RF Transformer For Wideband RF Applications

RF SERIES

FEATURES:

- RoHS peak reflow temperature rating: 245℃
- 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

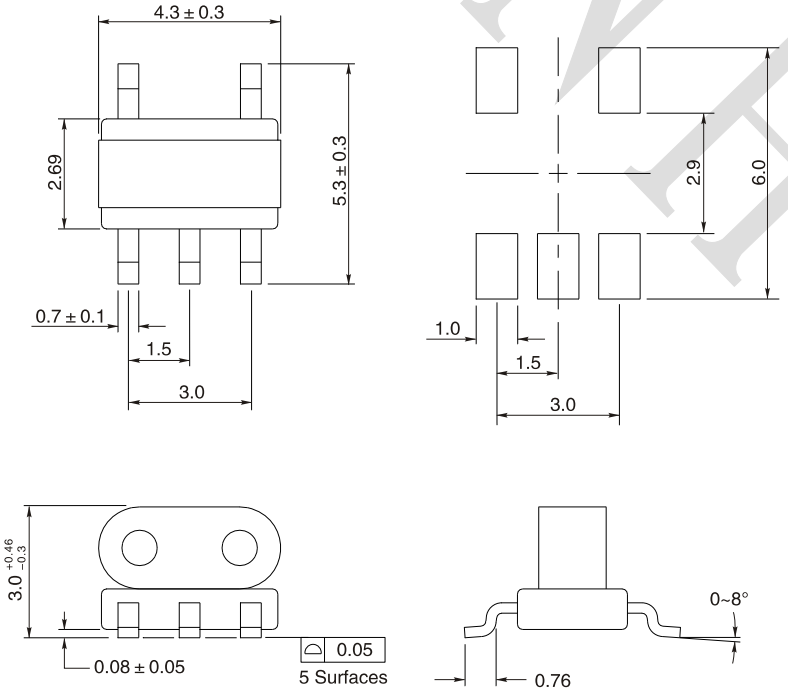
ELECTRICAL CHARACTERISTICS:

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

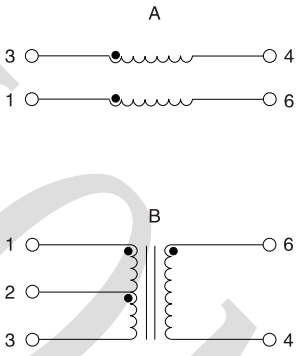
Notes:
1. Impedance and turns ratios are specified primary:secondary. (CT=Center Tap).
2. Bandwidth is referenced to midband loss.
3. These transformers are verified to operate from –40℃ to +85℃. Contact Applications Engineering for performance data.

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

Dimensions(mm)



Schematic

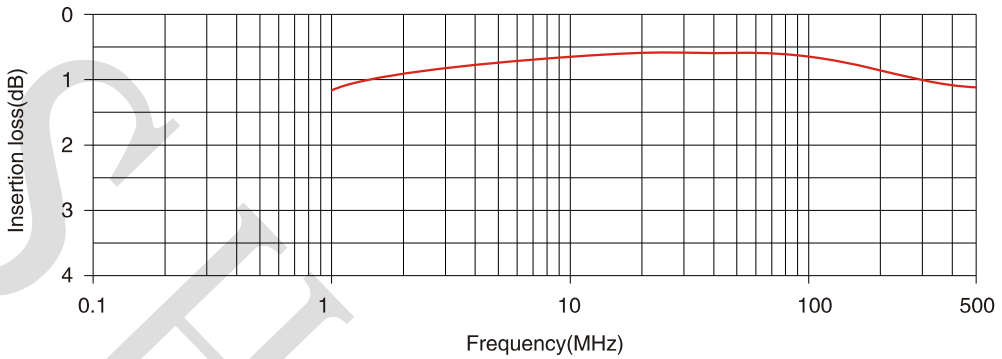


Weight . . . . . 0.43 grams
Tape & Reel . . . . . 2200 /reel
Tray . . . . . 100 /tray

