

RF Transformer For Wideband RF Applications

RF SERIES



FEATURES:

- RoHS peak reflow temperature rating: 245°C
- For single-ended to balanced applications
- Value-oriented construction
- Small surface mount package
- Excellent insertion loss
- Various impedance ratios available

PACKAGING:

- Tape & Reel : 2200 /reel
- Tray: 100 /tray

ELECTRICAL CHARACTERISTICS:

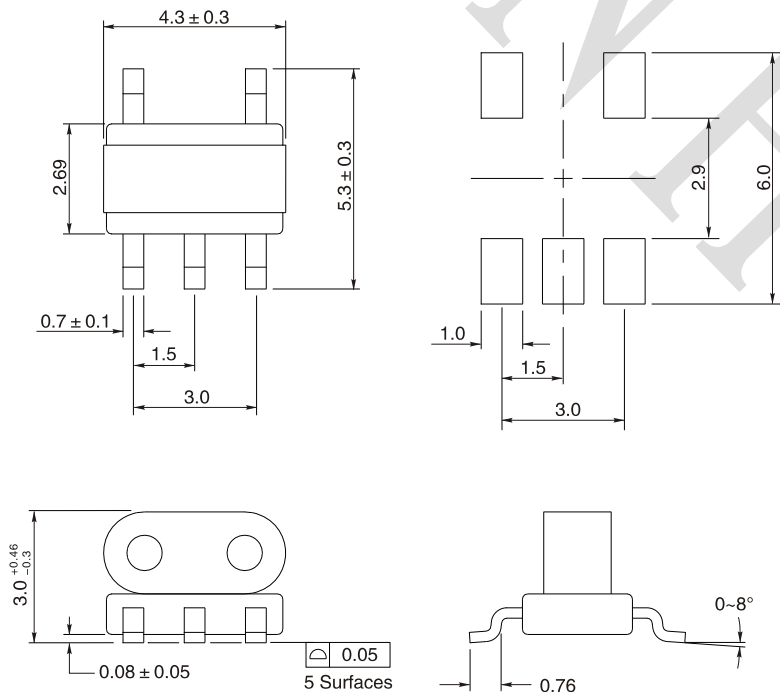
Part No.	Impedance ratio Pri : Sec ± 2%	Turns ratio Pri : Sec ± 2%	Bandwidth (MHz)Typ	Insertion loss @ Midband (dB)	Schematic
RF-2078	1:1	1:1	5-500	0.6	A
RF-2081	1:1.5CT	1:1.2CT	5-125	0.9	B
RF-2156	1:1	1:1	2.3-2700	0.2	A

Notes:

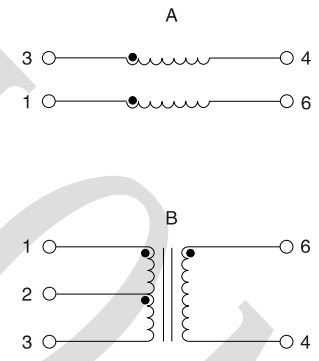
1. Impedance and turns ratios are specified primary:secondary. (CT=Center Tap).
2. Bandwidth is referenced to midband loss.
3. These transformers are verified to operate from -40°C to +85°C. Contact Applications Engineering for performance data.

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

Dimensions(mm)



Schematic



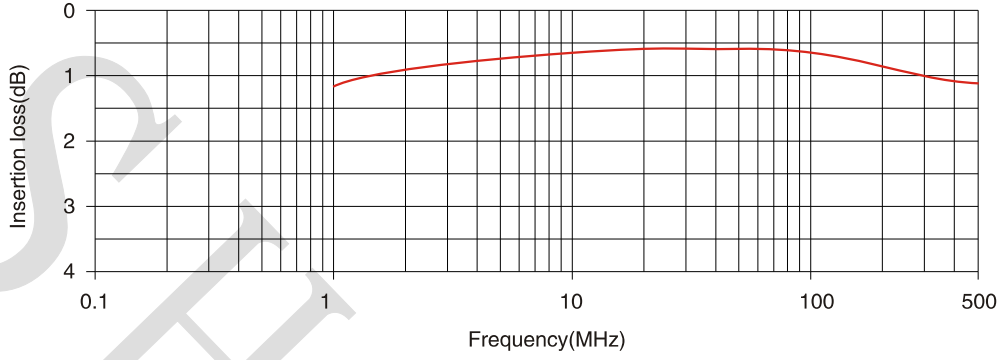
Weight 0.43 grams
 Tape & Reel 2200 /reel
 Tray 100 /tray

