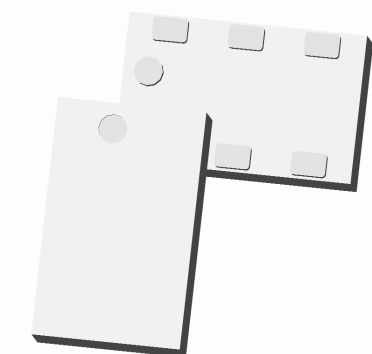




Ultra Low Profile 0805 Power Divider 3 Way 50Ω to 50Ω



Description:

The PD4955J5050S3HF is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package and is ideal for high volume manufacturing while delivering higher performances than traditional printed and lumped element solutions. It is designed particularly for LTE/4G/5G wireless communication applications. The PD4955J5050S3HF is matched to 50 Ω and has a height profile of 0.81 mm. Three external resistors are required for operation. Components are available on tape and reel for high volume manufacturing pick and place.

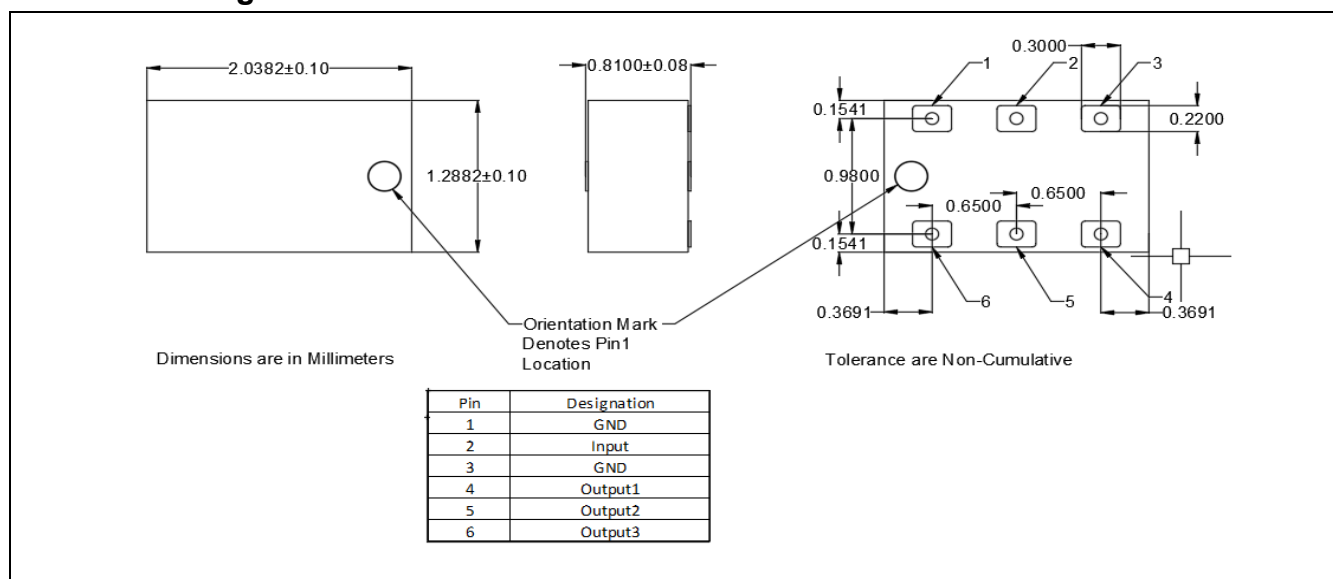
Detailed Electrical Specifications:

Specifications subject to change without notice.

