

Line-Matching Transformers - MTLM Series

Features

- Industry standards
- Low profile packages
- Meet EN 41003, EN 60950 except where indicated
- Operating temperature range -25 to +70° C
- Storage temperature range -40 to +85° C

Applications

- Modems, Fax, PABX
- EFTPOS terminals
- Multi-media cards
- Alarm communicators
- Instrumentation

Electrical Data

ENCAPSULATED TRANSFORMERS												
V. series	ID Code	Impedance prim./sec Ω	Insertion loss, max dB	Frequency response ± dB	Return loss, min dB	Distortion max %	Balance min dB	Power max dB	Vd kVrms	Rdc prim/sec Ω	Ls max mH	Lp min H
V.22bis	MTLM1200	600 / 600	1.5	0.4	24	0.1	80	10	4	56 / 56	19	2.8 / 1.6
V.22bis	MTLM1201	600 / 600CT	1.5	0.4	24	0.1	80	10	4	56 / 56	17	2.8 / 1.6
V.22bis	MTLM1200E	600 / 600	1.5	0.4	24	0.1	80	10	4	66 / 66	17	2.8 / 1.6
V.22bis	MTLM1201E	600 / 600CT	1.5	0.4	24	0.1	80	10	4	66 / 66	17	2.8 / 1.6
V.22bis	MTLM1200C	600 / 600	1.5	0.4	24	0.1	80	10	4	62 / 62	16	2.8 / 1.6
V.22bis	MTLM1201B	600 / 600CT	1.5	0.4	24	0.1	80	10	4	62 / 62	16	2.8 / 1.6
V.22bis	MTLM3027M	600 / 600	1.0	0.25	24	0.3	70	5	4	34 / 34	7	1.7 / 1.7
V.22bis	MTLM3034M	600 / 600	1.5	0.4	18	0.1	70	15	4	88 / 88	16	4.5 / 4.5
V.22bis	MTLM6259	600 / 600	2.0	1	14	0.3	70	20	8	64 / 64	40	0.8 / 0.8

SMD NON-ENCAPSULATED TRANSFORMERS												
V.22bis	MTLM3027S*	600 / 600	1	0.25	24	0.3	70	5	4	34 / 34	7	1.7 / 4.5
V.22bis	MTLM3034S*	600 / 600	1.5	0.4	18	0.1	70	15	4	88 / 88	16	4.5 / 4.5
V.34	MTLM304	600 / 600	3.4	0.25	25	0.1	60	-	1.25	156 / 145	-	4.5

*These transformers do not meet EN41003

FAST DATA-RATE TRANSFORMERS												
V.32bis	MTLM1165	600 / 600	1.5	0.4	24	0.1	80	10	4	66 / 66	7	2.8 / 1.6
V.32bis	MTLM2010	600 / 600	1	0.25	20	0.1	80	10	4	25 / 25	7	2 min.
V.34	MTLM2001	600 / 600	1.5	0.5	24	0.1	80	20	4	56 / 56	19	4 / 3
V.34	MTLM3400	600 / 600	2	0.25	24	0.1	80	20	4	105 / 105	20	16 / 6

DC CURRENT TRANSFORMERS												
MTLM4498	600 / 2x150	1	-2.5	14	-	45	-	-	3	91 / 2x8	8	0.45 min.
MTLM4763	600 / 2x150	2	-2.5	14	-	45	-	-	3	115 / 2x51	8	0.4 min.

MTLM4498: Idc = 90 mA with a turns ratio 2/1: 1

MTLM4763: Idc = 60 mA with turns ratio 2/1: 1

Symbols

Vd = AC voltage insulation rating

Ls = Leakage inductance

Rdc = DC resistance of primary/secondary windings

Lp = Shunt inductance of windings at 0.2 and 1kHz

Approval Status

V. series	Part Number	Meets EN 41003 EN 60950	LCIE approved France	VDE certified Germany
V.22bis	MTLM1200	y	y	y
V.22bis	MTLM1200C	y	n	n
V.22bis	MTLM3027M	y	y	n
V.32bis	MTLM1165	y	y	y
V.32bis	MTLM2010	y	y	y
V.34	MTLM2001	y	y	y
V.34	MTLM4763	y	y	n
V.34	MTLM1234	y	y	n
V.90	MTLM2056	y	n	n
V.90	MTLM2056C	y	n	n