Application Notes:

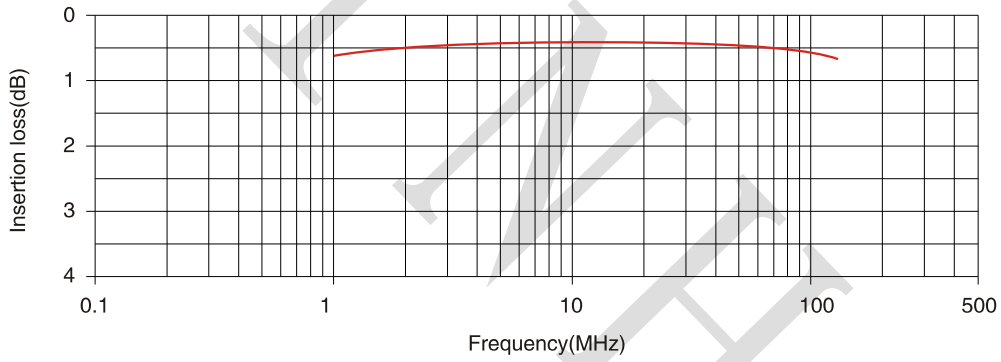
1. Bandwidth specifications are typical in a 75 Ω system.
2. Materials used in the products are UL94-V0 recognized. Products meet requirements of IEC 695-2-2 (Needle Flame Test).
3. For additional impedance ratios and frequency ranges, please contact Applications Engineering.

Typical insertion loss:

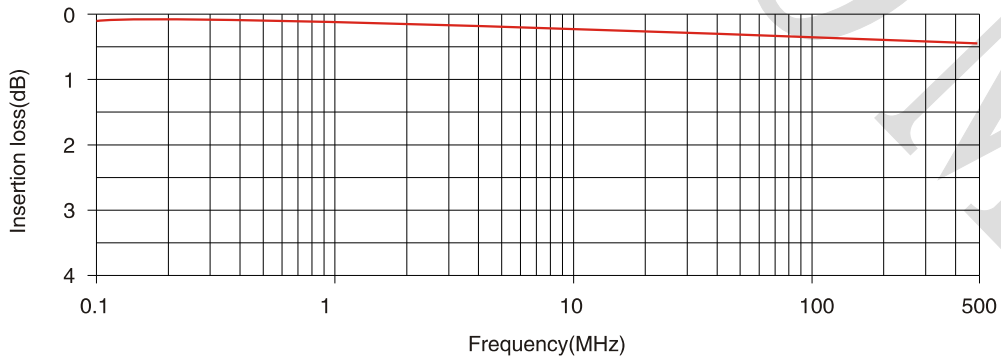
RF-2078



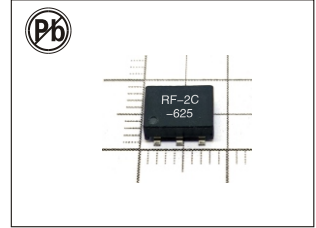
RF-2081



RF-2156



Surface Mount RF Transformer(50 Ω , 9~625MHz) RF-2C-625



FEATURES:

- excellent return loss, 25 dB typ.
- excellent amplitude unbalance, 0.2 dB typ. phase unbalance, 1 deg. typ. in 1 dB bandwidth
- high RF power up to 1 watt
- aqueous washable

APPLICATIONS:

- impedance matching
- baluns

PACKAGING:

- 7" Reel: 20, 50, 100, 200,500Devices/Reel
- 13" Reel: 500, 1000 Devices/Reel

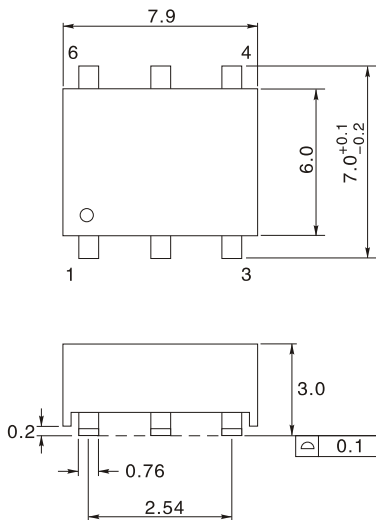
ELECTRICAL CHARACTERISTICS:

Impedance ratio (Ω) Sec : Pri	Frequency range (MHz)	Insertion loss(MHz)			Phase unbalance (Deg.)Typ.		Amplitude unbalance (dB)Typ.	
		3dB	2dB	1dB	1dB bandwidth	2dB bandwidth	1dB bandwidth	2dB bandwidth
4	9~625	9~625	10~550	14~500	1	3	0.2	0.3

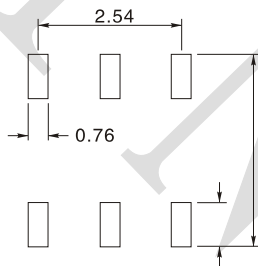
Note: Insertion Loss is referenced to mid-band loss, 0.55 dB typ.

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

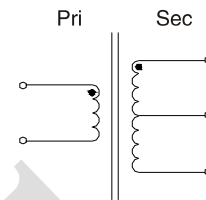
Dimensions(mm)



PCB Land pattern



Schematic

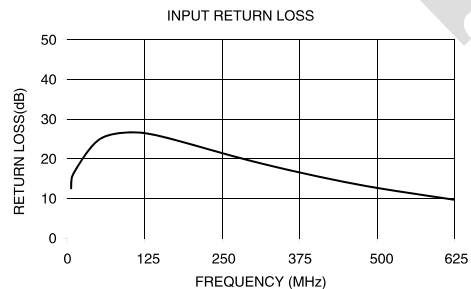


Pin Connections

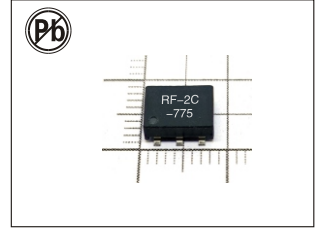
PRIMARY DOT	3
PRIMARY	1
SECONDARY DOT	4
SECONDARY	6
SECONDARY CT	5
NOT USED	2

Notes:

- Operating Temperature -20°C to 85°C
- Storage Temperature -55°C to 100°C
- RF Power 1W
- DC Current 30mA



Surface Mount RF Transformer(50 Ω , 2~775MHz) RF-2C-775



FEATURES:

- excellent return loss, 20 dB typ. in dB bandwidth
- excellent amplitude unbalance, 0.1 dB typ. and phase unbalance, 1 deg. typ. in 1 dB bandwidth
- aqueous washable

APPLICATIONS:

- impedance matching
- baluns

PACKAGING:

- 7" Reel: 20, 50, 100, 200,500Devices/Reel
- 13" Reel: 500, 1000 Devices/Reel

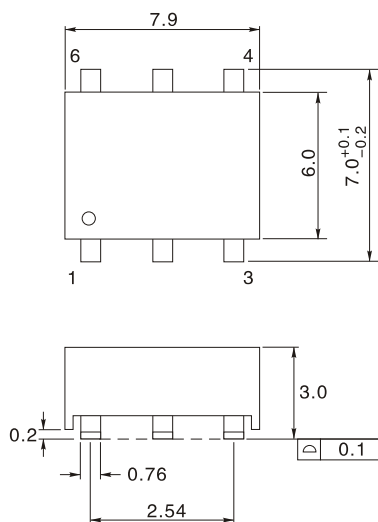
ELECTRICAL CHARACTERISTICS:

Impedance ratio (Ω) Sec : Pri	Frequency range (MHz)	Insertion loss(MHz)			Phase unbalance (Deg.)Typ.		Amplitude unbalance (dB)Typ.	
		3dB	2dB	1dB	1dB bandwidth	2dB bandwidth	1dB bandwidth	2dB bandwidth
4	2~775	2~775	3~600	6~250	1	3	0.1	0.3

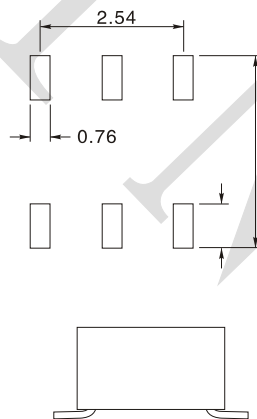
Note:Insertion Loss is referenced to mid-band loss, 0.8 dB typ.