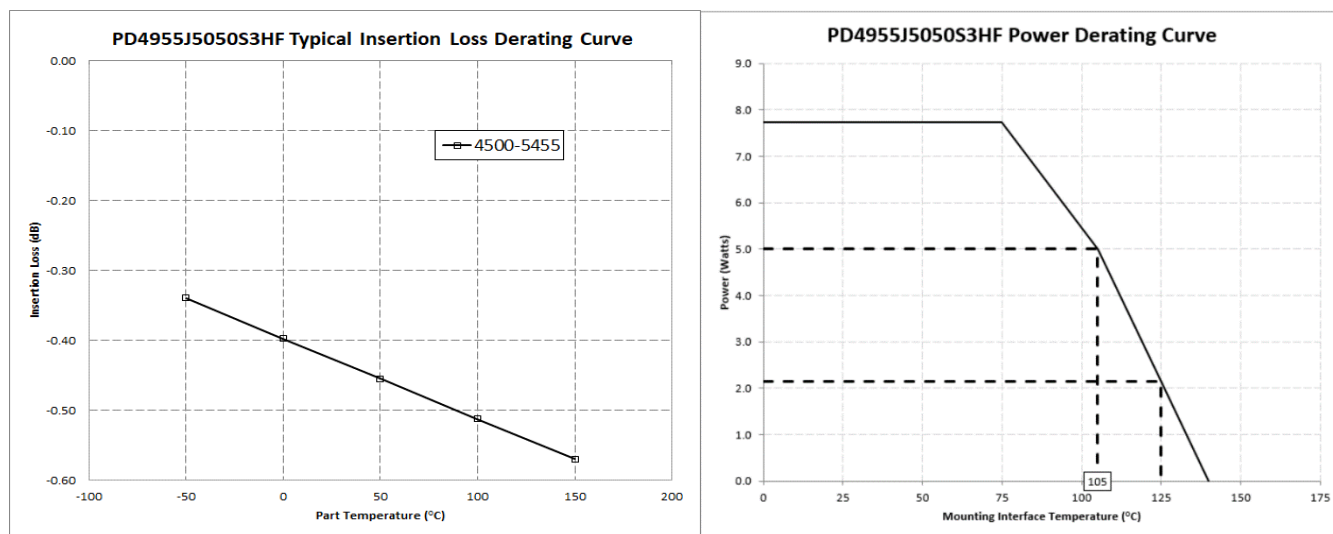
		ROOM (25°C)						Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Features: <ul style="list-style-type: none"> 4500-5455MHz 0.81 mm Height Profile 50Ω Outputs/Inputs DCS/PCS/UMTS/CDMA External resistors required Low Insertion Loss Surface Mountable Tape & Reel Non-conductive Surface RoHS Compliant Halogen Free 	Parameter	4500		5100	4905		5455	MHz
	Frequency							
	Input Port Impedance		50			50		Ω
	Output Port Impedance		50			50		Ω
	Return Loss	14			14			dB
	Insertion Loss*			0.6			0.6	dB
	Amplitude Balance			±0.5			±0.6	dB
	Phase Balance			±4			±4	Degrees
	Isolation (Output Ports)	16			16			dB
	Power Handling		5			5		Watts@105°C
	Operation Temperature	-55		+140	-55		+140	°C

*Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 °C)

Outline Drawing:



Insertion Loss and Power Derating Curves



Insertion Loss Derating:

The insertion loss, at a given frequency of a group of power divider is measured at 25°C and then averaged. The measurement are performed under small signal conditions (i.e using a Vector Network Analyzer). The process is repeated at -55°C, 105°C and 140°C. A best-fit line for the measured data is compared and then plotted from -55°C to 140°C.