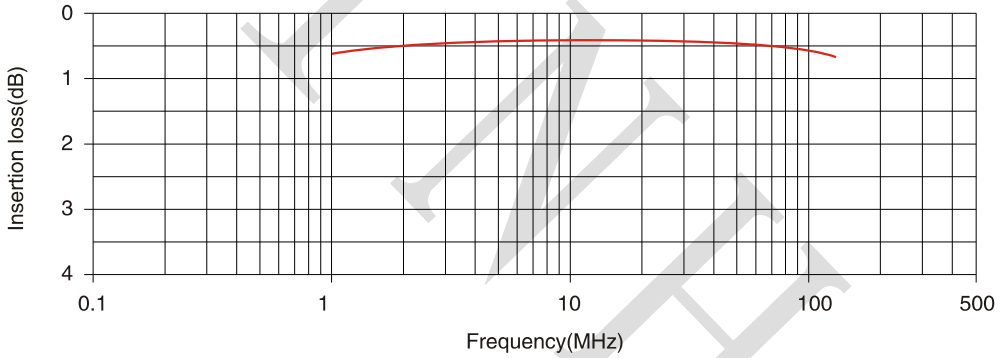
Application Notes:
1. Bandwidth specifications are typical in a 75Ω system.
2. Materials used in the products are UL94–V0 recognized. Products meet requirements of IEC 695–2–2 (Needle Flame Test).
3. For additional impedance ratios and frequency ranges, please contact Applications Engineering.

Typical insertion loss:

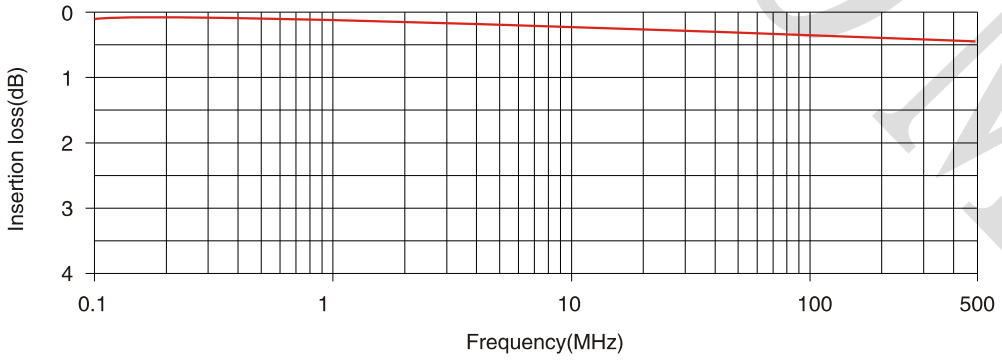
RF-2078



RF-2081

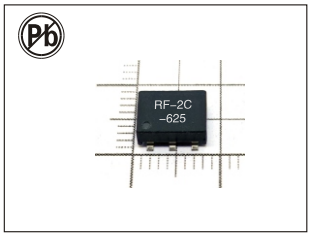


RF-2156



Surface Mount RF Transformer(50Ω，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

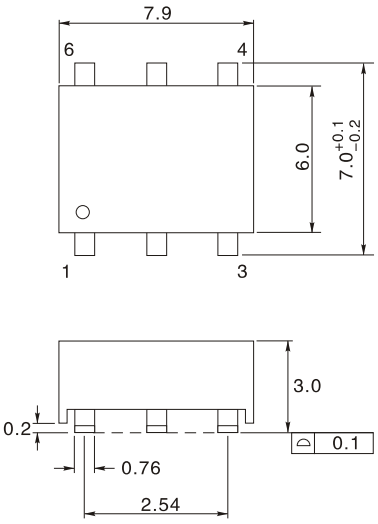
ELECTRICAL CHARACTERISTICS:

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

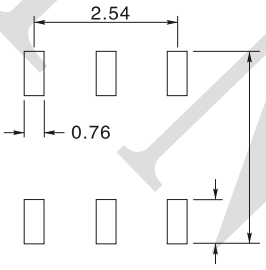
Note:Insertion Loss is referenced to mid–band loss, 0.55 dB typ.