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

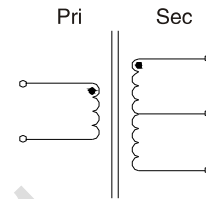
Dimensions(mm)



PCB Land pattern



Schematic

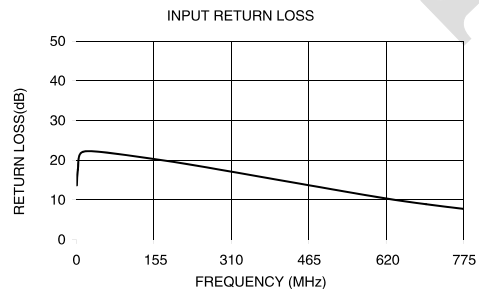
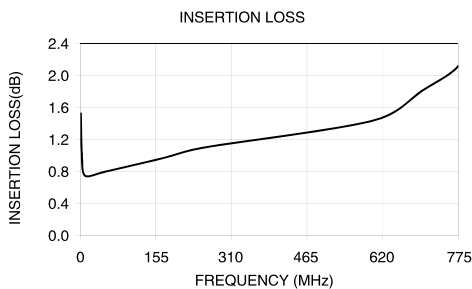


Pin Connections

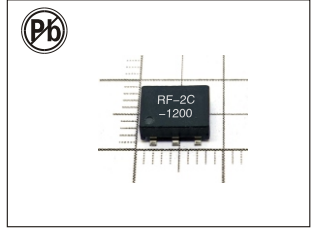
PRIMARY DOT	3
PRIMARY	1
SECONDARY DOT	4
SECONDARY	6
SECONARY CT	5
NOT USED	2

Notes:

- Operating Temperature -20°C to 85°C
- Storage Temperature -55°C to 100°C
- RF Power0.25W
- DC Current30mA



Surface Mount RF Transformer(50 Ω , 20~1200MHz) RF-2C-1200



FEATURES:

- wideband, 20 to 1200 MHz
- balanced transmission line
- excellent amplitude unbalance, 0.3 dB typ. and phase unbalance, 3 deg. typ. in 1 dB bandwidth
- RF power, 2W
- aqueous washable

APPLICATIONS:

- impedance matching
- baluns
- balanced amplifier
- cellular
- VHF

PACKAGING:

- 7" Reel: 20, 50, 100, 200, 500 Devices/Reel
- 13" Reel: 500, 1000 Devices/Reel

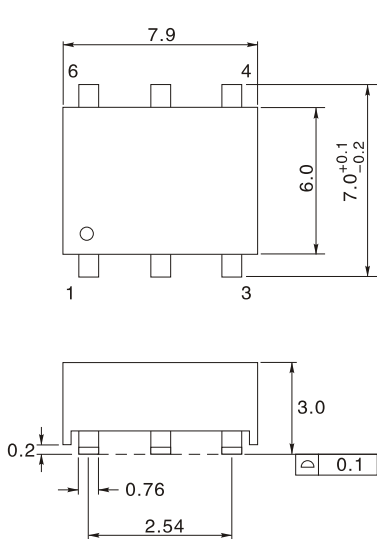
ELECTRICAL CHARACTERISTICS:

Impedance ratio (Ω) Sec : Pri	Frequency range (MHz)	Insertion loss(MHz)			Phase unbalance (Deg.)Typ.		Amplitude unbalance (dB)Typ.	
		3dB	2dB	1dB	1dB bandwidth	2dB bandwidth	1dB bandwidth	2dB bandwidth
1	20~1200	---	20~1200	50~1000	3	4	0.3	0.5

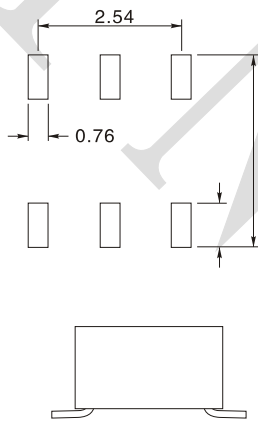
Note: Insertion Loss is referenced to mid-band loss, 0.6 dB typ.