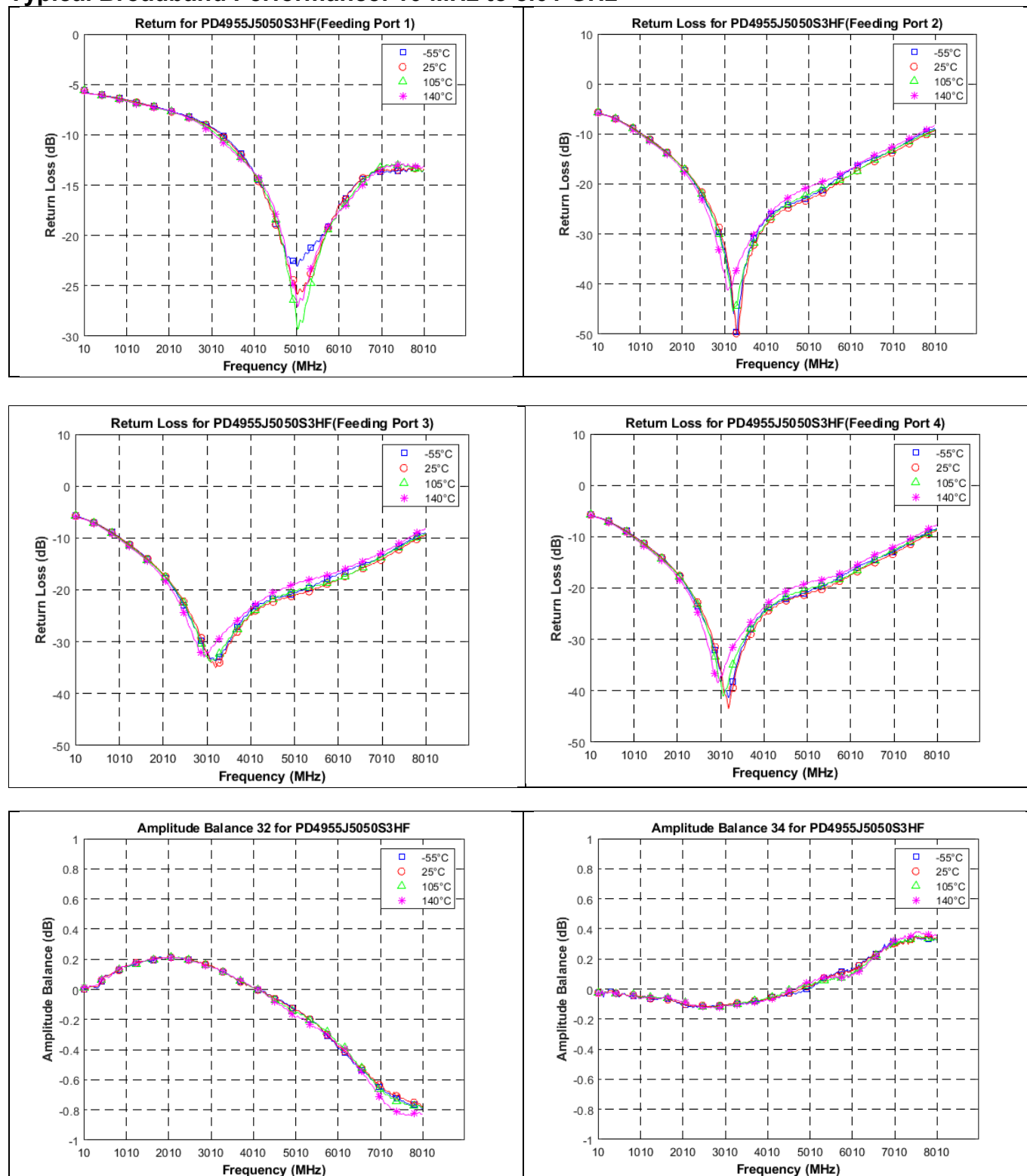
Power Derating

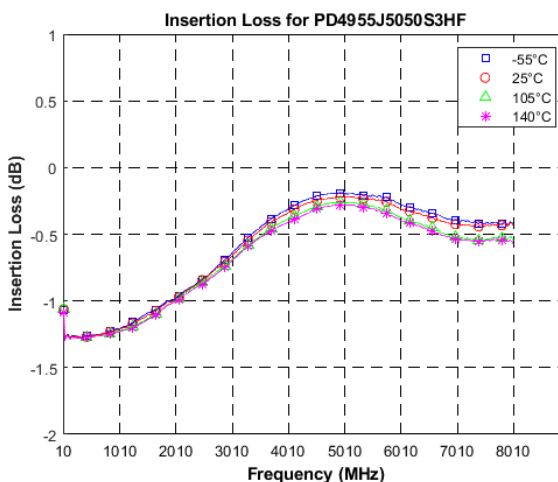
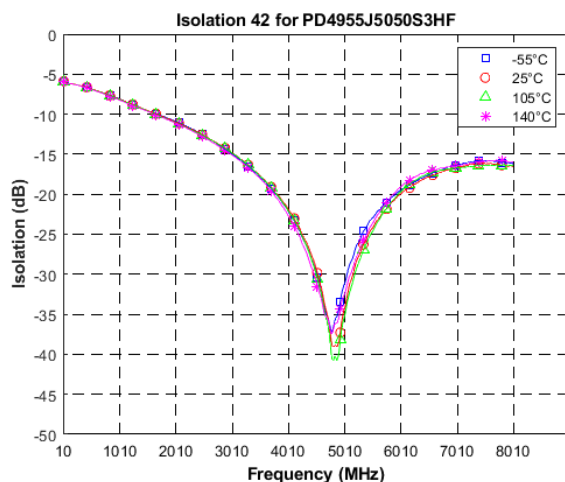
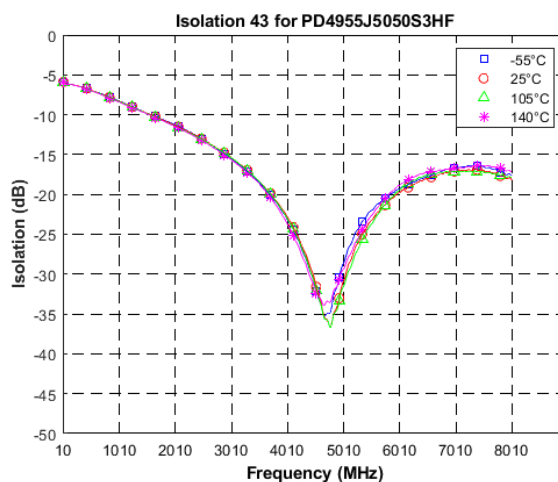
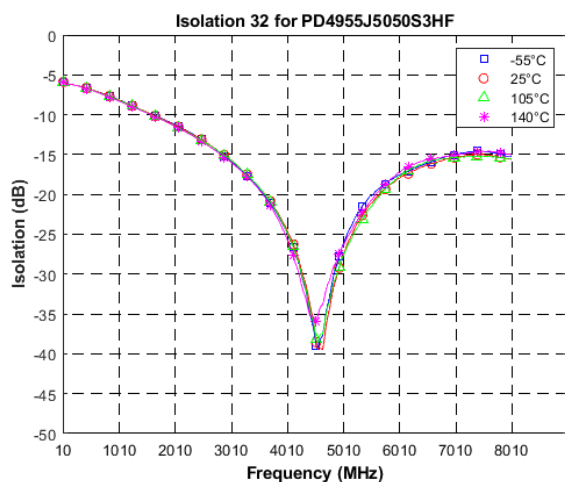
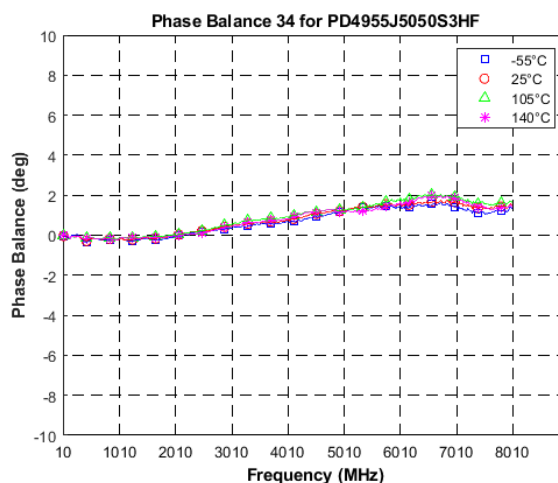
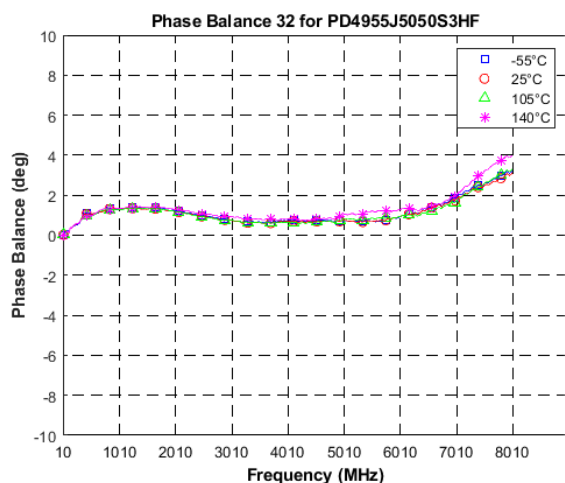
The power handling and corresponding power derating plots are a function of the thermal resistance, mounting surface temperature (base plate temperature), maximum continuous operating temperature of the coupler, and the thermal insertion loss. The thermal insertion loss is defined in the Power Handling section of the data sheet.