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

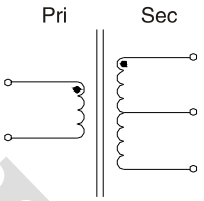
Dimensions(mm)



PCB Land pattern



Schematic

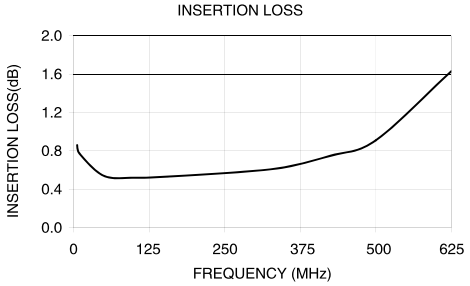


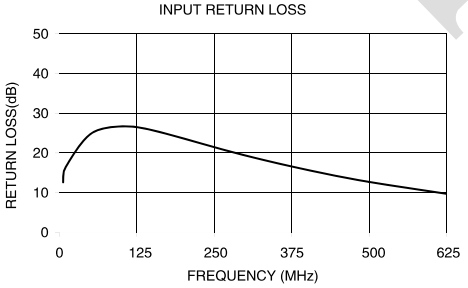
Pin Connections

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

Notes:

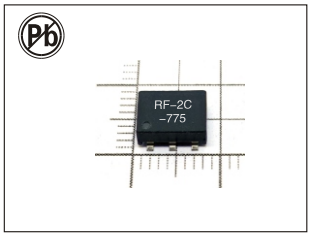
Operating Temperature ..... –20℃ to 85℃
Storage Temperature ..... –55℃ to 100℃
RF Power 1W
DC Current 30mA





Surface Mount RF Transformer(50Ω , 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

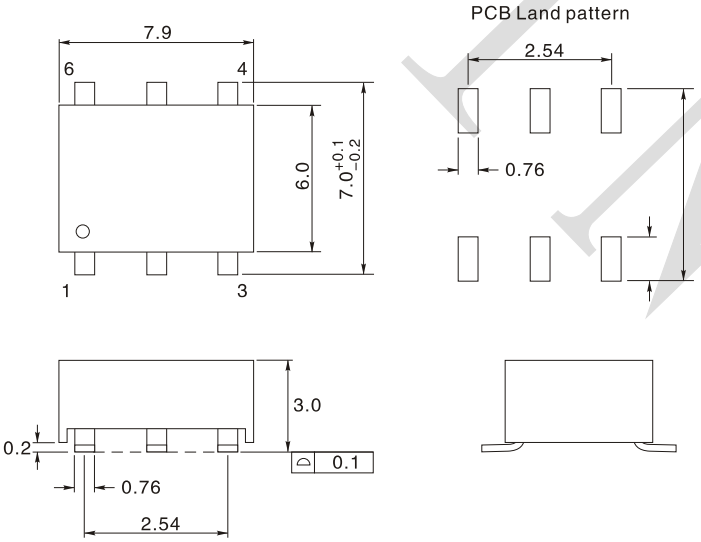
ELECTRICAL CHARACTERISTICS:

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

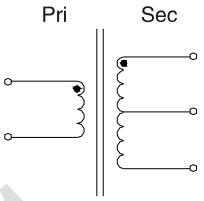
Note:Insertion Loss is referenced to mid–band loss, 0.8 dB typ.