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

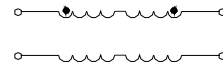
Dimensions(mm)



PCB Land pattern



Schematic

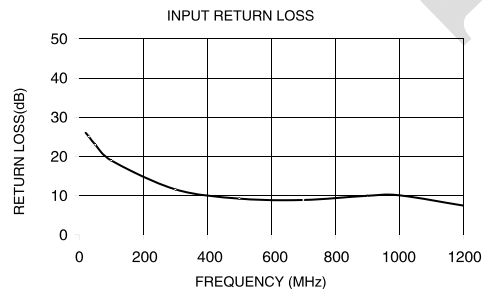


Pin Connections

PRIMARY DOT	1
PRIMARY	3
SECONDARY DOT	6
SECONDARY	4
NOT USED	2,5

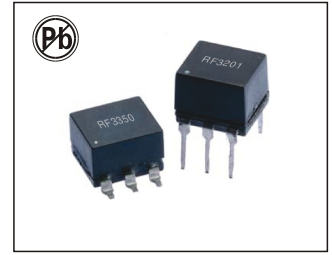
Notes:

- Operating Temperature -20°C to 85°C
- Storage Temperature -55°C to 100°C
- RF Power 2W
- DC Current 30mA



WIDEBAND RF IMPEDANCE MATCHING TRANSFORMERS

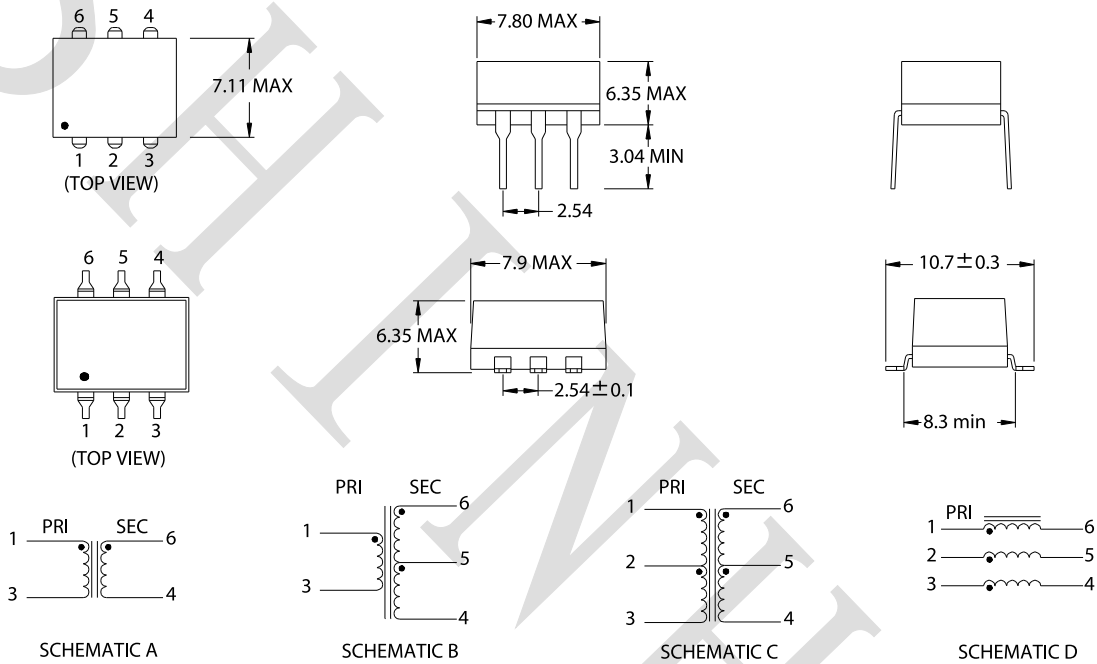
RF32 SERIES



FEATURES:

- Fully encapsulated
- Low leakage inductance, winding capacitance, and D.C. Resistance
- Low profile
- Low insertion loss
- Frequency range 10 kHz to 500 MHz
- Impedance levels from 12.5 Ω to 800 Ω (nominal 50 Ω)
- 6 pin DIP and SMD
- RoHS compliant