As the mounting interface temperature approaches the maximum continuous operating temperature, the power handling decreases to zero.

If mounting temperature is greater than 105°C, Power divider will perform reliably as long as the input power is derated to the curve above.

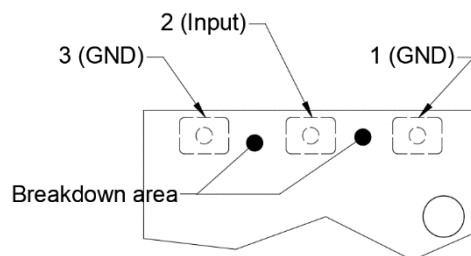
Typical Broadband Performance: 10 MHz to 8.01 GHz





Peak Power Handling

High-Pot testing of these components during the qualification procedure resulted in a minimum breakdown voltage of 1Kv (minimum recorded value). This voltage level corresponds to a breakdown resistance capable of handling at least 12dB peaks over average power levels, for very short durations. The breakdown location consistently occurred across the pads and the ground pads (see illustration below). The breakdown levels at these points will be affected by any contamination in the gap area around these pads. These areas must be kept clean for optimum performance. It is recommended that the user test for voltage breakdown under the maximum operating conditions and over worst case modulation induced power peaking. This evaluation should also include extreme environmental conditions (such as high humidity).



Mounting:

In order for Xinger surface mount components to work optimally, there must be 50Ω transmission lines leading to and from all of the RF ports. Also, there must be a very good ground plane underneath the part to ensure proper electrical performance. If either of these two conditions is not satisfied, electrical performance may not meet published specifications.

Overall ground is improved if a dense population of plated through holes connect the top and bottom ground layers of the PCB. This minimizes ground inductance and improves ground continuity. All of the Xinger components are constructed from ceramic filled PTFE composites, which possess excellent electrical and mechanical stability.

Xinger components are compliant to a variety of ROHS and Green standards and ready for Pb-free soldering processes. Pads are Gold plated with a Nickel barrier.

When a surface mount component is mounted to a printed circuit board, the primary concerns are; ensuring the RF pads of the device are in contact with the circuit trace of the PCB and insuring the ground plane of neither the component nor the PCB is in contact with the RF signal.

Refer to the Mounting Configuration below for details.

Mounting Configuration:

In order for Xinger surface mount components to work optimally, the proper impedance transmission lines must be used to connect to the RF ports. If this condition is not satisfied, insertion loss, Isolation and VSWR may not meet published specifications.