y = yes

n = no

Line-Matching Transformers - MTLM Series



MTLM 1200



MTLM 1165 / 2010



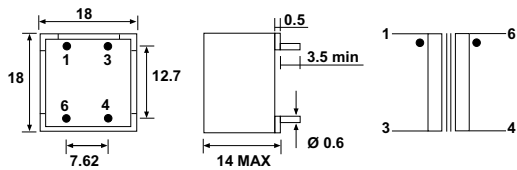
MTLM 2001 / 3400



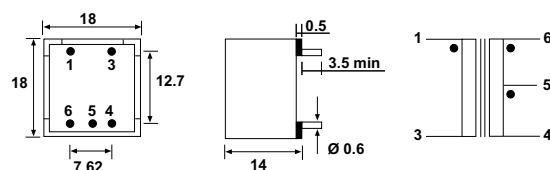
MTLM 304

Dimensions and Connections

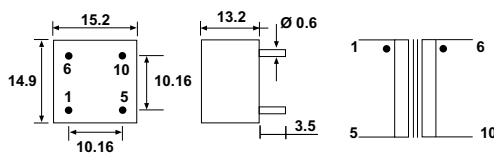
MTLM 1200 / 1200 E / 1200 C / 2001 / 2010



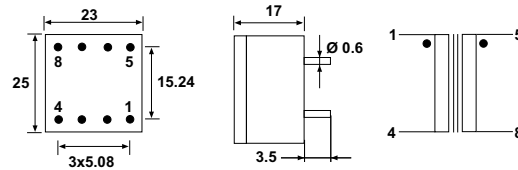
MTLM 1201 / 1201E / 1201B



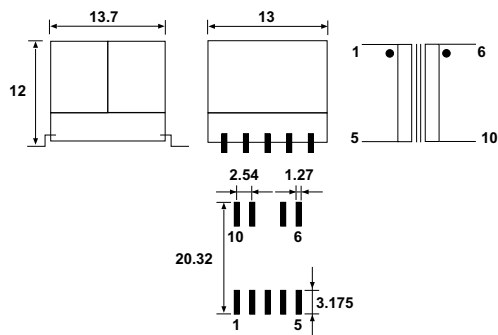
MTLM 3027M / 3034M



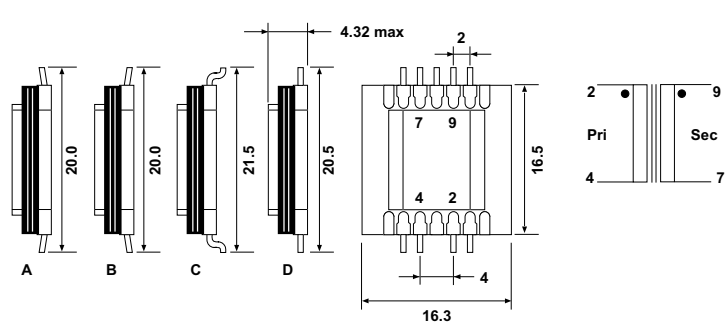
MTLM 6259



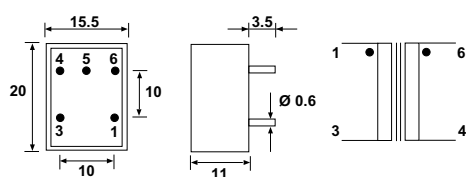
MTLM 3027S / 3034 S



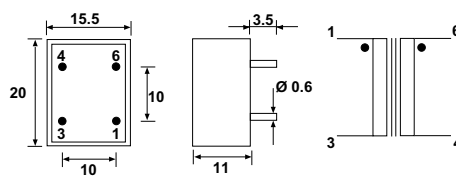
MTLM 304A / 304B / 304C / 304D



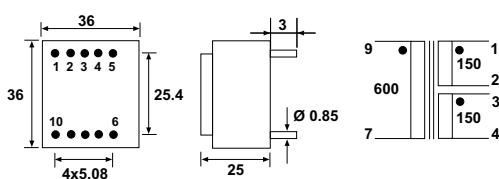
MTLM 1165



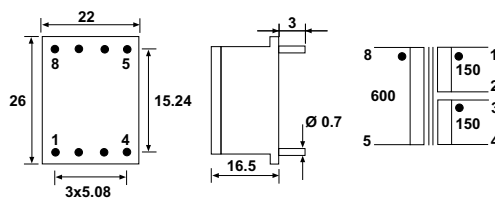
MTLM 3400



MTLM 4498



MTLM 4763



SMD Line-Matching Transformer - MTLM 1234



- V.34 data rate, 28800 bits/sec
- 7 mm seated height
- EN 41003 and EN 60950 compliant