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

Dimensions(mm)



Schematic



Pin Connections

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

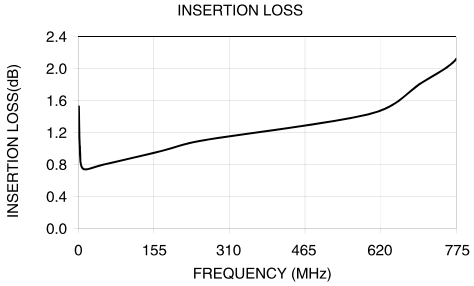
Notes:

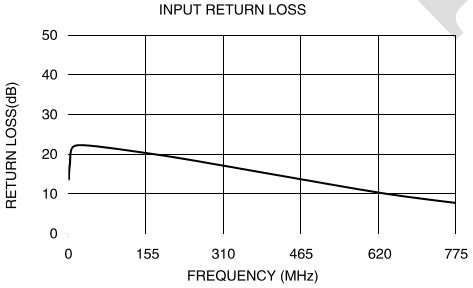
Operating Temperature ..... –20℃ to 85℃

Storage Temperature ..... –55℃ to 100℃

RF Power 0.25W

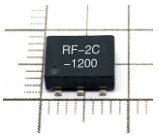
DC Current 30mA





Surface Mount RF Transformer(50Ω，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, 200,500Devices/Reel
- 13″ Reel: 500, 1000 Devices/Reel

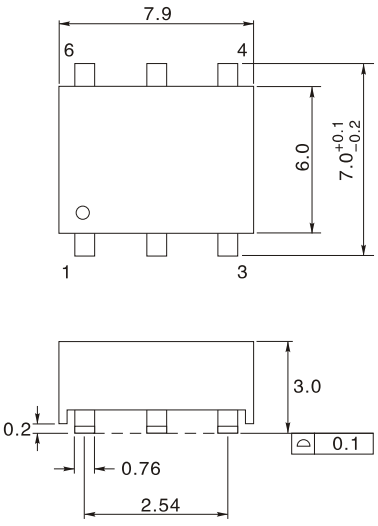
ELECTRICAL CHARACTERISTICS:

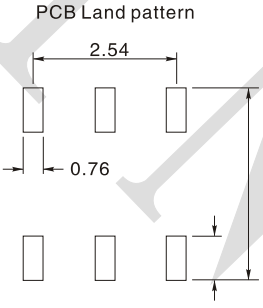
Impedance ratio (Ω) Sec : Pri	Frequency range (MHz)	Insertion loss(MHz)			Phase unbalance (Deg.)Typ.		Amplitude unbalance (dB)Typ.	
		3dB	2dB	1dB	1dB bandwidth	2dB bandwidth	1dB bandwidth	2dB bandwidth
1	20~1200	---	20~1200	50~1000	3	4	0.3	0.5

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

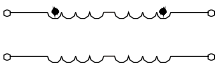
TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

Dimensions(mm)





Schematic



Pin Connections

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

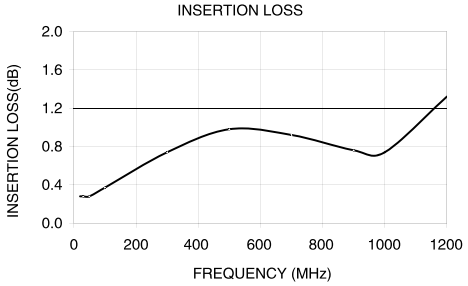
Notes:

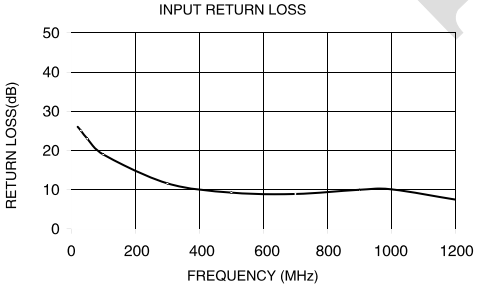
Operating Temperature ..... –20℃ to 85℃

Storage Temperature ..... –55℃ to 100℃

RF Power 2W

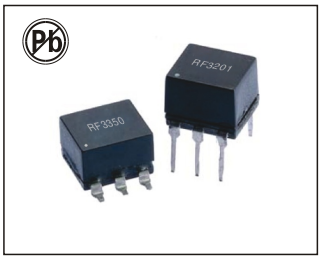
DC Current 30mA





WIDEBAND RF IMPEDANCE MATCHING TRANSFORMERS

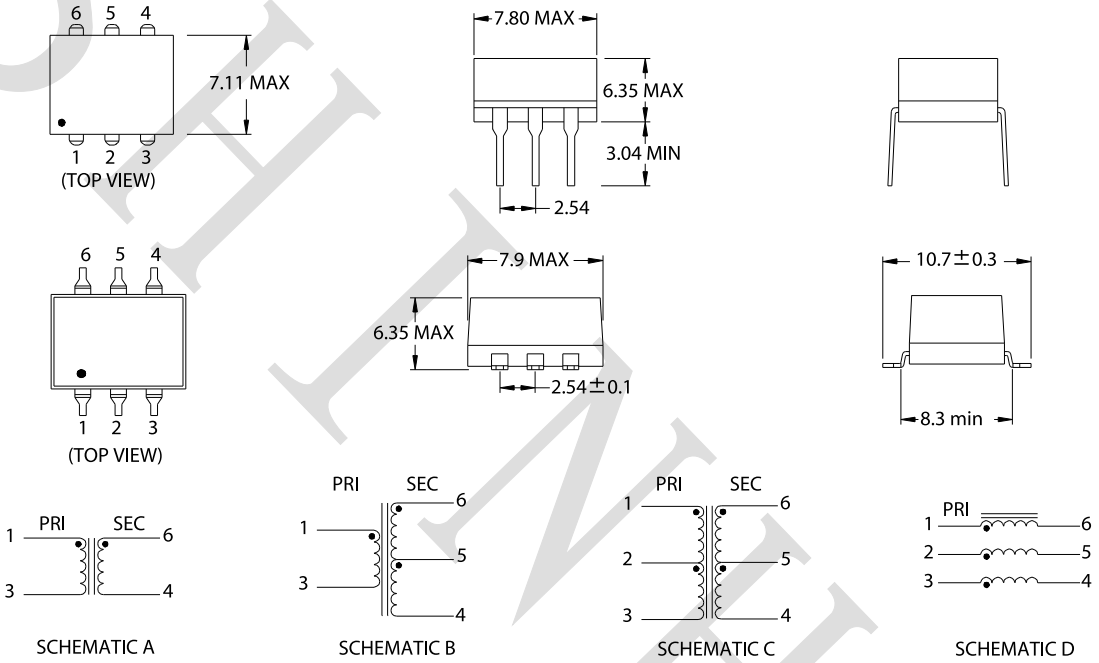
RF32 SERIES



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 12.5Ω to 800Ω(nominal 50Ω)
- 6 pin DIP and SMD
- RoHS compliant

PHYSICAL CHARACTERISTICS & WINDING

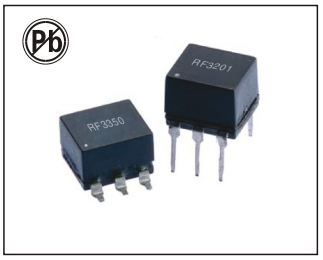


ELECTRICAL CHARACTERISTICS@25℃

Part Number	Turns ratio ±5%	Pri inductance		Rise time us Max	Leakage inductance uH Max	Cw/w pF Max	DCR Ohms Max 20℃		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 12.5Ω to 800Ω(nominal 50Ω)
- 6 pin DIP and SMD
- RoHS compliant

ELECTRICAL CHARACTERISTICS@25℃

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 50Ω wideband R.F. and fast rise time pulse applications
- Temperature Range: Operating: 0℃ to +70℃
  Storage:–25℃to +105℃
- 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:

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

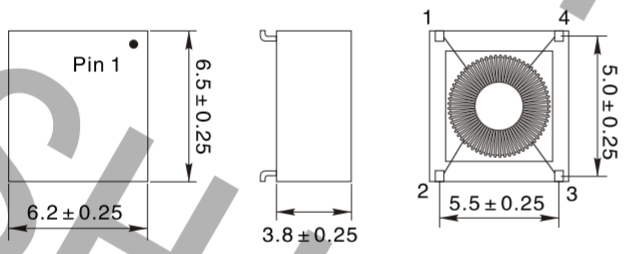
ELECTRICAL CHARACTERISTICS:

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) min 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

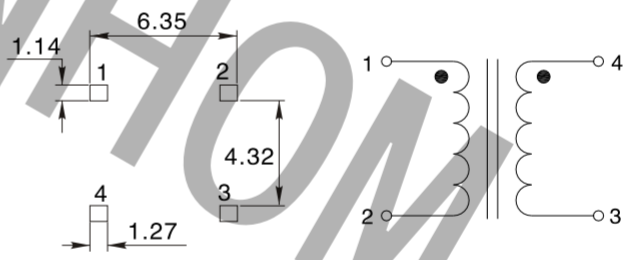
Note:1. K= ± 10%,M= ± 20%,N= ± 30%

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

DIMENSIONS IN:mm



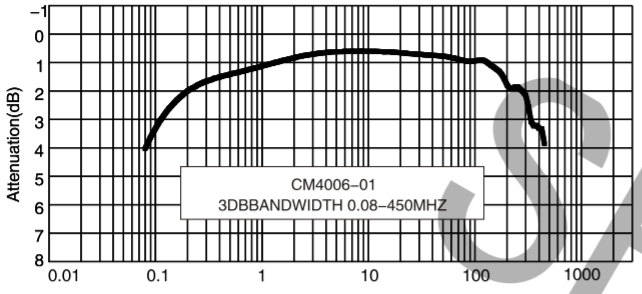
WINDING:

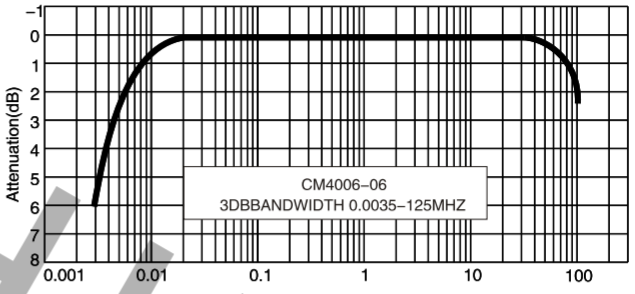


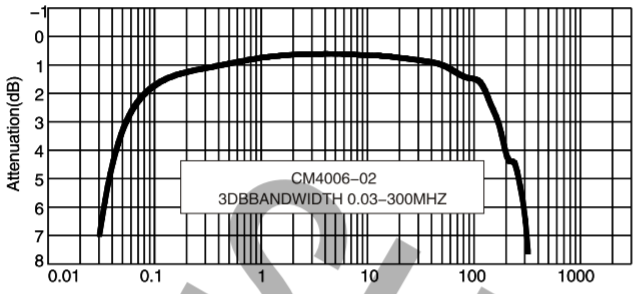
Recommended Land Pattern

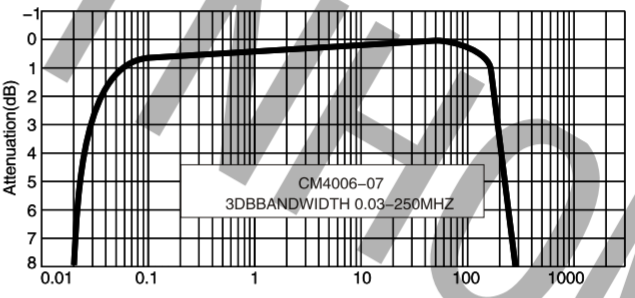
- Tapped and untapped versions
- 400V interwinding isolation,1/4 Watt Therefore input power
- 250mA max current rating
- Core material Ferrite
- Terminations RoHS compliant tin–silver–vopper over silver–platinum–glass frit.Other terminations available at additional cost.
- Weight 0.37–0.43g
- Ambient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

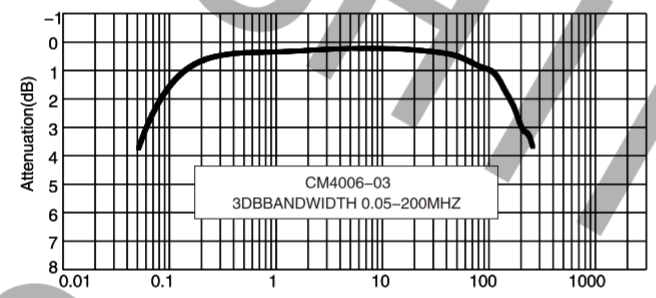
Note:All specifications subject to change without notice.

