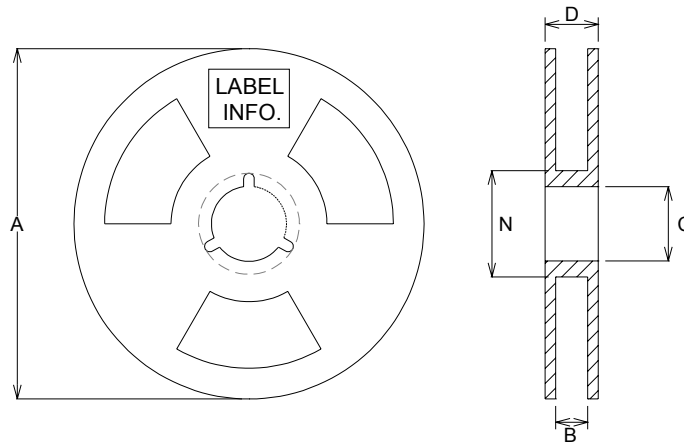


Ao , Bo , Co & Ko - Vary according to the Component Size & Shape



Tape & Reel Packing and Dimensions

Reel Drawing

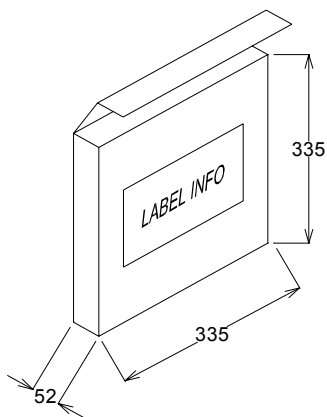


Reel Dimensions in "mm"					
Type	A	B	C	D	N
13.00mm	Ø330	13	Ø20.2	17	Ø100
16.00mm	Ø330	16	Ø20.2	20	Ø100
24.00mm	Ø330	24	Ø20.2	28	Ø100
32.00mm	Ø330	32	Ø20.2	36	Ø100
44.00mm	Ø330	44	Ø20.2	48	Ø100

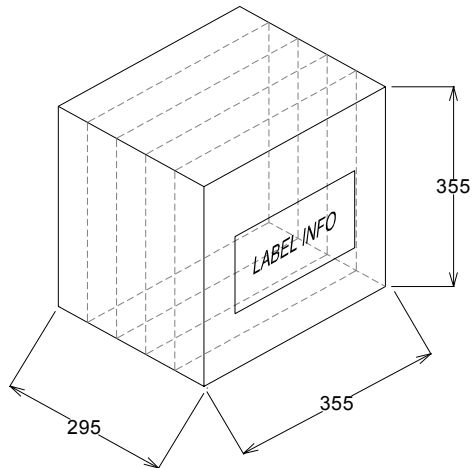
Tape and Reel Packing Details

Name of the Series	Reel Type	No. of Inside Carton	Quantity (Pcs/Reel)	Quantity (Reel/Cased)
MJM	24.00mm	5	600	5/600

Inside Carton



Outer Carton



Regional Locations - Design, Manufacturing, Sales & Marketing

Talema Group Regional Offices

North America

United States (Sales & Marketing)

Talema Group, LLC
 PO Box 935
 900 Innovation Drive
 Suite 120, Rolla
 Missouri 65402
 Tel: +1 573-303-3675
 E-Mail:
sales@talemagroup.com
 Web: www.talema.com

Asia

India (Design, Manufacturing, Sales & Marketing)

Administrative Office
Talema Electronic India Private Limited
 Door No. 221, 1st and 2nd Floor
 KJ Plaza, Opp.to Vidya Mandir School
 Meyanur Main Road
 Salem - 636 004 Tamil Nadu INDIA.
 Tel: +91 427 - 243 3100
 Fax: +91 427 - 243 3109
 E-Mail: talema@talemaindia.net
 Web: www.talema.com