Below is a suggested PCB footprint can be used for PD4955J5050S3HF. Since PD4955J5050S3HF is a Wilkinson power divider, external 0402 150Ω resistors must be used to provide the Isolation performance.

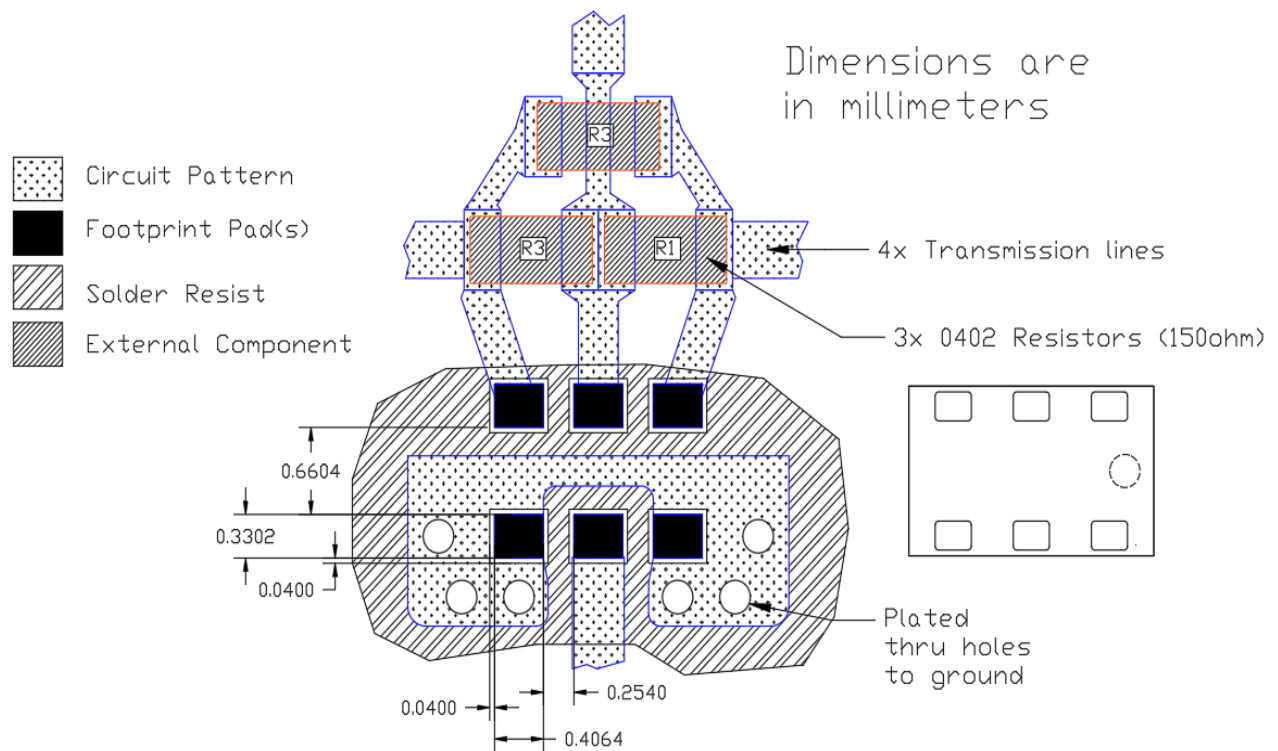


Figure 1: Suggested Pad Footprint with 0402 Resistor Locations

Packaging and Ordering Information

Parts are available in reel and are packaged per EIA 481-D. Parts are oriented in tape and reel as shown below. Minimum order quantities are 4000 per reel.