PHYSICAL CHARACTERISTICS & WINDING

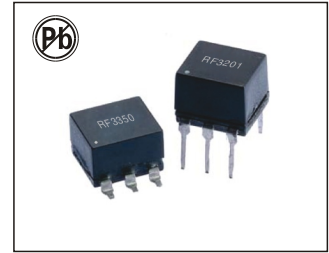


ELECTRICAL CHARACTERISTICS@25°C

Part Number	Turns ratio ± 5%	Pri inductance		Rise time us Max	Leakage inductance uH Max	Cw/w pF Max	DCR Ohms Max 20°C		Bandwidth for -3dB Loss MHz	Pri ET-Constant V-us Min	Schematic Figure
		uH Min	Pulse width us for 50% drop				N1	N2			
RF3201	1:1	80	2.20	2.2	0.15	12	0.20	0.20	0.05~110	2.5	A
RF3202	1ct:1ct	80	2.20	3.0	0.18	15	0.20	0.20	0.05~90	2.5	C
RF3203	1:1ct	80	2.20	3.0	0.18	15	0.20	0.20	0.05~90	2.5	B
RF3204	1:1:1	40	1.10	2.0	0.10	12	0.16	0.16	0.10~150	2.0	D
RF3205	1:2	40	1.10	3.0	0.14	15	0.20	0.30	0.10~110	2.0	A
RF3206	1:2ct	40	1.10	3.0	0.14	15	0.20	0.30	0.10~110	2.0	B
RF3207	1:1.414	80	2.20	4.0	0.30	18	0.20	0.30	0.05~50	2.5	A
RF3208	1:1.414ct	80	2.20	3.0	0.20	18	0.20	0.30	0.05~80	2.5	B
RF3209	1:4	20	0.55	6.0	0.10	10	0.20	0.60	0.20~60	1.25	A
RF3210	1:4ct	20	0.55	6.0	0.10	10	0.20	0.60	0.20~60	1.25	B
RF3211	1ct:1ct	20	2.20	3.0	0.20	15	0.30	0.30	0.05~90	2.5	C
RF3212	2ct:1ct	100	1.10	3.5	0.30	18	0.40	0.40	0.10~110	2.5	C

WIDEBAND RF IMPEDANCE MATCHING TRANSFORMERS

RF33 SERIES



FEATURES:

- Fully encapsulated
- Low leakage inductance, winding capacitance, and D.C. Resistance
- Low profile
- Low insertion loss
- Frequency range 10 kHz to 500 MHz
- Impedance levels from 12.5 Ω to 800 Ω (nominal 50 Ω)
- 6 pin DIP and SMD
- RoHS compliant

ELECTRICAL CHARACTERISTICS@25°C

Part Number	Impedance ratio	Frequency range(MHz)			Schematic Figure
		Insulation Loss 3dB	Insulation Loss 2dB	Insulation Loss 1dB	
RF3350	1:1	0.05~200	0.08~150	0.2~80	B
RF3351	1:1	0.003~300	0.01~150	0.02~50	B
RF3352	2:1	0.07~200	0.1~100	0.5~50	B
RF3353	2.5:1	0.01~100	0.02~50	0.05~20	B
RF3354	3:1	0.05~250	0.1~200	0.5~70	B
RF3355	4:1	0.2~350	0.35~300	2~100	B
RF3356	4:1	0.02~250	0.05~150	0.1~100	B
RF3357	5:1	0.3~300	0.6~200	0.5~100	B
RF3358	8:1	0.03~140	0.1~90	1~60	B
RF3359	13:1	0.3~120	0.7~80	5~20	B
RF3360	16:1	0.03~75	0.06~30	10~20	B
RF3361	1:1	0.15~400	0.35~200	2~50	A
RF3362	1:1	0.01~150	0.02~100	0.005~50	A
RF3363	1.5:1	0.1~300	0.2~150	0.5~80	A
RF3364	1.5:1	0.02~100	0.05~50	0.1~25	A
RF3365	2.5:1	0.01~100	0.02~50	0.05~20	A
RF3366	4:1	0.02~200	0.05~150	0.1~100	A
RF3367	9:1	0.15~200	0.3~150	2~40	A
RF3368	16:1	0.3~120	0.7~80	0.5~20	A
RF3369	36:1	0.03~20	0.05~10	0.1~5	A
RF3370	1:1	0.004~500	0.02~200	0.1~50	C
RF3371	1.5:1	0.075~500	0.2~100	0.1~50	C
RF3372	2.5:1	0.01~50	0.025~25	0.05~10	C
RF3373	4:1	0.05~200	0.2~50	1~30	C
RF3374	25:1	0.02~30	0.05~20	0.1~10	C

Note:

- Designed for use in 50 Ω wideband R.F. and fast rise time pulse applications
- Temperature Range: Operating: 0°C to +70°C
Storage: -25°C to +105°C
- High Potential Test-----200 Vrms
- Insulation Resistance -----10000 MΩ
- All specifications subject to change without notice.