- Reinforced insulation up to 250 Vrms
- LCIE approved
- Operating temperature range: -25 to +70° C
- Weight: 2.3 grams
- Tape and reel packaging of 650 pieces

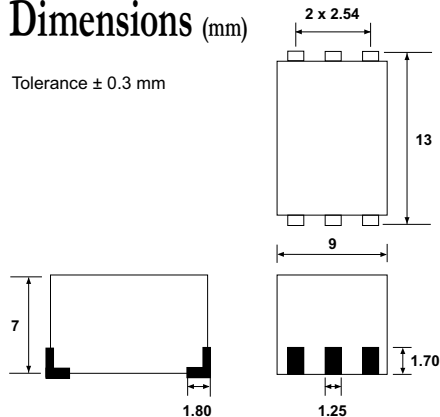
Electrical Data

Parameter	Value
Primary Impedance (pins 1-3)	600 Ω
Secondary Impedance (pins 6-4)	600 Ω
Turns Ratio at 1 kHz	1:1 ± 1%
Shunt Inductance at 200 Hz, 0.15 V	≥ 3 H
Shunt Loss at 200 Hz, 0.15 V	≥ 6000 Ω
Leakage Inductance (1 kHz)	≤ 5.5 mH
Primary Winding Resistance	115 Ω ± 15%
Secondary Winding Resistance	115 Ω ± 15%
Storage Temperature Range	-40 to +85°C

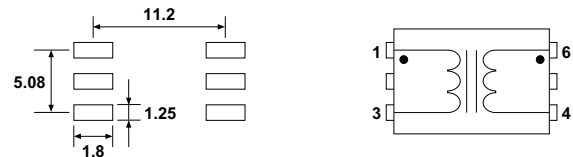
Parameter	Value
Insertion Loss (at 2 kHz)	≤ 2 dB
Frequency Response (0.2-4 kHz)	± 0.25 dB
Return Loss (0.2-4 kHz)	≥ 24 dB
Distorsion (0 db at 500 Hz)	≤ 0.1%
Balance	≥ 80 dB
Power Level	3 dBm
Dielectric Strength (2s)	4 kVrms
Isolation	6.5 kVdc
Operating Temperature Range	-25 to +70°C

Dimensions (mm)

