

SMD2781 Line matching transformer



Description:

The SMD2781 is a micro-surface transformer for applications that require high performance and safe isolation to international standards at extremely small, housing sizes.

This part complies with RoHS Directive 2002-95-EC and is suitable for lead-free and conventional placement and reflow. Despite the very small size, the performance is comparable to that of much larger components.

The SMD2781 provides enhanced insulation and is ideal for high data rate data communications. Can be matched with 600Ω and complex impedance telephone lines. Water at medium emission power At flat (e.g. -10dBm), performance of V.32bis can be achieved.

In instrumentation applications, the SMD2781 provides a wideband frequency response from 50Hz to 40kHz.

Features:

- *Lead-free (Pb-free)
- *Surface Mount
- *Vacuum encapsulated
- *Height 7mm

Applications:

- * Telecommunications
- * V.22/V.32 Modems
- * Portable computers
- * Appearance

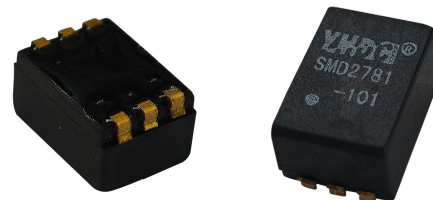
Electrical parameters: The following parameters are typical values. The actual values shall be subject to the actual measurement of the product

Parameter	Conditions	Minimum value	Typical value	Maximum value	Unit
Insertion loss	f=2KHz, $R_L=600\Omega$	-	-	2.0	dB
	f=2KHz, $R_L=430\Omega$	-	-	4.0	dB
Frequency response	-3dB LF cutoff	-	50	-	Hz
	-3dB HF cutoff	-	40	-	KHz
	200Hz-4KHz	-	-	±0.2	dB
Return loss	200Hz-4KHz	18	-	-	dB
Distortion	f=450Hz 0dBm inline 0dBm 3rd Harmonic	-	-60	-54	dBm
Balance	DC-5KHz Method TG25	80	-	-	dB
Saturation	Excitation 50Hz 250Vrms	-	-	10	Vrms
	Output voltage across lime	-	-	65	Vpeak
Voltage isolation	DC-5KHz Method TG25	3.88 5.5	3.88	3.88	KVrms KV
Operating temperature	Ambient temperature	-25	-	+85	°C
Storage temperature		-40	-	+125	°C
Humidness		-	-	95	%R.H.

Lumped equivalent circuit parameters are shown in the figure on the right:

Dc resistance RDC	Main winding	205	-	245	Ω
Leakage inductance ΔL		4.2	-	4.9	mH
Shunt inductance LP	10mV 200Hz	1.4	-	3.5	H
	10mV 1KHz	-	1.8	-	H
Shunt loss RP	10mV 200Hz	5	-	15	KΩ
	10mV 1KHz	-	10	-	KΩ

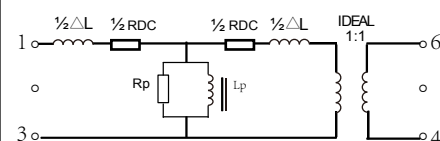
Product picture printing is for reference only, subject to the actual product



Notes:

1. Third harmonics are usually 20dB higher than other harmonics.
2. The components are 100% tested at 6.5 kVDC
3. Note: Do not let DC pass through the winding. Telephone line electricity The current must be protected by a choke or semiconductor line Hold the circuit for shunt.
4. When the signal level is greater than 100mV, L_p will increase. R_p will drop slightly, but the effect is usually favorable back Wave loss characteristics.

Equivalent circuit:

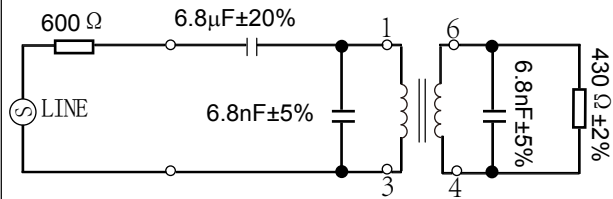


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600Ω matching circuit:

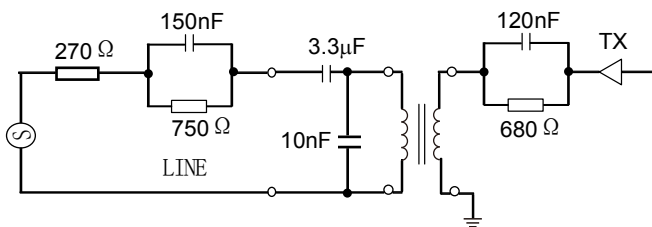
Recommended circuit:



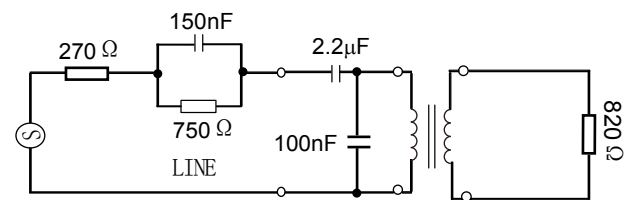
If the return loss is $> 16\text{dB}$, 300Hz-4KHz is acceptable and the blocking capacitance is acceptable Relax to $4.7\mu\text{F}$

European CTR21 composite matching circuit:

Recommended circuit:

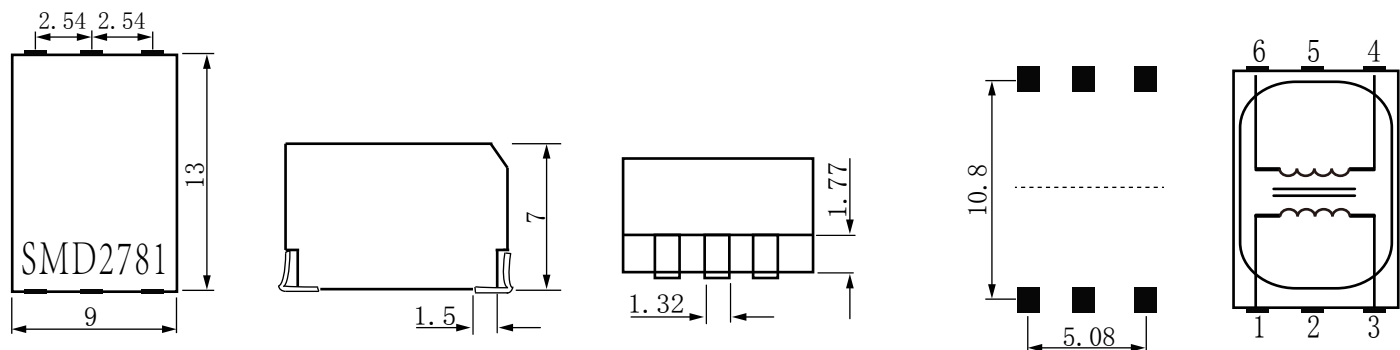


Recommended circuit:



This circuit has good TX and RX flatness ($\pm 0.3\text{dBm}$ 200Hz-4kHz).
Another arrangement, utilizing an existing PCB site, is shown on the right.
But please note, The TX flatness decreases as the topology changes.

Dimensions: (in:mm±0.3):



Security:

Manufactured from materials conforming to flammability requirements of UL94V-0.
Distance through reinforced insulation 0.4mm minimum.

Creepage and clearances in circuit are 7mm minimum where PCB pads do not exceed 3mmØ.
250Vrms maximum working voltage.

Welding (reflow soldering) precautions:

Welding temperature: $\leq 260^\circ\text{C}$

Welding time: $\leq 10\text{s}$