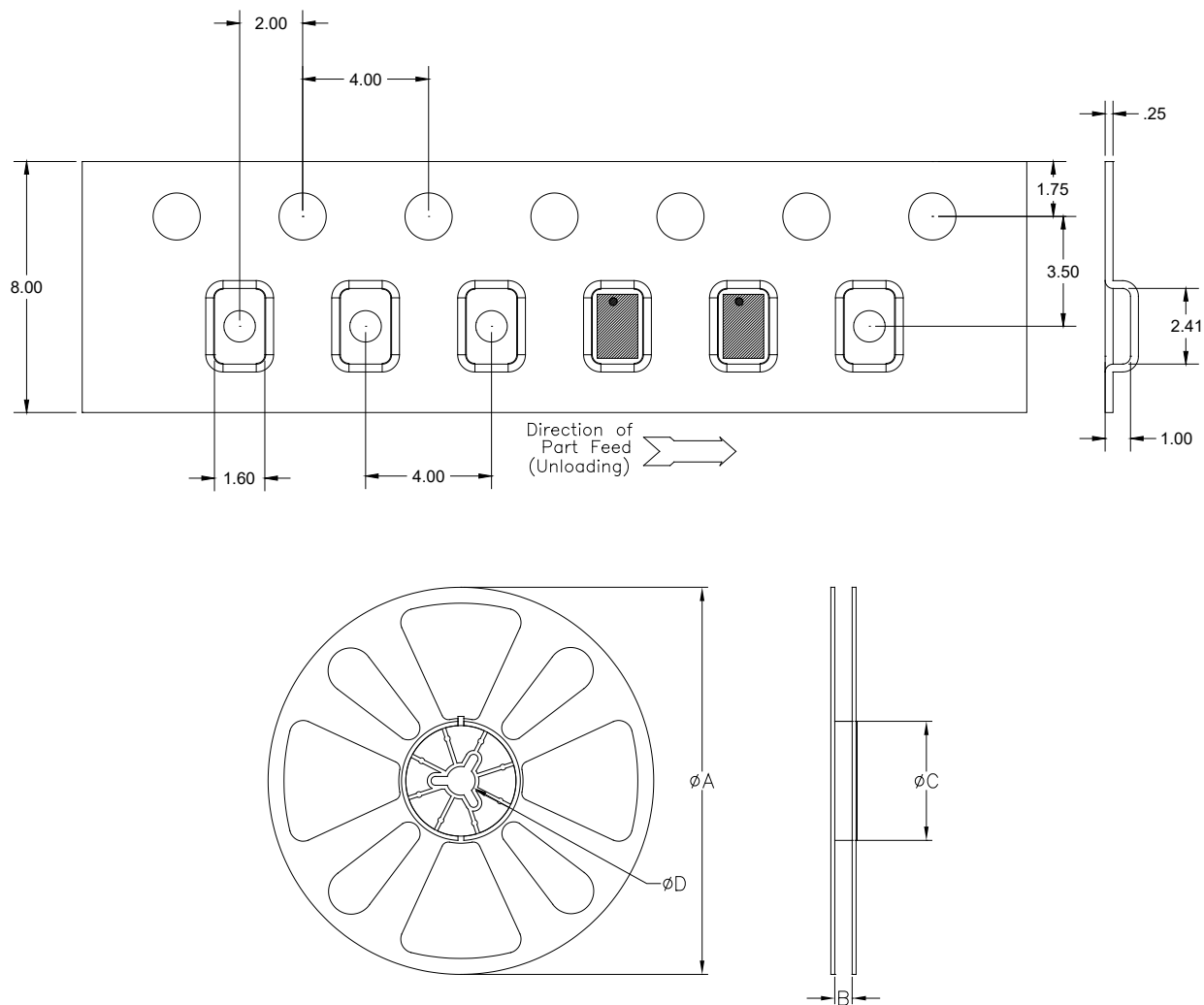


TABLE 1		
QUANTITY/REEL	REEL DIMENSIONS mm	
4000	ϕA	177.80
	B	8.00
	ϕC	50.80
	ϕD	13.00

Contact us:
rf&s_support@ttm.com