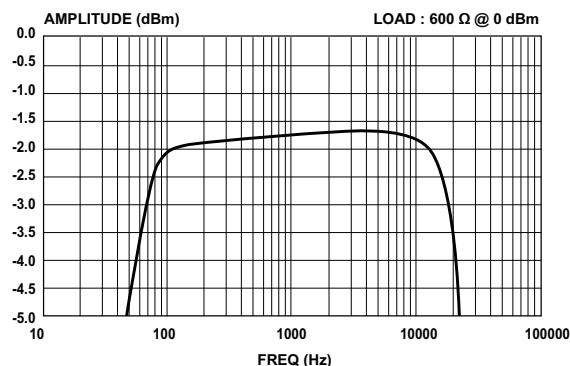
Tolerance ± 0.3 mm



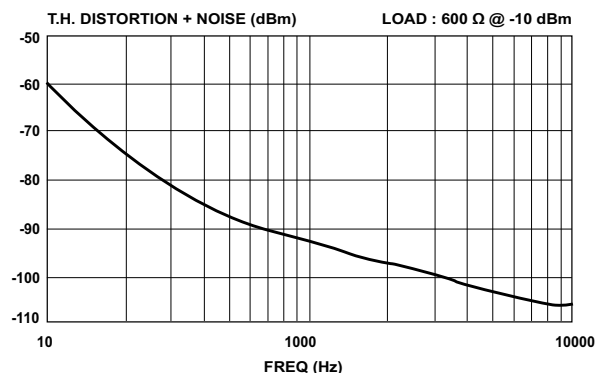
Connections



Frequency Response



Distorsion



56 kbps Line-Matching Transformer - MTLM 2056



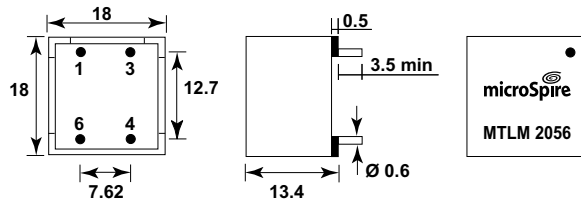
- Low signal distortion for 56 kbps transmission (V.90)
- Reinforced Isolation
- Meet EN 41003 and EN 60950
- Frequency response 30 Hz to 5 kHz
- Operating temperature range: -25 to +70° C
- Weight: 13 grams
- Waffle tray packaging of 100 pieces

Electrical Data

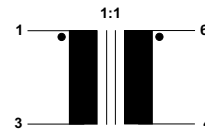
Parameter	Value
Primary Impedance (pins 1-3)	600 ohms
Secondary Impedance (pins 4-6)	600 ohms
Turns Ratio @ 1 kHz	1 : 1 ± 1 %
Shunt Inductance @ 200 Hz-10mV	≥ 7 H
Shunt Impedance @ 200 Hz-10mV	≥ 25 Kohms
Leakage Inductance @ 1 KHz	≤ 25 mH
Primary DC Resistance	100 ohms ± 15 %
Secondary DC Resistance	100 ohms ± 15 %

Parameter	Value
Insertion Loss @ 1 kHz	1.5 dB ± 0.25
Frequency Response (100 to 4000 Hz)	± 0.5 dB
Return Loss (300 Hz to 4000 Hz)	16 dB min
Distortion @ 200 Hz, -3dBm	-75 dB max
Input DC current, max	0 mA
Dielectric Strength (2 sec)	4 KVrms
Storage Temperature Range	-40 to +85° C
Operating Temperature Range	-25 to +70° C

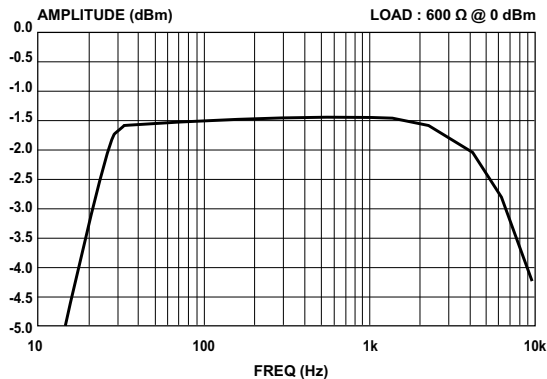
Dimensions (mm)



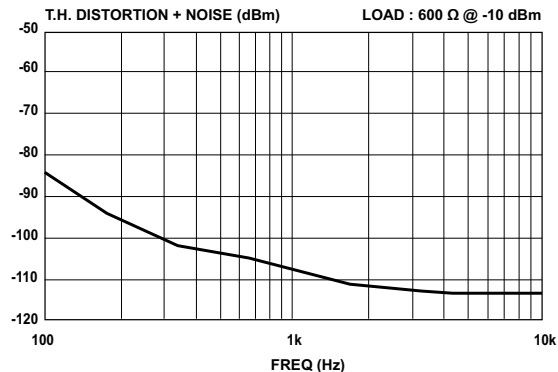
Connections



Frequency Response



Distorsion



Construction

The MTLM 2056 is manufactured from materials conforming to flammability requirements of UL 94-V0 and EN 60950. It is constructed and fully encapsulated in accordance with EN 60950 and EN 41003 (reinforced), 250 Vrms maximum working voltage.

