

HIGH FREQUENCY MAGNETICS

Through Hole Wideband Signal Splitter

TM00151

- Through hole, equal-ratio 3-port hybrid transformer designed for both analog and digital applications requiring signal splitting or combining
- Extremely wide frequency response
- Very fast rise time
- Operating temperature range -40° C to +85° C
- Meets IEC 695, 2-2 flammability requirements
- PWB Process Capability: standard printed wiring board assembly techniques, total-immersion cleaning
- Reliability testing: shock, vibration, temperature cycling, temperature - humidity - bias

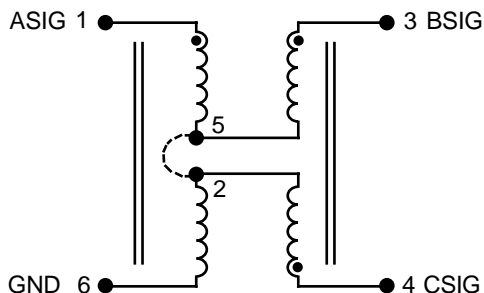
ELECTRICAL SPECIFICATIONS at 25° C

Part Number	Impedance Ratio	Nominal Signal Split dB	3dB Bandwidth typ	Pulse Rise Time ns typ
	(1-6) : (3-6) + (4-6)	(1-6) to (3-6) (1-6) to (4-6)	(1-6) to (3-6) (1-6) to (4-6)	
2689J2	75Ω : 75Ω + 75Ω	3.0	20 kHz - 800 MHz	0.5

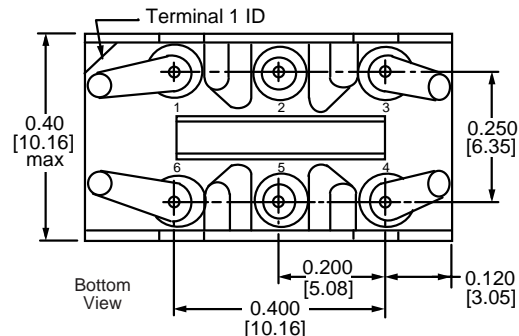
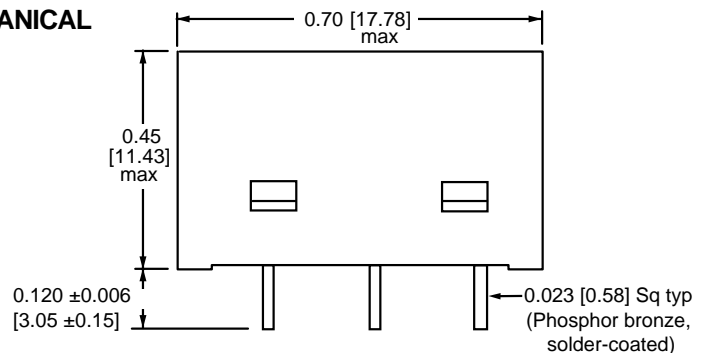
Return Loss (RL) typ			Transhybrid Loss (THL) typ		
Port	RL>20 db	RL>30 db	Port	THL>20 db	THL>30 db
A	100 kHz - 500 MHz	400 kHz - 200 MHz	B to C	100 kHz - 800 MHz	300 kHz - 500 MHz
B	200 kHz - 500 MHz	2 MHz - 300 MHz			
C	200 kHz - 500 MHz	2 MHz - 300 MHz			

Port A = ASIG to GND
 Port B = BSIG to GND
 Port C = CSIG to GND

SCHEMATIC



MECHANICAL



Unless otherwise specified, dimensions are nominal and in inches (millimeters).

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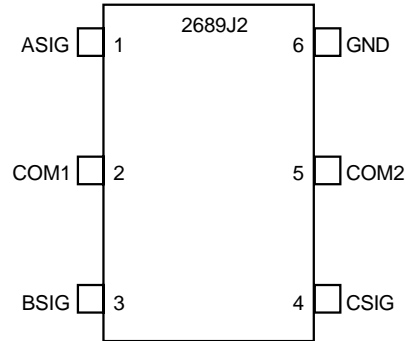
APPLICATIONS NOTES

The 2689J2 hybrid transformer operates with 75Ω terminations over an extremely wide frequency spectrum (3 dB response: 20 kHz to 800 MHz). It can also be used as a pulse transformer with very fast pulses (typical rise time: 0.5 ns). The 2689J2 operates as either a signal splitter or a signal combiner. As a signal splitter, the transformer provides two identical output signals (which are in phase with each other) from a single input. Each of the two output signals is 3 dB down from the input signal (half the power of the input signal). There is a high degree of separation or transhybrid loss between the two output signals. As a signal combiner, the transformer provides a single output signal from two identical input signals (which are in phase with each other). The output signal has twice the power of either input signal.

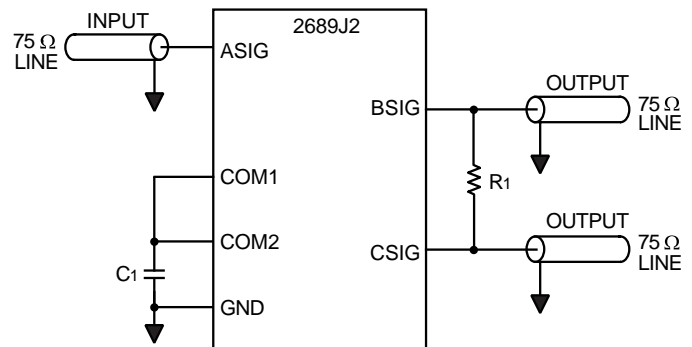
PIN DESCRIPTIONS AND TERMINATIONS

Pin	Symbol	Name and Function
1	ASIG	A signal. Input for splitter configuration. Output for combiner application.
2	COM1	Common point of transformer 1. Must be connected externally to COM2.
3	BSIG	B signal. Output for splitter configuration. Input for combiner application.
4	CSIG	C signal. Output for splitter configuration. Input for combiner application.
5	COM2	Common point of transformer 2. Must be connected externally to COM1.
6	GND	Ground. Connect to circuit ground.
	R1	162Ω external resistor.
	C1	7 pF external capacitor.

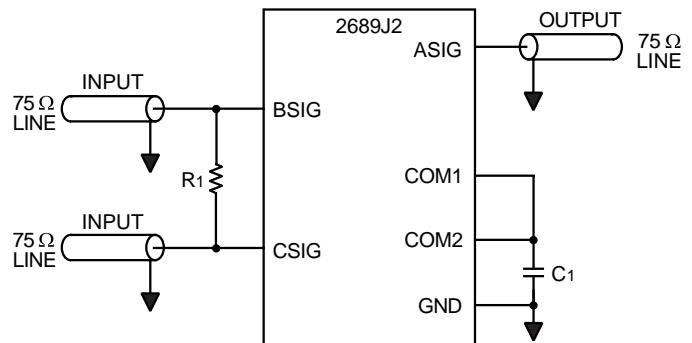
PIN DIAGRAM



SIGNAL SPLITTER



SIGNAL COMBINER



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