WIDEBAND RF TRANSFORMERS

CM4006 SERIES



FEATURES:

- LCP Base
- High Frequency Design
- Excellent Mechanical Strength
- Excellent Solderability
- High Reliability
- Low Profile

COMMON APPLICATIONS:

- Datalline Noise Suppression
- Communication System
- Automotive Systems
- Liquid Crystal Televisions
- Hard Disk Drives
- Network Systems
- Computer Peripheral Equipment

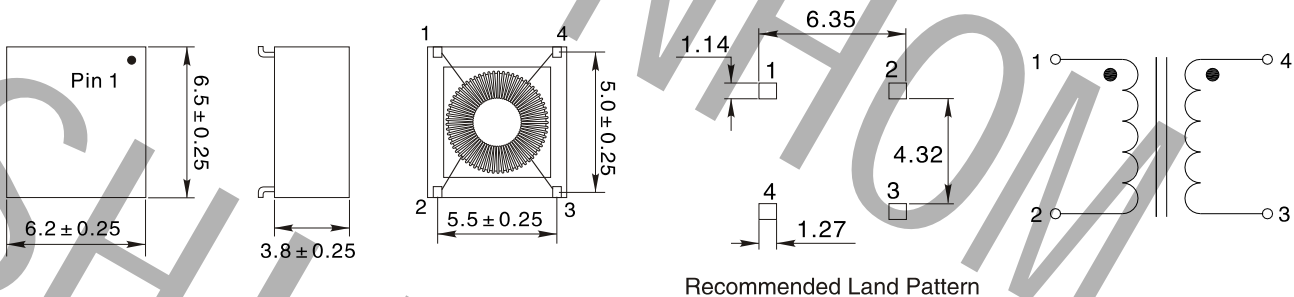
ELECTRICAL CHARACTERISTICS:

Part Number	Impedance ratio pri:sec	Bandwidth MHz	Idc mA	Insertion loss max dB	L(1-2) min uH	Pins1-2 DCR max Ohms	L(4-3) mjin uH	Pins4-3 DCR max Ohms	Typical frequency response		
									3 dB	2 dB	1 dB
CM4006-01	1:1	0.08-450	250	0.60	40	0.070	40	0.070	0.08-450MHz	0.13-325MHz	0.30-190MHz
CM4006-02	1:1.5	0.03-300	250	0.35	110	0.080	160	0.110	0.03-300MHz	0.035-250MHz	0.06-150MHz
CM4006-03	1:2	0.05-200	250	0.25	75	0.088	150	0.120	0.05-200MHz	0.06-160MHz	0.10-100MHz
CM4006-04	1:4	0.15-500	250	0.50	25	0.075	98	0.135	0.15-500MHz	0.24-300MHz	0.60-140MHz
CM4006-05	1:16	0.05-80	250	0.35	75	0.260	1250	0.910	0.05-80MHz	0.06-75MHz	0.11-30MHz
CM4006-06	1:1	0.0035-125	250	0.20	780	0.320	780	0.320	0.0035-125MHz	0.0045-100MHz	0.007-80MHz
CM4006-07	1:1	0.03-250	250	0.20	95	0.200	95	0.200	0.03-250MHz	0.04-225MHz	0.06-200MHz
CM4006-08	1:1.5	0.07-225	250	0.40	51	0.130	80	0.145	0.07-225MHz	0.10-200MHz	0.20-125MHz
CM4006-09	1:4	0.15-400	250	0.40	25	0.115	95	0.160	0.15-400MHz	0.25-350MHz	0.80-250MHz

Note:1. K= ± 10%,M= ± 20%,N= ± 30%

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

DIMENSIONS IN:mm



WINDING:

- Tapped and untapped versions
- 400V interwinding isolation, 1/4 Watt Therefore input power
- 250mA max current rating
- Core material Ferrite
- Terminations RoHS compliant tin-silver-copper over silver-platinum-glass frit. Other terminations available at additional cost.
- Weight 0.37-0.43g
- Ambient temperature -40°C to +85°C.
- Packaging -40°C to +85°C.
- Resistance to soldering heat Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles
- Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30°C/85% relative humidity)
- Mean Time Between Failures (MTBF) 16,666,667 hours
- Packaging 1000 per 13" reel; Plastic tape: 16mm wide, 0.34mm thick, 12mm pocket spacing, 4.83mm pocket depth
- PCB washing Only pure water or alcohol recommended

Note: All specifications subject to change without notice.