Factory Premises
Talema Electronic India Private Limited
 No. 31 & 31, Electronic Industrial Estate
 Suramangalam Post
 Salem - 636 005 Tamil Nadu INDIA
 Tel: +91 427 - 243 3000
 E-Mail: talema@talemaindia.net
 Web: www.talema.com

Europe

Germany (Design, Sales & Marketing)

Talema Elektronik GmbH
 Sembdnerstr. 5
 82110 Germering
 Tel: +49 89 - 841 00 - 0
 Fax: +49 89 - 841 00 25
 E-Mail: info@talema.de
 Web: www.talema.com

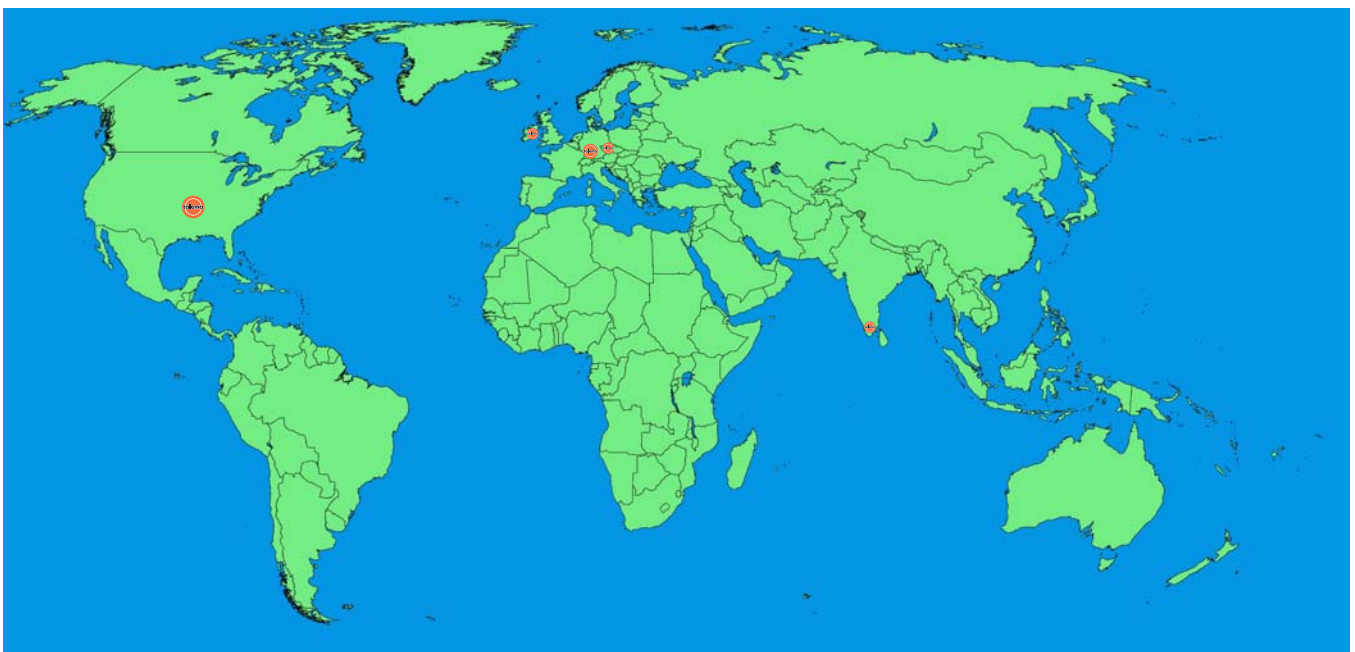
Ireland (Design, Sales & Marketing)

Nuvotem TEO
 Units W & X, Gweedore Business Park
 Derrybeg, Letterkenny, Co. Donegal
 Tel: +353 (0) 74 95 48666
 Fax: +353 (0) 74 95 48139
 E-Mail: info@nuvotem.com
 Web: www.nuvotem.com

Czech Republic (Design, Manufacturing, Sales & Marketing)