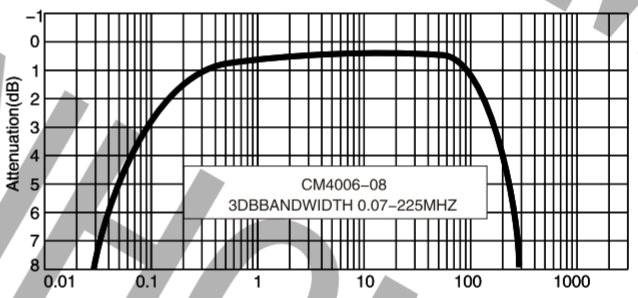

Attenuation(dB)
CM4006-01
3DBBANDWIDTH 0.08-450MHZ

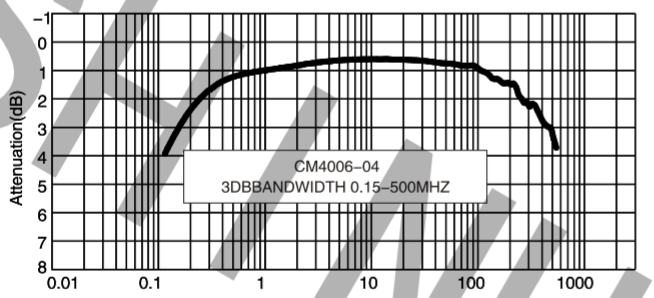

Attenuation(dB)
CM4006-06
3DBBANDWIDTH 0.0035-125MHZ

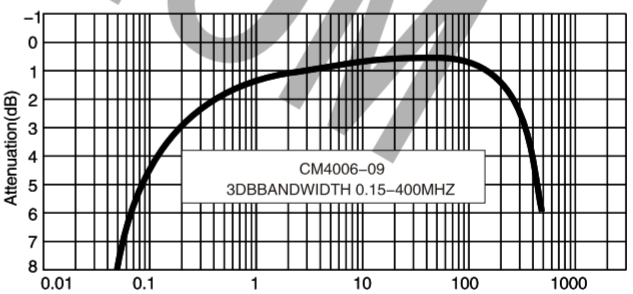

Attenuation(dB)
CM4006-02
3DBBANDWIDTH 0.03-300MHZ

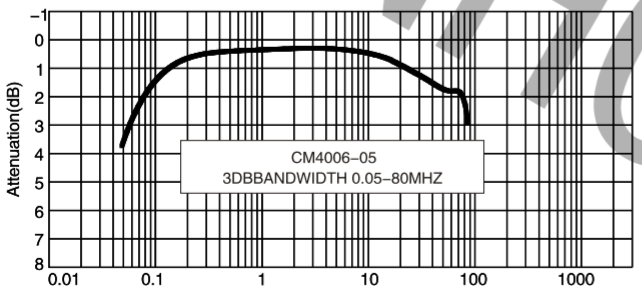

Attenuation(dB)
CM4006-07
3DBBANDWIDTH 0.03-250MHZ


Attenuation(dB)
CM4006-03
3DBBANDWIDTH 0.05-200MHZ


Attenuation(dB)
CM4006-08
3DBBANDWIDTH 0.07-225MHZ


Attenuation(dB)
CM4006-04
3DBBANDWIDTH 0.15-500MHZ


Attenuation(dB)
CM4006-09
3DBBANDWIDTH 0.15-400MHZ


Attenuation(dB)
CM4006-05
3DBBANDWIDTH 0.05-80MHZ