56 kbps Line-Matching Transformer - MTLM 2056C



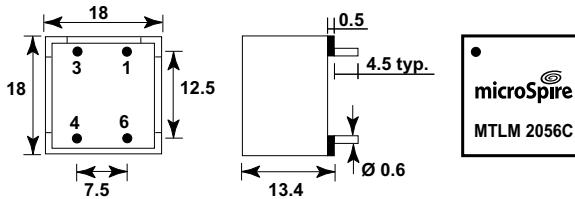
- Low signal distortion for 56 kbps transmission (V.90)
- Extended bandwidth
- Low leakage inductance
- Meet EN 41003 and EN 60950
- Frequency response 30 Hz to 15 kHz
- Operating temperature range: -25 to +70° C
- Weight: 13 grams
- Waffle tray packaging of 100 pieces

Electrical Data

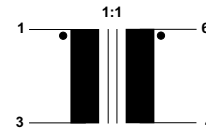
Parameter	Value
Primary Impedance (pins 1 - 3)	600 ohms
Secondary Impedance (pins 4 - 6)	600 ohms
Turns Ratio @ 1kHz	1 : 1 ± 1%
Series O/C Inductance @ 200 Hz - 0.25V	≥ 9 H
Series O/C AC Resistance @ 200 Hz - 0.25V	≥ 7.5 Kohms
Leakage Inductance @ 1kHz	2.5 mH
Primary DC Resistance	86 ohms ± 15%
Secondary DC Resistance	108 ohms ± 15%

Parameter	Value
Insertion Loss @ 1kHz	1.25 dB ± 0.25
Frequency Response (100 to 4000Hz)	± 0.10 dB
Return Loss (300Hz to 4000Hz)	24 dB min
Distortion @ 200Hz, -3dBm	-75 dB max
Input DC current, max	0 mA
Dielectric Strength (2 sec)	3 KVrms
Storage Temperature Range	-40 to +85° C
Operating Temperature Range	-25 to +70° C

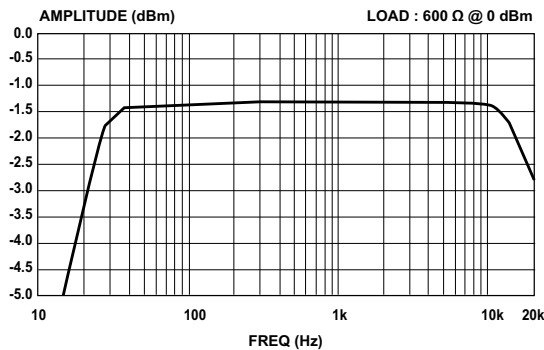
Dimensions (mm)



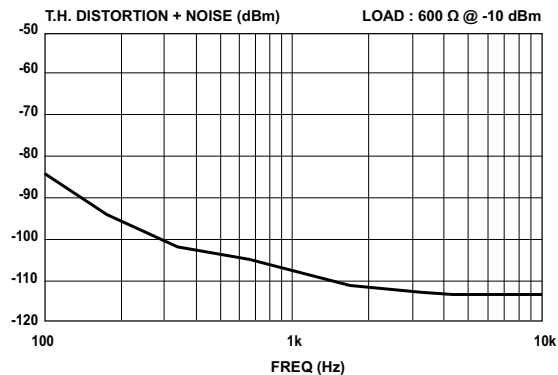
Connections



Frequency Response



Distorsion



Construction

The MTLM 2056C is manufactured from materials conforming to flammability requirements of UL 94-V0 and EN 60950. It is constructed and fully encapsulated in accordance with EN 60950 and EN 41003 (reinforced), 250 Vrms maximum working voltage.