NT Magnetics s.r.o.
 Chebská 27
 322 00 Plzeň
 Tel: +420 377 - 338 351
 Fax: +420 377 - 338 350
 E-Mail: talema@talema.cz
 Web: www.ntmagnetics.cz

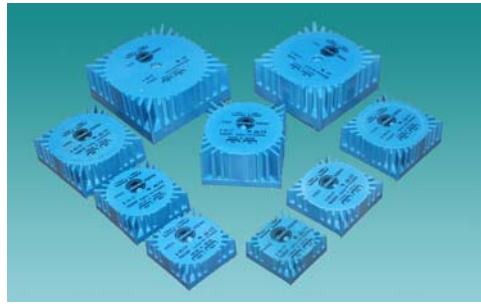
Locations of Talema Group Regional Offices



Summary TOTAL PROGRAM

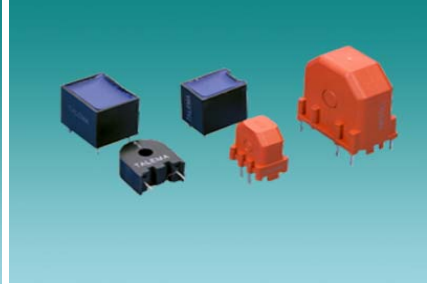
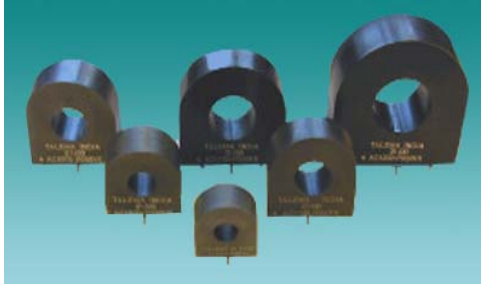
SECTION 1

- TOROIDAL 50/60Hz TRANSFORMERS,
TOROIDAL PCB TRANSFORMERS &
MEDICAL GRADE ISOLATION TRANSFORMERS



SECTION 2

- CURRENT SENSE TRANSFORMERS &
INDUCTORS



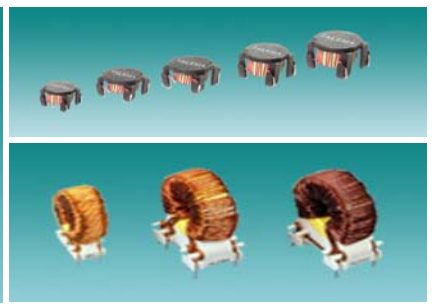
SECTION 3

- CHOKES, INDUCTORS AND TRANSFORMERS
FOR POWER APPLICATIONS



SECTION 4

- Transformers & Inductors FOR
SMPS MAGNETICS REQUIREMENTS



SECTION 5

- COMPONENTS FOR TELECOMMUNICATIONS
AND DATA LINE TECHNOLOGY

SECTION 6

- CURRENT COMPENSATED EMI NOISE
SUPPRESSION CHOKES

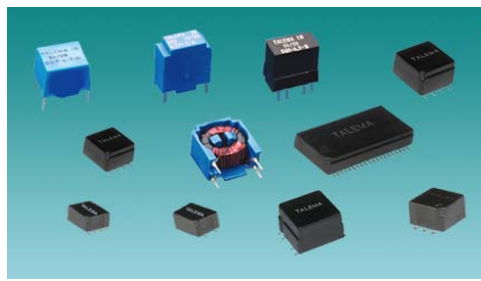


SECTION 7

- LAN MAGNETIC COMPONENTS FOR
ETHERNET APPLICATIONS

SECTION 8

- T1/E1/CEPT-PR1 - T3/DS3/E3/STS-1 FOR
TELECOMMUNICATION PRODUCTS



SECTION 9

- TRANSFORMERS FOR BROADBAND ACCESS
AND FIBRE CHANNEL INTERFACE

SECTION 10

- THE TALEMA GROUP BROCHURE
OVERALL PRODUCTS - AN OVERVIEW

